NOTE: Interested persons, members of the public, and the media are welcome to attend at the location stated above. The Board will make reasonable accommodations for persons with disabilities who wish to participate in this meeting. Please contact the Board Secretary by telephone or by e-mail at Lindsay.Ford@mt.gov no later than 24 hours prior to the meeting to advise her of the nature of the accommodation needed.

9:00 AM

I. ADMINISTRATIVE ITEMS

A. REVIEW AND APPROVE MINUTES

1. The Board will vote on adopting the August 10, 2018, meeting minutes.

II. BRIEFING ITEMS

A. CONTESTED CASE UPDATE

1. Enforcement cases assigned to the Hearing Examiner

   a. In the matter of the Notice of Appeal and Request for Hearing by CMG Construction, Inc. Regarding Notice of Violations and Administrative Compliance and Penalty Order, Docket No. OC-17-12, BER 2017-08 OC. On April 12, 2018 hearing examiner Clerget issued a Scheduling Order in this case. On July 20, 2018 the parties requested a stay in the proceeding due to settlement negotiations. On July 23, 2018, Ms. Clerget issued an Order granting the stay and requiring the parties to file joint status reports every 30 days until the case is settled. On August 20, 2018, the parties filed a joint status report stating that the technical experts in this case have met and DEQ is in the process of reviewing CMG’s scope of work in regard to remediation. The parties further stated once the technical details associated with the remediation plan are completed, their agreement will be reduced to an Administrative Order on Consent and CMG will file a Notice of Dismissal.

   b. In the matter of violations of the Water Quality Act by Reflections at Copper Ridge, LLC, at Reflections at Copper Ridge Subdivision, Billings, Yellowstone County (MTR105376), BER 2015-01 WQ and In the matter of violations of the Water Quality Act by Copper Ridge Development Corporation at Copper Ridge Subdivision, Billings, Yellowstone County (MTR105377), BER 2015-02 WQ. On July 16, 2018, Ms. Clerget issued her Proposed Findings of Fact Conclusions of Law and a separate order on exceptions. The parties requested an extension of time until September 17, 2018 in which to submit their exceptions to the Proposed Order. Copper Ridge has filed an exceptions brief and DEQ has until October 31, 2018 to respond. This matter will be fully briefed and before the Board for decision at its December meeting.
c. In the Matter of Appeal Revocation of Cosa, Fischer Land Development Subdivision [ES# 42-78-S3-173] and Fischer Homes [ES# 42-80-T1-15], Roger Emery, Sidney, Richland County, Montana. [FID# 2214], BER 2018-03 SUB. On April 6, 2018, hearing examiner Clerget assumed jurisdiction of this case. She issued a scheduling order on May 31, 2018. On July 20, 2018 the parties filed a Joint Stipulation to Stay the Scheduling Order requesting until September 14th to file a joint status report. On July 24, 2018, Ms. Clerget granted the stay. On September 14, 2018, the parties filed a Joint Status Report and Motion to Continue Stay. The parties stated in their Status Report that they have come to an agreement in principle and are working toward finalizing the terms of their agreement. The parties requested a further stay until October 19, 2018, at which point the parties will submit a status report indicating if they have reached an agreement or if a scheduling order should be in place. Ms. Clerget partially granted the motion on September 20, 2018. The parties have until October 4th in which to submit a joint status report indicating they have reached an agreement or whether a Scheduling Order should be issued.

d. In the matter of violations of the Opencut Mining Act by Wagoner Family Partnership, d/b/a Wagoner’s Sand and Gravel, at River Gravel Pit, Flathead County, Montana (Opencut No. 1798; FID 2512), BER 2017-02 OC. On August 9, 2018, the parties submitted a Joint Motion for Stay of Proceedings Pending Settlement Execution. That same day Ms. Clerget issued an Order granting the stay. The Order directed parties to file a status update every 30 days. On September 7, 2018, the parties filed a status report stating that they have reached an agreement in principle and anticipate having a signed agreement prior to the next status report date of October 7, 2018.

e. In the Matter of Violation of the Metal Mine Reclamation Act by Little Bear Construction, Inc. at Bob Weaver Pit, Granite County, Montana. (SMED NO. 46-117C; FID # 2567), BER 2018-02 MM. On April 6, 2018, hearing examiner Clerget assumed jurisdiction of this matter. She issued a scheduling order on May 31, 2018, and the parties are proceeding accordingly. An additional party was added to the proceedings on July 3, 2018 as requested by Little Bear. On September 10, 2018, the parties filed a Stipulation to Extend Deadlines and on September 13th an order extending some procedural deadlines was issued.

2. Non-enforcement cases assigned to the Hearings Examiner

a. In the matter of Westmoreland Resources, Inc.’s, appeal of final MPDES permit No. MT0021229 issued by DEQ for the Absaloka Mine in Hardin, Big Horn County, MT, BER 2015-06 WQ. On February 21, 2018, the parties filed a Joint Status Report indicating the District Court case MEIC and Sierra Club v. DEQ and Western Energy has been appealed to the Montana Supreme Court. The parties requested a stay pending the issuance of a decision in that case. On March 28, 2018, hearing examiner Clerget issued an order granting the stay, and directed parties to file a status report within 30 days of the Supreme Court’s decision, which has not yet occurred.

b. An appeal in the matter of amendment application AM3, Signal Peak Energy LLC’s Bull Mountain Coal Mine #1 Permit No. C1993017, BER 2016-07 SM. On March 1, 2018, a Scheduling Order was issued. On April 18,
2018, a Motion to Quash subpoena was filed by MEIC regarding two deposition notices and subpoenas. The motion was fully briefed by May 9, 2018. Oral Argument on this issue was held on May 23, 2018. On June 4, 2018, the Board was served as a named Defendant in Case No. DV-18-0869 in Montana Thirteenth Judicial District Court as the parties are seeking resolution from the District Court on the subpoena issue. Hearing Examiner Clerget issued an Order on June 5, 2018 extending all pretrial motion deadlines pending resolution of the District Court case.

c. In the matter of Appeal Amendment AM4, Western Energy Company Rosebud Strip Mine Area B, Permit No. C1984003B, BER 2016-03 SM. Ms. Clerget conducted a four-day hearing in this matter that concluded on March 22, 2018. After several extensions, the parties submitted their post-hearing filings on September 27, 2018. Ms. Clerget will review the filings and issue a Proposed Order to the Board as soon as possible.

d. In the matter of the notice of appeal and request for hearing by Montanore Minerals Corporation Regarding Issuance of MPDES Permit No. MT0030279, Libby, Montana, BER2017-03 WQ. On August 13, 2018, Ms. Clerget issued an Order granting in part and denying in part DEQ’s motion for partial summary judgment. On August 28, 2018, a scheduling conference was held and on August 29, 2018 Ms. Clerget issued a Scheduling Order setting this matter for a two-day hearing on December 3-4, 2018.

e. In the matter of the notice of appeal of final MPDES Permit No. MT0000264 issued by DEQ for the Laurel Refinery in Laurel, Yellowstone County, Montana, BER 2015-07 WQ. On February 15, 2018, the parties filed a Joint Status Report and Motion for Continued Stay. The parties indicated settlement is a possibility in this matter. On March 14, 2018, Ms. Clerget issued an Order granting the stay until August 24, 2018. A status conference was held on September 6, 2018. The parties and the hearing examiner discussed the necessity of another six month stay. The parties stated at the conference that this appeal began with six distinct issued and only one remains. The remaining issue is tied to a rule regarding permit modifications that DEQ currently has out for public comment, and there is a pending permit modification that may affect the continuation of this case. The parties indicated there would be no additional delay if this matter were stayed for an additional six months, as the appealed portion of the permit would not take effect until at the earliest November of 2019. On September 13, 2018, the hearing examiner granted a six month stay until February 25, 2019.

f. In the Matter of Notice of Appeal of Opencut Mining Permit #2351 Issued to Golden West Properties, LLC by Frank and Paulette Wagner Regarding Concerns and Unanswered Questions. BER 2018-04 OC, and In the Matter of Notice of Appeal of Opencut Mining Permit #2351 Issued to Golden West Properties, LLC by David Weyer on behalf of the Residents of Walden Meadows Subdivision. BER 2018-05 OC. On July 2, 2018, and July 5, 2018 the Board received a request for hearing. On August 10, 2018, the Board voted to consolidate these two matters and appointed Sarah Clerget as the hearing examiner. On August 14, 2018 Ms. Clerget issued a Prehearing Order. On August 23, 2018, the Wagner's submitted a
motion to dismiss, which was granted on August 24, 2018, leaving only Mr. Weyer’s appeal to continue. Counsel for Mr. Weyer submitted a notice of appearance on August 24, 2018. On September 17, 2018, the parties submitted a Stipulated Scheduling Order and Ms. Clerget issued the Scheduling Order on September 20, 2018. The parties are proceeding accordingly.

3. Contested Cases not assigned to a Hearing Examiner

a. In the matter of the notice of appeal and request for hearing by Western Energy Company (WECO) regarding its MPDES Permit No. MT0023965 issued for WECO’s Rosebud Mine in Colstrip, BER 2012-12 WQ. On April 9, 2014, the hearings examiner issued Order Granting the Joint Unopposed Motion for Partial Remand of Permit to Department of Environmental Quality and for Suspension of Proceedings. This matter was stayed while action proceeded. On March 14, 2016, the Judge issued Order on Summary Judgment invalidating the permit modification and remanding the matter for consideration consistent with the opinion. On January 25, 2018, the Department of Environmental Quality entered a Stipulated Judgement resolving the issue of attorney’s fees. The Department of Environmental Quality and Western Energy have appealed the District Court’s Order on Summary Judgment to the Montana Supreme Court and the matter is currently being briefed.

III. ACTION ITEMS

A. APPEAL, AMEND, OR ADOPT FINAL RULES

1. In the matter of final adoption of the proposed amendments to ARM 17.8.505 Air Quality Operation Fees, to increase air quality operation fees to allow the department to collect sufficient revenue to support the appropriate implementation of the air quality program, as noticed in MAR 17-397 with modifications.

Public Comment.

B. OTHER BRIEFING ITEMS

1. The Department’s Air Quality Bureau has been working with stakeholders on a rule package that would transition the regulation of portable sources of emissions from case-by-case permitting to a more efficient and effective registration program. The Air Quality Bureau would like to brief the Board prior to requesting initiation of this rulemaking at the December 7, 2018, meeting.

Public Comment.

C. PETITION FOR RULEMAKING

1. On January 31, 2018 the Board received a petition from Cottonwood Environmental Law Center and The Gallatin Wildlife Association. Pursuant to MCA 75-5-316(3)(1), the petition requests that the Board classify the section of the Gallatin River from the boundary of Yellowstone National Park to the
confluence with Spanish Creek in Gallatin Canyon as an Outstanding Resource Water.

Public Comment.

D. ACTION ON CONTESTED CASES

1. In the matter of Columbia Falls Aluminum Company’s (CFAC) appeal of DEQ’s modification of Montana Pollutant Discharge Elimination System Permit No. MT0030066, Columbia Falls, Flathead County, Montana, BER 2014-06 WQ. On September 6, 2018, the hearing examiner’s Proposed Findings of Fact and Conclusions of Law was issued to the parties. The next day the hearing examiner issued an Order on Exceptions. The parties jointly requested an extension to file their exceptions to the Proposed Order. Based on direction from the Board Chair, the motion was denied. On September 28, 2018 the parties filed their exception briefs, which are included in the materials with the Proposed Order. The matter is fully briefed and ready for oral argument and then a final decision by BER.

Public Comment.

IV. BOARD COUNSEL UPDATE

Counsel for the Board will report on general Board business, procedural matters, and questions from Board Members.

V. GENERAL PUBLIC COMMENT

Under this item, members of the public may comment on any public matter within the jurisdiction of the Board that is not otherwise on the agenda of the meeting. Individual contested case proceedings are not public matters on which the public may comment.

VI. ADJOURNMENT
Call to Order

The Board of Environmental Review's meeting was called to order by Chairperson Deveny at 9:00 a.m., on Friday, August 10, 2018, in Room 111 of the Metcalf Building, 1520 East 6th Avenue, Helena, Montana.

Attendance

Board Members Present in person: Chairperson Christine Deveny
Board Members Present by Phone: John Felton, Dexter Busby, Hillary Hanson, Tim Warner, Chris Tweeten
Board Members Absent: John DeArment
Board Attorney Present: Sarah Clerget, Attorney General’s Office (AGO)
Board Liaison Present: George Mathieus
Board Secretary Present: Lindsay Ford
Court Reporter Present: Laurie Crutcher, Crutcher Court Reporting
Department Personnel Present: Tim Davis, Eric Sivers, Darrell Barton, Jason Garber, Jon Kenning, Eric Urban, Johanna McLaughlin – WQD; Mark Lucas, Sandy Scherer, Ed Hayes – Legal; Ed Coleman, Meranda Bass, – AEMD
Interested & Other Persons Present: Keaton Williams – Cottonwood Environmental Law Center; Peggy Trenk – Treasure State Resources Association; Molly Kelly – AGO Agency Legal Services Bureau

Roll was called: five Board members were present in person and one Board members was present via teleconference, providing a quorum.
I.A. Administrative Items – Review and Approve Minutes

I.A.1. June 8, 2018, Meeting Minutes

Mr. Busby MOVED to approve the meeting minutes. Mr. Tweeten SECONDED. The motion PASSED unanimously.

II.A.1. Briefing Items – Enforcement Cases assigned to the Hearing Examiner

II.A.1.a. In the matter of the Notice of Appeal and Request for Hearing by CMG Construction, Inc. Regarding Notice of Violations and Administrative Compliance and Penalty Order, Docket No. OC-17-12, BER 2017-08 OC.

On July 23, 2018, Ms. Clerget granted a stay as the parties are in settlement negotiations. The parties are required to file status updates every 30 days.

II.A.1.b. In the matter of Columbia Falls Aluminum Company’s (CFAC) appeal of DEQ’s modification of Montana Pollutant Discharge Elimination System Permit No. MT0030066, Columbia Falls, Flathead County, Montana, BER 2014-06 WQ.

Ms. Clerget stated a proposed decision is forthcoming such that the case will be before the Board for oral argument and decision at its October meeting.

II.A.1.c. In the matter of violations of the Water Quality Act by Reflections at Copper Ridge, LLC, at Reflections at Copper Ridge Subdivision, Billings, Yellowstone County (MTR105376), BER 2015-01 WQ and In the matter of violations of the Water Quality Act by Copper Ridge Development Corporation at Copper Ridge Subdivision, Billings, Yellowstone County (MTR105377), BER 2015-02 WQ.

Ms. Clerget stated the decision has been issued and the parties requested more time for their exceptions briefs. This matter will be before the Board for oral argument and decision at the December meeting.

II.A.1.d. In the Matter of Appeal Revocation of Cosa, Fischer Land Development Subdivision [ES# 42-78-S3-173] and Fischer Homes [ES# 42-80-T1-15], Roger Emery, Sidney, Richland County, Montana. [FID# 2214], BER 2018-03 SUB

Ms. Clerget granted a stay as the parties are working on a settlement agreement.

II.A.1.e. In the matter of violations of the Opencut Mining Act by Wagoner Family Partnership, d/b/a Wagoner’s Sand and Gravel, at River Gravel Pit, Flathead County, Montana (Opencut No. 1798; FID 2512), BER 2017-02 OC.

Ms. Clerget stated the parties have reached a settlement and a motion to dismiss is forthcoming.

II.A.1.f In the Matter of Violation of the Metal Mine Reclamation Act by Little Bear Construction, Inc. at Bob Weaver Pit, Granite County, Montana. (SMED NO. 46-117C; FID # 2567), BER 2018-02 MM.
Ms. Clerget said there is a scheduling order in place and the parties are proceeding accordingly.

II.A.2. Briefing Items – Non-Enforcement Cases Assigned to a Hearing Examiner

II.A.2.a. In the matter of Westmoreland Resources, Inc.’s, appeal of final MPDES permit No. MT0021229 issued by DEQ for the Absaloka Mine in Hardin, Big Horn County, MT, BER 2015-06 WQ.

Ms. Clerget stated there is a stay pending decision from the Supreme Court.

II.A.2.b. An appeal in the matter of amendment application AM3, Signal Peak Energy LLC’s Bull Mountain Coal Mine #1 Permit No. C1993017, BER 2016-07 SM.

Ms. Clerget stated this case is stayed because there is action pending in District Court in which the Board is named as a defendant regarding a subpoena issue. Summary judgement regarding that issue was recently filed and the underlying case in front of the Board is stayed until the District Court’s case is resolved.

II.A.2.c. In the matter of Appeal Amendment AM4, Western Energy Company Rosebud Strip Mine Area B, Permit No. C1984003B, BER 2016-03 SM.

Ms. Clerget stated the parties have filed their proposed findings of fact conclusions of law and will file their response briefs by the end of September. She will issue her proposed decision afterwards and this will be before the Board, probably at its February meeting.

II.A.2.d. In the matter of the notice of appeal and request for hearing by Montanore Minerals Corporation Regarding Issuance of MPDES Permit No. MT0030279, Libby, Montana, BER 2017-03 WQ.

Ms. Clerget said there is a summary judgement motion pending. Once the decision is out, she will issue a scheduling order for the remainder of the case.

II.A.2.e. In the matter of the notice of appeal of final MPDES Permit No. MT0000264 issued by DEQ for the Laurel Refinery in Laurel, Yellowstone County, Montana, BER 2015-07 WQ.

Ms. Clerget said the case is stayed until the end of August at which time the parties are to provide an update.

II.A.2.f. In the matter of violation of the water quality act by JR Civil, LLC, Bozeman, Gallatin County, Montana (FID 2552, Permit MTG070826) BER 2017-07 WQ.

Ms. Clerget said the case is dismissed.

II.A.2.g. In the Matter of the Denial of Motor Vehicle Wrecking Facility License MVWF-0376, BER 2018-01 SW.

Ms. Clerget stated the case is dismissed.
II.A.3. Briefing Items – Contested Cases Not Assigned to a Hearing Examiner

II.A.3.a. In the matter of the notice of appeal and request for hearing by Western Energy Company (WECO) regarding its MPDES Permit No. MT0023965 issued for WECO’s Rosebud Mine in Colstrip, BER 2012-12 WQ.

Mr. Hayes said parties are still in the briefing phase of that case.

III.A. Action Items – APPEAL, AMEND, OR ADOPT FINAL RULES:

III.A.1. DEQ will propose that the Board initiate rulemaking to amend Administrative Rules of Montana (ARM) Title 17, chapter 30, subchapter 1, adopted under authority of Section 75-5-401, Montana Code Annotated (MCA), pertaining to state certification of activities requiring federal permits issued under Section 401 of the federal Clean Water Act, 33 USC Section 1341. The proposed amendments will clarify, and update policies and procedures related to the state Section 401 certification process.

Mr. Garber presented to the Board.

Mr. Tweeten MOVED to initiate the rulemaking as requested. Mr. Felton SECONDED. The motion passed unanimously.

III.B. New Contested Cases

III.B.1. In the Matter of Notice of Appeal of Opencut Mining Permit #2351 Issued to Golden West Properties, LLC by Frank and Paulette Wagner Regarding Concerns and Unanswered Questions. BER 2018-04 OC.

III.B.2. In the Matter of Notice of Appeal of Opencut Mining Permit #2351 Issued to Golden West Properties, LLC by David Weyer on Behalf of the Residents of Walden Meadows Subdivisions. BER 2018-05 OC.

Ms. Clerget stated these cases involve the same mining permit and pursuant to Montana Rule of Civil Procedure 42, this allows the cases to be combined. She then gave the Board members their options, including assigning it to a hearings examiner.

Ms. Clerget answered questions from the Board and recommended the cases be combined.

Chair Deveny MOVED to consolidate the cases and assign the matter to hearing Examiner for the totality of the case. Mr. Tweeten SECONDED. The motion PASSED unanimously.

III.C. Petition for Rulemaking

III.C.1. On January 31, 2018 the Board received a petition from Cottonwood Environmental Law Center and The Gallatin Wildlife Association. Pursuant to MCA 75-5-316(3)(1), the petition requests that the Board classify the section of the Gallatin River from the boundary of Yellowstone National Park to the
confluence with Spanish Creek in Gallatin Canyon as an Outstanding Resource Water.

Mr. Williams stated Cottonwood would like to continue with the permitting process and deal with the EIS cost issues after acceptance or rejection of the petition.

Mr. Williams, Ms. Clerget, Mr. Hayes, Mr. Mathieus and Mr. Davis discussed with and answered questions from the Board.

Mr. Tweeten MOVED that the Board find there is sufficient credible evidence in the petition to justify moving forward as provided under the statute. Chair Deveny SECONDED. The motion PASSED unanimously.

Ms. Clerget went through the next steps of the petition with the Board. Chair Deveny MOVED to have Ms. Clerget prepare a memo with involvement from Cottonwood and DEQ to determine whether the petition meets all of the requirements. Mr. Tweeten SECONDED. The motion PASSED unanimously.

IV. Board Counsel Update

Ms. Clerget had no updates.

V. General Public Comment

None were offered.

VI. Adjournment

Chair Deveny MOVED to adjourn. Mr. Tweeten SECONDED. Chairperson Deveny adjourned the meeting at 10:00 a.m.

Board of Environmental Review August 10, 2018, minutes approved:

_________________________
CHRISTINE DEVENY
CHAIRPERSON
BOARD OF ENVIRONMENTAL REVIEW

_________________________
DATE
BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.8.505 pertaining to air quality operation fees ) NOTICE OF AMENDMENT ) (AIR QUALITY)

TO: All Concerned Persons

1. On June 22, 2018, the Board of Environmental Review published MAR Notice No. 17-397 regarding a notice of public hearing on the proposed amendment of the above-stated rules at pages 1132-1134 of the 2018 Montana Administrative Register, Issue Number 12.

2. The board has amended ARM 17.8.505 as proposed, but with the following changes, stricken matter interlined, new matter underlined:

   17.8.505  AIR QUALITY OPERATION FEES  (1) through (6) remain as proposed.
   (7) The air quality operation fee for facilities other than portable facilities or registered oil and gas well facilities is:
       (a) remains as proposed.
       (b) a tonnage fee of an amount not to exceed $44.35 per ton of the actual, or the estimated actual, emissions by the facility during the previous calendar year of PM-10, sulfur dioxide, lead, oxides of nitrogen, and volatile organic compounds.
   (8) remains as proposed.
   (9) The air quality operation fee for registered oil and gas well facilities is $850.
   (10) through (13) remain as proposed.

3. The following comments were received and appear with the board’s responses.

COMMENT NO. 1: The department provided comments at the public hearing recommending that the board adopt the following operation fees:
   (a) in ARM 17.8.505(7), for facilities other than portable facilities or registered oil and gas well facilities, a per-ton fee of $44.35. In the notice of public hearing that initiated this rulemaking, the board proposed to increase the per-ton fee to an amount not to exceed $45.37. After that notice was issued, the department was able to determine more precisely its program costs and the amount of revenue it would receive from the federal government and the state general fund. After discussing the amount of the fee with stakeholders, the department determined that the smaller increase to $44.35 per ton was sufficient to fund the department’s program.
   (b) in ARM 17.8.505(9), for registered oil and gas well facilities, an annual operation fee of $850. In the notice of public hearing that initiated this rulemaking,
the board proposed to increase the fee to $900. After the notice was issued, the department was able to determine more precisely its program costs and the amount of revenue it would receive from the federal government and the state general fund. After discussing the amount of the fee with stakeholders, the department determined that an increase to $850 was sufficient to fund the department's program.

COMMENTS NO. 2 and 3: The board received comments that while an increase in operating fees was unwanted, regulated entities understood sufficient fees were necessary to enable the department to continue implementing the air quality program. The regulated entities appreciated the department’s engagement of a stakeholder process and wished to be included in future fee discussions.

RESPONSE: The board appreciates the comments.

4. No other comments or testimony were received.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

/s/ EDWARD HAYES
Rule Reviewer

/s/ CHRISTINE DEVENY
Chairman

Certified to the Secretary of State, October 9, 2018.
STATE OF MONTANA

BOARD OF ENVIRONMENTAL REVIEW

(1) I, Christine Deveny, Chairman of the Board of Environmental Review of the State of Montana, by virtue of and pursuant to the authority vested in me by Section 75-2-111, MCA, do adopt the amendment to the following rule:

AMD: 17.8.505 Air Quality Operation Fees

as a permanent rule of this board.

(2) This order, after first being recorded in the order register of this board, shall be forwarded to the Secretary of State for filing.

APPROVED AND ADOPTED October 5, 2018

CERTIFIED TO THE
SECRETARY OF STATE October 9, 2018

BOARD OF ENVIRONMENTAL REVIEW

BY: /s/ CHRISTINE DEVENY, CHAIRMAN
TO: The Montana Board of Environmental Review

FROM: Sarah Clerget, Assistant Attorney General, Board Attorney

RE: Outstanding Resource Water Step 2

DATE: September 28, 2018

The purpose of this memo is to assist BER in deciding whether it intends to accept or reject Cottonwood Environmental Law Center’s Petition to classify the Gallatin River as an outstanding resource water (ORW), received on January 31, 2018. Cottonwood’s petition asks the Board to classify a section of the Gallatin River from the boundary of Yellowstone National Park to the confluence with Spanish Creek in Gallatin Canyon as an ORW. At its meeting on August 10, 2018, the BER determined the petition contained sufficient credible information to proceed to “Step 2,” in which BER must determine whether it intends to accept or reject the petition. See Mont. Code Ann. § 75-5-316(3)(a) and (c). See “Outstanding Resource Water Statutory Process” Memorandum, April 23, 2018.

Both Cottonwood and DEQ have submitted memorandums with an analysis of the factors the Board must consider, pursuant to Mont. Code Ann. § 75-5-316. Those memos and their exhibits are attached. While preparing the memos, Cottonwood submitted a question to me via email, which I answered. After reviewing the memos, I submitted some additional questions to the parties via email, which they each answered. All of this correspondence is attached.

Recommendation:

Based on the memos, exhibits, correspondence, and my analysis of the factors in Mont. Code Ann. § 75-5-316, it is my recommendation that the BER reject Cottonwood’s petition for rulemaking.
Analysis:

My recommendation is based on the following analysis of the factors in Mont. Code Ann. § 75-5-316, (found in bold), and the preponderance of the evidence:

1. the water constitutes an outstanding resource based on criteria outlined in (4)(a)-(f) (below);
   a. Maybe. Only (c) and (f) factors are present.
2. increased protection is necessary to protect the water because the water is at risk of having one or more of the below criterion, compromised as a result of pollution;
   a. No. The preponderance of the evidence does not suggest that the water is at risk. The potential risk is very hypothetical, based almost entirely on speculation.
3. and classification is necessary because there is no other effective process to achieve the necessary protection (including the nondegradation policy).
   a. No. Other processes (including MPDES permitting process) can achieve the necessary protection.

Mont. Code Ann. § 75-5-316(3)(c)-(d).

   a. whether the waters have been designated as wild and scenic; No.
   b. the presence of endangered or threatened species in the waters; No.
   c. the presence of an outstanding recreational fishery in the waters; Yes.
   d. whether the waters provide the only source of suitable water for a municipality or industry; No.
   e. whether the waters provide the only source of suitable water for domestic water supply; No.
   f. and other factors that indicate outstanding environmental or economic values not specifically mentioned in this subsection. Yes.

DEQ’s Memo provides a detailed history of this petition. The important take away from that history is that in 2006, the BER was concerned about “continuing development causing increases in nutrient loads,” that were not addressed by “Current [ARMS] and Title 75, Chapter 5, MCA.” (DEQ Ex. 1 at 2295.) In 2006, the Board felt that the rules and statutes in place at the time “allow new and increased point source discharges to the river that meet the board’s rules for ‘non-significant’ changes in water quality and also allow authorizations to degrade water quality.” Id. The OWR designation was therefore considered necessary because it would “not allow new or increased point source[s] that result in permanent changes in water quality, including permanent changes that are considered ‘non-significant’ under the Board’s rules.” Id. Thus, the Board sought to limit pollution from point sources that, under the rules at the time, was considered “non-significant,” by creating the OWR designation.

Since 2006, however, “DEQ adopted Circular DEQ-12A, which provides numeric standards for [among other things] nitrogen and phosphorus that are protective of beneficial uses of state water.” (DEQ at 4). There have also been numerous changes to the MPDES permitting process and standards in the intervening 12 years. See, e.g. Administrative Rules Title 17, Chapter 30, Subchapter 12, Amd. 2011 MAR p. 2131. Thus, the BER’s original concerns about “nutrient loads” have been addressed by subsequent changes in the rules. Cottonwood has not presented sufficient evidence to show how or why the MPDES permitting process could not now address any potential future point sources and impose adequate treatment requirements and/or effluent limitations on them to prevent any potential adverse effects to any of the beneficial uses of the river.

Cottonwood’s main argument seems to be that the possible water treatment plant that is currently being explored through a “Request for Qualifications” (RFQ) by the Big Sky Water and Sewer District (BSWSD) might hypothetically put pharmaceuticals into the water of the Gallatin River. In the attached correspondence, Cottonwood indicated one sentence with an additional concern about the “yuck factor” of a wastewater discharge facility. (Meyer Email, September 26, 2018.) In my mind, this unspecific concern does not raise an additional colorable argument about a potential “risk” to the outstanding water that is not otherwise addressed by the analysis required by Mont. Code Ann. § 75-5-316 (3)(c).
pharmaceuticals “are not controlled through wastewater treatment” and therefore “any discharge into the Gallatin will have a negative impact” and “[t]he relevant non-degradation provision of the [MCA] contains several exemptions and the [BSWSD] has already issued an RFQ.” (Cottonwood at 7, 9.) As support for this argument, Cottonwood cites one scholarly article that concludes “literature data on the toxicity of hormonally active pharmaceuticals in amphibians were reviewed and it was found that very little data were available regarding adverse effects of environmentally relevant exposure concentrations.”

2 Cottonwood also cites a page on the EPA’s website, which links to a “Science Advisory Board” (SAB) statement that “EPA’s Office of Water has asked the [SAB] for advice on the scientific merit of a white paper that identifies and addresses technical issues in deriving aquatic life criteria for emerging contaminants such as pharmaceuticals and personal care products exhibiting endocrine disrupting activity or other toxic mechanisms.”

3 Thus, both of the sources cited by Cottonwood say that it is an open question if and how pharmaceuticals may affect aquatic life, or how water quality standards should be adjusted to protect aquatic life, and more study and data is needed. In response to my questions, DEQ provided a “US EPA Region 8 Emerging Contaminants Project Summary,” which states (with respect to municipalities) that regional EPA scientists are “working to understand the sources, fates, and transport of emerging contaminants” and “ongoing studies are measuring the effectiveness of specific wastewater treatment strategies and their optimization.” (EPA Summary at 2.)

This is not evidence that pharmaceuticals are known to cause harm to aquatic life, let alone that there is any particular risk to this section of the Gallatin. Thus, even if BSWSD were to build a water treatment plant, were to receive all the necessary rights, permits, approvals (and funding), were to discharge water to the Gallatin between Yellowstone and Spanish Creek, and the discharged water were known to contain untreated pharmaceuticals, it is unknown (at least based on the present evidence) whether those pharmaceuticals would have any affect on aquatic life in (and therefore the beneficial uses of) the river. And, as DEQ notes, there is

2 Moa Safholm, et. al., “Risks of hormonally active pharmaceuticals to amphibians: a growing concern regarding progestogens,” at section (d), available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4213589/.

3 Available at https://yosemite.epa.gov/sab/SABPRODUCT.NSF/b5d8a1ce9b07293485257375007012b7/f534bb6a136f60fe852572ff005815f2%21OpenDocument.
currently no municipal water right existing between Yellowstone National Park and Spanish Creek on the Gallatin (DEQ at Ex. 6), let alone an MPDES permit for one. There is, therefore, little more than speculation and conjecture before the BER at this time about potential, hypothetical threats to this section of the Gallatin.

Further, in response to my questions in the attached correspondence, DEQ stated that, although the MPDES permit process does not specifically control pharmaceuticals, DEQ believes “[n]utrient pollution from the potential point source discharge to the petitioned portion of the Gallatin River associated with the [BSWSD] water treatment facility will be addressed through water quality based effluent limits incorporated in an MPDES permit based on the numeric standards for nitrogen and phosphorus in DEQ Circular-12A.” (Bowers email September 27, 2018.) Further, DEQ noted that “a variance would not be authorized for a new or increased source that may impact water quality and adversely affect existing uses. Based upon DEQ’s knowledge of water quality in the petitioned stretch of the Gallatin River, a nutrient variance could not be authorized for a new or increased source; furthermore, nondegradation limits for nutrients derived from ARM 17.30.715(1)(f) would be extremely stringent….” Id. Thus, DEQ has indicated that, because “the state nondegradation policy requires that the quality of high quality water to be maintained,” (Id.) there are “other effective process to achieve the necessary protection” (Mont. Code Ann. § 75-5-316 (3)(c)(iii) in the current statutes and rules.

In considering the factors found in Mont. Code Ann. § 75-5-316(4), and the memos from Cottonwood and DEQ, it is clear that the relevant section of the Gallatin is “an outstanding recreational fishery” and “supports a variety of recreational uses that provide economic benefit to the state and local economies.” (DEQ at 3; Mont. Code Ann. § 75-5-316(4)(c), (f).) However, this section of the river has not been designated as “wild and scenic,” does not contain any currently endangered species,4 and is not the only source of suitable water for a municipality, industry, or domestic water supply. (Mont. Code Ann. § 75-5-316(4)(a), (b), (d), (e).) While the Board must “consider” all of these factors in § 75-5-316(4), the Board can find that any single factor either necessitates or prevents an OWR

4 While the arctic greyling may soon become endangered (see Center for Biological Diversity v. Zinke, No. 16-35866, D.C. No. 2:15-cv-00004-SHE (9th Cir. Aug. 17, 2018), the parties agree that it is not currently listed as endangered. (DEQ at 2-3; DEQ Ex. 4; Cottonwood at 2-3)
designation.\textsuperscript{5} (Mont. Code Ann. § 75-5-316 (3)(c)(ii)). In other words, not all of the factors in § 75-5-316(4) must be present for an OWR designation to be appropriate. The fact that two of the six subsection (4) factors are present may indicate that this section of the Gallatin is an “outstanding resource,” within the meaning of Mont. Code Ann. § 75-5-316 (3)(c)(i)).

That said, when considered together in this context, the fact that this section of the Gallatin may be an “outstanding resource” does not mean that an OWR is appropriate at this time. The subsection (4) factors generally indicate the value to society of the relevant water, which must in turn be balanced against the “risk of having one or more of [those factors], compromised as a result of pollution.” Mont. Code Ann. § 75-5-316(3)(c)(ii). As discussed above, the “risk” that Cottonwood’s Petition articulates is hypothetical and speculative. Thus, although some factors in subsection (4) indicate that this section of the Gallatin River is particularly valuable, when weighed against the risk to that water, the balance is not in favor of an ORW designation. \textit{Id.} Additionally, as discussed above, there are (if the hypothetical risk ever were to become a reality), “other effective process to achieve the necessary protection” to the valuable water.

A preponderance of the evidence does \textit{not} indicate that there is a known “risk” of having the Gallatin River between Yellowstone National Park and Spanish Creek “compromised as a result of pollution,” with “no other effective process to achieve the necessary protection.” Mont. Code Ann. § 75-5-316(3)(c)-(d). Based on the evidence before the BER at this time, and consideration of all of the necessary factors in Mont. Code Ann. § 75-5-316, it is my recommendation that the BER reject Cottonwood’s Petition for Rulemaking.

\textsuperscript{5} For further explanation of the conjunctive/disjunctive nature of the factors in Mont. Code Ann. § 75-5-316, see my email to John Meyer of August 15, 2018 in the attached correspondence.
John and Kirsten,

Thank you for your memos on the OWR petition. I have reviewed them and have some follow up questions, as I prepare my memo for the BER. I anticipate that if I have these questions, it is likely that the Board members will have similar questions, so it would be nice to preemptively address them. If you disagree, or believe they are not significant, please tell me why you believe they should not be discussed in my memo. My questions are:

1) Please explain how and why the MPDES permitting process and/or DEQ Circular-12 would not or would not address any concerns about future potential point source discharges, including but not limited to any potential water treatment facility by the Big Sky Water and Sewer District (BSWSD) or any other “continuing development causing increases in nutrient loads” (DEQ at p. 2, citing Ex. 1 at 2295).

2) Is there anything else, besides potential pharmaceutical concentrations from a potential BSWSD water treatment facility, that puts the MCA § 75-5-316(4) criteria “at risk from continued growth and development near the petitioned segment of the Galatian River” (DEQ at p. 4) and that is not adequately addressed by any other available process?

3) Please explain the significance of the fact that “[t]here are no public water supplies with intakes on the Gallatin River between Yellowstone Park and Spanish Creek” (DEQ Ex. 6) and the information provided by DEQ on the individual water rights held for this section of the river (DEQ Ex. 5).

Regarding (1), Cottonwood argues that phosphorus “are not controlled through wastewater treatment” and therefore “any discharge into the Gallatin will have a negative impact” (Cottonwood at p.7,9) and that “[t]he relevant non-degradation provision of the [MCA] contains several exemptions...” DEQ appears to respond to this argument by stating that “Since the 2006 rulemaking, DEQ adopted Circular DEQ-12A, which provides numeric standards for nitrogen and phosphorus that are protective of beneficial uses of state water.” (DEQ at p.4). DEQ’s statement also appears to address the BER’s original concern about “continuing development causing increases in nutrient loads,” that were not addressed by “Current [ARMS] and Title 75, Chapter 5, MCA.” (Ex. 1 at 2295.) What (if any) connection exists between phosphorus and nitrogen and pharmaceuticals? Does DEQ Circular 12-A, or the MPDES permitting process, address or control potential pharmaceutical concentrations in point source discharges?

Regarding (2), I am attempting to understand if the potential BSWSD water treatment facility is the only potential point source discharge of concern, or if there are other concerns about all potential point sources in the future. The BER (Ex. 1 at 2295) originally was concerned about all future point source discharges, and “non significant” changes in water quality, but the focus now appears to be only on pharmaceuticals from the BSWSD water treatment facility. Has the BER’s general concern been addressed or changed by DEQ-12A and changes to the MPDES permitting process?

Regarding (3), does the fact that BSWSD does not have a water right in this section of the river indicate that they also could not discharge to that section of the river? Does the FWP instream reservation indicate something about the level of conservation already in place that has significance for the analysis under MCA § 75-5-316?

I have to have my memo prepared in time to include in the Board meeting materials, which are scheduled to go out on Friday, 9/28. So, the sooner you could get me your answers the better. Given the shortness of the time, emailed responses to my questions would be fine. If it seems productive (or if you would prefer it) I can include this email correspondence along (with your memos and exhibits and my memo) in the Board materials.
I look forward to hearing from you.

Sarah M. Clerget  
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John,
I understand your question to be whether the factors in §75-5-316 are conjunctive. I think the answer has several parts, because of the different layers of factors in the statute:

By my reading, factors §75-5-316(3)(c)(i)-(iii) ARE conjunctive. In other words, the Board may not adopt a rule unless, the board affirmatively finds, based on the preponderance of the evidence, that all three factors are satisfied. This is based on the “and” after the semicolon in §75-5-316(3)(c)(ii).

§75-5-316(3)(c) in turn references (3)(d). Again, based on the “and” after the semicolon in §75-5-316(3)(d)(ii), it appears that §75-5-316(d)(i)-(iii) also ARE conjunctive. This means that the written finding by the Board must include all three of those things.

§75-5-316(3)(c)(i) and (d)(i) both reference §75-5-316(4), and require the Board to “make[] a written finding” “identify[ing]” “(3)(d)(i) and (iii)” and “explain[ing]” “(3)(d)(iii)” the factors in (4). Subsection (4) in turn states that the Board “shall consider” all of the factors. The list of factors in (4) IS conjunctive to the extent that the Board must “consider” (i.e. make a written explanation and analysis of) ALL of the factors listed in (4)(a)-(e). This is based on the “and” after the semicolon in §75-5-316(4)(e).

While the Board must “consider” all of the factors in §75-5-316(4), it may (at least at the (3)(c) stage) make a “finding that the outstanding resource is at risk of having one or more of the criteria provided in subsection (4) compromised” (§75-5-316 (3)(c)(ii)) or “determine that compliance with one or more of these criteria is insufficient to warrant classification of the water as an [OWR]” (§75-5-316 (4)). This indicates to me that for the purposes of the Board’s ultimate decision (at least at the (3)(c) stage), the (4)(a)-(e) considerations are NOT conjunctive. In other words, the Board can find that any single factor either necessitates or prevents adopting a rule (or stating that it intends to adopt the rule and initiating public comment process).

So, my statement that you have highlighted in the memo is probably unclear. What I meant by “all of these factors” was all of the factors that the Board must consider— so (3)(c)(i)-(iii), (3)(d)(i)-(iii), and (4). The Board’s decision to proceed or not must be based on an analysis of all of these factors conjunctively, but the substantive decision could potentially hinge on the presence or absence of just one factor in (4).

I hope this helps. Whether you agree or disagree with me, I think providing your own analysis on this point as part of your written submission would probably be helpful to both me and the Board.

Thanks,

Sarah M. Clerget
Assistant Attorney General
Agency Legal Services Bureau
State of Montana Department of Justice
1712 Ninth Ave.
PO Box 201440
Helena, MT 59620-1440
P: 406-444-5797
Hi Sarah,

I read the ORW memo you put together and have a question about the next step that I added in a highlighted comment in the attachment.

Thank you,
Dear Hearing Examiner Clerget:

Thank you for the opportunity to respond to questions you had after reviewing the memoranda submitted by DEQ and Cottonwood on the ORW petition. Below are DEQ’s responses to the three questions presented in your September 24, 2018 email:

Response to Question 1:

An MPDES permit authorizing a point source discharge to the petitioned stretch of the Gallatin River will incorporate effluent limits designed to meet the seasonal numeric nutrient standards in DEQ Circular-12A, which are protective of beneficial uses of state waters including fisheries and aquatic habitat. Nutrient pollution from the potential point source discharge to the petitioned portion of the Gallatin River associated with the Big Sky Water and Sewer District (BSWSD) water treatment facility will be addressed through water quality based effluent limits incorporated in an MPDES permit based on the numeric standards for nitrogen and phosphorus in DEQ Circular-12A. DEQ Circular-12B authorizes DEQ to allow variances from the nutrient standards in DEQ Circular-12A, but a variance would not be authorized for a new or increased source that may impact water quality and adversely affect existing uses. Based upon DEQ’s knowledge of water quality in the petitioned stretch of the Gallatin River, a nutrient variance could not be authorized for a new or increased source; furthermore, nondegradation limits for nutrients derived from ARM 17.30.715(1)(f) would be extremely stringent, unless an authorization to degrade was granted. Other point source nutrient pollution may be addressed through best management practices, including conditions and limitations incorporated in discharge permits (such as permits for storm water associated with construction activity), and in Montana Groundwater Pollutant Control System (MGWPCS) permits for discharges to groundwater from subdivision wastewater treatment systems. Nonpoint sources of nutrient pollution, such as individual septic systems, agriculture, and land development, are not addressed through MPDES permits.

Pharmaceuticals are emerging contaminants of concern both nationally and regionally. In Region 8, the U.S. EPA is monitoring for selected pharmaceuticals and working to understand the sources, fates, and transports of these contaminants in an attempt to measure the effectiveness of wastewater treatment and optimization of treatment methods to address these contaminants. See the attached US EPA Region 8 Emerging Contaminants Project Summary. Currently, there are no suitable water quality standards regulating pharmaceuticals. Therefore, these contaminants are not controlled through effluent limits and conditions incorporated in MPDES permits. There is no connection between phosphorus, nitrogen, and pharmaceuticals other than the fact that they are all potential contaminants related to wastewater disposal. DEQ Circular 12-A and the current MPDES permitting process do not address or control contaminants from pharmaceuticals. DEQ Circular-7 contains water quality standards that are protective of surface water aquatic life and human health, including standards for some pesticides that may impact surface and groundwater. If there is reasonable potential for a point source discharge to cause an exceedance of a numeric water quality standard, the MPDES permit authorizing that discharge would include water quality based effluent limits designed to meet water quality standards.

Unless degradation is authorized under § 75-5-303(3), MCA, or an exemption from review for nonsignificant activities applies under § 75-5-317, MCA, the state nondegradation policy requires that the quality of high quality water to be
maintained. The nondegradation rules at ARM Title 17, chapter 30, subchapter 7 apply to any activity that that may cause degradation of high quality water for any parameter unless the changes in existing water quality resulting from the activity are determined to be nonsignificant. For an ORW, no degradation is allowed and no permanent change in water quality resulting from a new or increased point source is allowed.

Response to Question 2:

The criteria at § 75-5-316(4), MCA may be at risk from both point and nonpoint sources of pollution related to continued growth and development near the petitioned segment of the Gallatin River. In this case, the criteria supporting ORW designation include an outstanding recreational fishery (§ 75-5-316(4)(c), MCA) and other factors that indicate outstanding environmental or economic values (§ 75-5-316(4)(f), MCA). The criteria will be protected from increased nutrient impacts associated with point source dischargers through effluent limits incorporated in MPDES permits that are designed to meet the seasonal numeric nutrient standards in DEQ Circular-12A, which are protective of beneficial uses of state waters including the recreational fishery. At present, the planned BSWSD water treatment facility is the only potential point source discharge to the petitioned segment of the Gallatin River. However, DEQ is aware of subdivisions in the area that may apply to discharge to groundwater. The BER’s concerns expressed in DEQ Ex. 1 at 2295 were related to “increases in nutrient loads” from continuing development and these concerns have been addressed through adoption of the nutrient standards in DEQ Circular-12A. Concerns related to pharmaceuticals and other emerging contaminants from wastewater discharges are not addressed in DEQ Circular-12A or, at present, in DEQ Circular-7.

Response to Question 3:

DEQ Exhibits 5 and 6 were offered in support of DEQ’s conclusions related to the criteria at §§ 75-5-316(4)(d) and (e), MCA. The waters do not provide the only source of suitable water for a municipality, industry, or domestic water supply. BSWSD is not required to have a water right in the petitioned section of the river in order to be issued an MPDES permit authorizing a point source discharge to the receiving water. The purpose of the FWP instream reservation is to reserve water for fish and wildlife. See § 85-2-316, MCA. The FWP reservation will insure a minimum flow or quantity of water available for fish and wildlife in the petitioned segment of the Gallatin River. Secondarily, FWP’s reservation may serve to protect water quality necessary to protect beneficial uses, including the fishery, by protecting the quantity of water available for dilution and mixing of pollutants introduced by point and nonpoint sources.

Respectfully submitted,

Kirsten H. Bowers  
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Montana Dept. of Environmental Quality  
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From: Clerget, Sarah  
Sent: Monday, September 24, 2018 1:54 PM  
To: Bowers, Kirsten <kbowers@mt.gov>; john@cottonwoodlaw.org  
Cc: Davis, Tim <TimDavis@mt.gov>; Hayes, Edward <ehayes@mt.gov>; keatanwilliamslaw@gmail.com  
Subject: BER OWR Petition

John and Kirsten,
Thank you for your memos on the OWR petition. I have reviewed them and have some follow up question, as I prepare my memo for the BER. I anticipate that if I have these questions, it is likely that the Board members will have similar questions, so it would be nice to preemptively address them. If you disagree, or believe they are not significant, please tell me why you believe they should not be discussed in my memo. My questions are:

1) Please explain how and why the MPDES permitting process and/or DEQ Circular-12 would not or would not address any concerns about future potential point source discharges, including but not limited to any potential water treatment facility by the Big Sky Water and Sewer District (BSWSD) or any other “continuing development causing increases in nutrient loads” (DEQ at p. 2, citing Ex. 1 at 2295).

2) Is there anything else, besides potential pharmaceutical concentrations from a potential BSWD water treatment facility, that puts the MCA § 75-5-316(4) criteria “at risk from continued growth and development near the petitioned segment of the Galatian River” (DEQ at p. 4) and that is not adequately addressed by any other available process?

3) Please explain the significance of the fact that “[t]here are no public water supplies with intakes on the Gallatin River between Yellowstone Park and Spanish Creek” (DEQ Ex. 6) and the information provided by DEQ on the individual water rights held for this section of the river (DEQ Ex. 5).

Regarding (1), Cottonwood argues that pharmaceuticals “are not controlled through wastewater treatment” and therefore “any discharge into the Gallatin will have a negative impact” (Cottonwood at p.7,9) and that “[t]he relevant non-degradation provision of the [MCA] contains several exemptions... .” DEQ appears to respond to this argument by stating that “Since the 2006 rulemaking, DEQ adopted Circular DEQ-12A, which provides numeric standards for nitrogen and phosphorus that are protective of beneficial uses of state water.” (DEQ at p.4). DEQ’s statement also appears to address the BER’s original concern about “continuing development causing increases in nutrient loads,” that were not addressed by “Current [ARMS] and Title 75, Chapter 5, MCA.” (Ex. 1 at 2295.) What (if any) connection exists between phosphorus and nitrogen and pharmaceuticals? Does DEQ Circular 12-A, or the MPDES permitting process, address or control potential pharmaceutical concentrations in point source discharges?

Regarding (2), I am attempting to understand if the potential BSWSD water treatment facility is the only potential point source discharge of concern, or if there are other concerns about all potential point sources in the future. The BER (Ex. 1 at 2295) originally was concerned about all future point source discharges, and “non significant” changes in water quality, but the focus now appears to be only on pharmaceuticals from the BSWD water treatment facility. Has the BER’s general concern been addressed or changed by DEQ-12A and changes to the MPDES permitting process?

Regarding (3), does the fact that BSWSD does not have a water right in this section of the river indicate that they also could not discharge to that section of the river? Does the FWP instream reservation indicate something about the level of conservation already in place that has significance for the analysis under MCA § 75-5-316?

I have to have my memo prepared in time to include in the Board meeting materials, which are scheduled to go out on Friday, 9/28. So, the sooner you could get me your answers the better. Given the shortness of the time, emailed responses to my questions would be fine. If it seems productive (or if you would prefer it) I can include this email correspondence along (with your memos and exhibits and my memo) in the Board materials.

I look forward to hearing from you.

Sarah M. Clerget
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The U.S. Environmental Protection Agency Region 8 Emerging Contaminants Project Summary

Over 98 million prescriptions were filled at pharmacies in Region 8 alone in 2010. Over one billion pounds of pesticides are used in the United States each year. Results obtained by the scientists in Region 8 demonstrate that pharmaceuticals, personal care products (PPCPs), pesticides and pesticide degradates, and other compounds of emerging concern are being detected in surface and ground waters within the Region. There is increasing concern that the potential exists for low-level, chronic exposure to mixtures of these chemicals to have adverse ecological or human health effects. For example, new information has shown that many of these chemicals may pose a threat to aquatic life, such as feminizing changes observed in male fish exposed to endocrine-active PPCPs in streams and lakes within Region 8.

The occurrence, fate, and transport of these chemicals are an important water quality concern, both nationally and regionally, and have gained public interest. The work conducted by Region 8 scientists is providing useful information to address those concerns and fill information gaps which can be used to inform the implementation of the SDWA and CWA, as appropriate. The Region 8 data was shared with the National Academy of Science (NAS) in a review of the science being performed by USEPA. The feedback was overwhelmingly positive and Region 8 was commended for this innovative work by the NAS committee. Furthermore, a Government Accountability Office report (GAO-11-346 August 8, 2011) recommended that EPA collect the pharmaceutical environmental occurrence data and address the issue of pharmaceuticals and their relationship to other contaminants in the nation’s waterways. The work conducted by Region 8 directly addresses the recommendations outlined in the GAO report by collecting occurrence data and examining the co-occurrence of pharmaceuticals and other contaminants such as pesticides in surface water.

The Pesticide Program within the Office of Partnerships & Regulatory Assistance (OPRA), the Water Quality Unit within the Office of Ecosystems, Protection and Remediation (EPR), and the Laboratory Services Program within the Office of Technical and Management Services collaborated to develop a list of over 250 compounds for monitoring. Data has been collected in all 6 states in the Region, for 12 individual tribes, three municipalities, two universities, and two other federal agencies (DOI and USDA). The analytical methods serve as a foundation for gathering the data needed to start evaluating what chemicals are present, what concentration are they at if present, what is happening to them as they travel downstream, what are the human, ecological, and economic effects if any, and what synergistic effects are present if any. Example compounds include caffeine, ibuprofen, drugs of abuse such as cocaine and certain cocaine metabolites, anti-microbials such as triclosan, phosphate based flame retardants, and common pesticides such as 2,4-D, atrazine, and atrazine degradates.

Data generated from this collaborative approach were used in the Region by states and tribes, but was also shared with other USEPA divisions and offices, and other federal agencies to assess risk to human health. This coordination expands the utility of the data to improve our scientific understanding of fate and effects from emerging contaminants, for use in regulatory decisions such as re-registration of pesticides and implementation of the CWA and SDWA, for regional and national water quality initiatives, and to serve as a national program model suggested by NAS. This teamwork-based effort is improving and maintaining improvements in water quality as well as fostering partnerships within the agency, between the agency and states and tribes, and between other federal partners. Three sub-projects are described on the reverse side.
Urban Waters

The water quality issues associated with mountains and plains as well as pristine public lands and urban areas are challenging. Snowpack runoff and groundwater are the predominant water resources in Region 8. The use of these waters for drinking water, as well as for recreation, and in industries such as energy extraction, and animal husbandry all require the gathering of data to determine the effect that humans, wildlife, animal husbandry, and climate change may have on these valuable resources. Region 8 scientists are monitoring for select pharmaceuticals, waste indicators, and pesticides to start to understand how these compounds affect the use of the water resources in urban areas in Region 8.

Local Municipalities

Region 8 scientists, in collaboration with local municipalities, are working to understand the sources, fates, and transport of emerging contaminants. Working with wastewater treatment plants, local citizen groups, and other Federal partners, ongoing studies are measuring the effectiveness of specific wastewater treatment strategies and their optimization.

National Parks

Region 8 contains some of the largest National Parks in the country. These include Rocky Mountain National Park, Yellowstone National Park, and Glacier National Park. The Parks are visited by millions of citizens each year. How these citizens affect the ecology of the lakes and streams is an important factor in protecting these national resources for future generations. Region 8 scientists, in collaboration with National Park colleagues, are monitoring for select man-made compounds to determine if there are pharmaceuticals, pesticides, and other man-made compounds present, and if there are, how much is present. This information will be used to determine how best to protect the delicate ecosystems within the Parks.

The projects described are just a few of the many that Region 8 scientists are pursuing. More details for each project can be obtained by contacting the Region 8 Laboratory Director at 303-312-7799.
Hello,

Please find attached the petitioners’ responses to your questions.

Thank you,
Please explain how and why the MPDES permitting process and/or DEQ Circular-12 would not or would not address any concerns about future potential point source discharges, including but not limited to any potential water treatment facility by the Big Sky Water and Sewer District (BSWSD) or any other “continuing development causing increases in nutrient loads” (DEQ at p. 2, citing Ex. 1 at 2295).

DEQ Circular-12A sets standards for nitrogen and phosphorous under MCA § 75-5-301(2). The Circular does not create any new standards. The Circular does not address pharmaceutical concentrations. Additionally, DEQ Circular-12B also adopts the same variances which allow permittees to discharge above the nitrogen and phosphorous standards if they can show economic impacts.

Is there anything else, besides potential pharmaceutical concentrations from a potential BSWD water treatment facility, that puts the MCA § 75-5-316(4) criteria “at risk from continued growth and development near the petitioned segment of the Gallatin River” (DEQ at p. 4) and that is not adequately addressed by any other available process?

Pharmaceutical concentrations from a potential BSWSD water treatment is the most pressing concern not addressed by any other available process. In addition to this concern, the economic tourism factors of MCA § 75-5-316(4)(f) are at risk and not adequately addressed by any other available process. While Montana has standards in place to protect the fishery directly, the standards do not consider the “yuck factor” that fishing downstream from a wastewater discharge may have on the fly-fishing and rafting industries along the Gallatin River.

Regarding (2), I am attempting to understand if the potential BSWSD water treatment facility is the only potential point source discharge of concern, or if there are other concerns about all potential point sources in the future. The BER (Ex. 1 at 2295) originally was concerned about all future point source discharges, and “non significant” changes in water quality, but the focus now appears to be only on pharmaceuticals from the BSWD water treatment facility. Has the BER’s general concern been addressed or changed by DEQ-12A and changes to the MPDES permitting process?

Cottonwood believes that the BER’s concern has not been addressed or changed by DEQ-12A due to the reasons stated above. The BSWSD treatment facility’s potential point discharge is just the most pressing issue. There may still be other point discharge permit applications in the future without ORW designation. Additionally, “non significant” changes may still impact economic factors as mentioned above.

Please explain the significance of the fact that “[t]here are no public water supplies with intakes on the Gallatin River between Yellowstone Park and Spanish Creek” (DEQ Ex. 6) and the information provided by DEQ on the individual water rights held for this section of the river (DEQ Ex. 5).

An existing water right is not a pre-requisite to a discharge permit. FWP in-stream reservations are often connected with important recreational rivers.
To: Sarah Clerget  
From: John Meyer  
Re: Gallatin River ORW Petition  
Date: September 10, 2018

INTRODUCTION

On August 10, 2018, the Montana Board of Environmental Review ("BER") voted to advance Cottonwood and Gallatin Wildlife Association’s petition to designate a portion of the Gallatin River as an Outstanding Resource Water ("ORW"). 8/10/18 BER Transcript at 42. This memo contains updated analysis that will assist the BER make the necessary findings before requesting the BER: publish a notice and brief description of the petition in a daily newspaper of general circulation in the Big Sky area, provide for a 30-day written public comment period regarding whether the petition contains sufficient credible information, and set a date for a public hearing regarding the petition and its contents and allow further written and oral testimony at the hearing. Mont. Code. Ann. § 75-5-316.¹

I. The BER should make a written finding that the waters of the Gallatin River identified in the petition constitute an Outstanding Resource Water based on criteria provided in M.C.A. §75-5-316(4).

Before accepting Cottonwood’s petition, the BER must make a written finding explaining its reasoning and stating that it intends to accept the petition. Mont Code Ann. § 75-5-316(3)(c), (5). This requires the BER to consider several factors. Each factor was analyzed in the petition initially submitted to the BER. Cottonwood incorporates the original petition by reference and adds the following analysis.

a. The Gallatin River is eligible for Wild and Scenic Rivers Protection.

When deciding whether to accept the petition to classify the Gallatin River as an ORW the BER must consider whether it has been Congressionally designated as a Wild and Scenic River. Mont. Code Ann. § 75-5-316(4)(a).

In January 2018, the United States Forest Service determined that this section of the Gallatin River is eligible for protection under the Wild and
Scenic Rivers Act.\textsuperscript{2} According to the Forest Service, “[t]he outstandingly remarkable values of the Gallatin river were its scenic, recreation and fisheries values.” Gallatin 2018 Plan at J-3 to J-4.\textsuperscript{3}

The ORW and Wild and Scenic River statutes serve complementary purposes. At the time the Wild and Scenic Rivers Act was enacted, “Congress declare[d] that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition . . .” 16 U.S.C. § 1271. In short, the Wild and Scenic Rivers Act is designed to protect free-flowing waters from dams while the ORW designation is designed to prevent pollution.

The Forest Service has found that this section of the Gallatin River is eligible for Wild and Scenic Rivers Act protections and contains

\begin{footnotesize}
\begin{itemize}
\item\textsuperscript{3} The previous Forest Plan also determined the Gallatin is eligible for designation as a Wild and Scenic River. https://www.fs.usda.gov/Internet/FSE/Documents/fseprd487022.pdf
\end{itemize}
\end{footnotesize}
“outstandingly remarkable values.” Gallatin 2018 Plan at 95-96. This factor supports accepting Cottonwood’s petition.

b. **The Gallatin River contains fish species that have been petitioned for Endangered Species Act protections.**

The second criteria that the BER must consider when deciding whether the identified water constitutes an ORW is “the presence of threatened or endangered species in the waters.” Mont. Code Ann. § 75-5-316(4)(b). The section of the Gallatin River between the Yellowstone National Park boundary and Spanish Creek contains Arctic grayling. The Ninth Circuit Court of Appeals recently held that the U.S. Fish and Wildlife Service decision not to list the grayling as a threatened or endangered species was arbitrary and capricious. *Center for Biological Diversity v. Zinke*, No. 16-35866, D.C. No. 2:15-cv-00004-SHE (9th Cir. Aug. 17, 2018).

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This section of the Gallatin River is also home to Westslope Cutthroat Trout, a species that has been designated a “sensitive” species by the U.S. Forest Service. A “sensitive” species is one whose “population viability is a concern, as evidence by: a) significant current or predicted downward trends in population numbers or density, or b) significant current or predicted downward trends in habitat capability that would reduce a species existing distribution.” Westslope Cutthroat Trout are designated as an “S2” sensitive species because they are “Imperiled because of rarity...or because of some factor making it extremely vulnerable to extinction throughout its range. U.S. Forest Service Manual 2670.22. Protecting the Gallatin River as an ORW will help ensure the Westslope Cutthroat Trout are not listed as a threatened or endangered species because it will protect a river where they are known to occur. Gallatin 2018 Plan at 7.

This factor supports a finding that the identified water constitutes an ORW.

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5 *Aquatics Sensitive Species List*, Forest Service-Region 1 available at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5366363.pdf
c. The Gallatin River is an outstanding recreational fishery.

The third criteria the BER must consider when deciding whether the identified water constitutes an ORW is the “presence of an outstanding recreational fishery in the waters.” Mont. Code Ann. § 75-5-316(4)(c). The U.S. Forest Service has determined that the “fisheries values” of the Gallatin River are one of its “outstandingly remarkable values.” (Gallatin 2018 Plan at J-3 to J-4).

This factor supports a finding that the identified water constitutes an outstanding resource water.

d. Other factors indicate environmental or economic values of the Gallatin River not specifically mentioned in this subsection.

The BER must consider other environmental or economic values not specifically mentioned in the subsection when deciding whether the identified water constitutes an ORW. Mont. Code Ann. § 75-5-316(4)(f). The Forest Service has identified the recreational values of the identified section of the Gallatin River as an outstandingly remarkable value. Gallatin 2018 Plan at 95. The recreational value of the identified section of the
Gallatin River provides substantial economic value in the millions of dollars and is used by white water rafting companies and for fly fishing and kayaking.\(^6\)

The Big Sky Water and Sewer Board has issued a Request For Qualifications for engineering firms to develop and build a pipeline to discharge treated waste water into this section of the Gallatin River. RFQ at 2. Studies have shown that pharmaceuticals in wastewater have negative effects on fish and amphibians. *Risks of hormonally active pharmaceuticals to amphibians: a growing concern regarding progestogens*, Moa Safholm *et. al.* \(^7\) Specifically, pharmaceuticals impair reproductive functions. *Id.* Because these substances are not controlled through wastewater treatment, any discharge into the Gallatin will have a negative impact on the blue-


\(^7\) *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4213589/.
ribbon fishery and outdoor recreation businesses that use this section of the Gallatin. 8

I. The BER should find that the identified water is necessary to be classified as an outstanding resource water because there is no other effective process available that will achieve the necessary protection.

The Outstanding Resource Water statute requires the BER to specifically explain why other available processes, including the requirements of 75-5-303, will not achieve the necessary protection. Mont. Code Ann. 75-5-316 (3)(d)(iii).

The requirements of 75-5-303 will not achieve the necessary protection because the Big Sky Water and Sewer District has issued a Request for Qualifications to design a pipeline to discharge treated wastewater into the Gallatin River. Exhibit 1. If the Gallatin River had already been designated as an ORW the request would not have been issued.

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8 The “Montana Whitewater” rafting company leads trips on this section of the Gallatin River and is opposed to discharging treated wastewater into the Gallatin River because of the impact on its business. Personal Communication between Cottonwood and Montana Whitewater.
The EPA lists pharmaceuticals as a “contaminant of emerging concern."

*Contaminants of Emerging Concern including Pharmaceuticals and Personal Care Products*, Environmental Protection Agency, https://www.epa.gov/wqc/contaminants-emerging-concern-including-pharmaceuticals-and-personal-care-products (last visited Sept. 3, 2018). This means the risks and procedures for dealing with them are not fully understood. *Id.* The relevant non-degradation provision of the Montana Code contains several exemptions and the Big Sky Water and Sewer District has already issued a RFQ. There is no other effective process available to achieve permanent protection for the Gallatin River.

**CONCLUSION**

The BER has previously accepted a petition to designate this stretch of the Gallatin River as an outstanding resource water. The Montana Department of Environmental Quality completed an Environmental Impact Statement that proposed this stretch of the Gallatin River be designated an ORW. Ultimately, the DEQ did not issue a Record of Decision.
Pursuant to the ORW statute, Cottonwood and Gallatin Wildlife Association request that the BER:

(a) publish a notice and brief description of the petition in a daily newspaper of general circulation in the area affected and make copies of the proposal available to the public.
(b) provide for a 30-day written public comment period regarding whether the petition contains sufficient credible information, and
(c) hold a public hearing regarding the petition and its contents and allow further written and oral testimony at the hearing.


/s/ John Meyer
JOHN MEYER
Risks of hormonally active pharmaceuticals to amphibians: a growing concern regarding progestagens

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ABSTRACT

Most amphibians breed in water, including the terrestrial species, and may therefore be exposed to water-borne pharmaceuticals during critical phases of the reproductive cycle, i.e. sex differentiation and gamete maturation. The objectives of this paper were to (i) review available literature regarding adverse effects of hormonally active pharmaceuticals on amphibians, with special reference to environmentally relevant exposure levels and (ii) expand the knowledge on toxicity of progestagens in amphibians by determining effects of norethindrone (NET) and progesterone (P) exposure to 0, 1, 10 or 100 ng l⁻¹ (nominal) on oogenesis in the test species Xenopus tropicalis. Very little information was found on toxicity of environmentally relevant concentrations of pharmaceuticals on amphibians. Research has shown that environmental concentrations (1.8 ng l⁻¹) of the pharmaceutical oestrogen ethinylestradiol (EE₂) cause developmental reproductive toxicity involving impaired spermatogenesis in frogs. Recently, it was found that the progestagen levonorgestrel (LNG) inhibited oogenesis in frogs by interrupting the formation of vitellogenic oocytes at an environmentally relevant concentration (1.3 ng l⁻¹). Results from the present study revealed that 1 ng NET l⁻¹ and 10 ng P l⁻¹ caused reduced proportions of vitellogenic oocytes and increased proportions of previtellogenic oocytes compared with the controls, thereby indicating inhibited vitellogenesis. Hence, the available literature shows that the oestrogen EE₂ and the progestagens LNG, NET and P impair reproductive functions in amphibians at environmentally relevant exposure concentrations. The progestagens are of particular concern given their prevalence, the range of compounds and that several of them (LNG, NET and P) share the same target (oogenesis) at environmental exposure concentrations, indicating a risk for adverse effects on fertility in exposed wild amphibians.

Keywords: endocrine disruption, oogenesis, fertility

1. INTRODUCTION

Do pharmaceuticals pose a risk to amphibians? While it is established that pharmaceutical steroids in the aquatic environment present a risk to fish [1], the knowledge on potential risks to amphibians is much less developed [2]. The objectives of the present paper are (i) to review the scientific literature
regarding adverse effects of environmentally relevant concentrations of hormonally active pharmaceuticals on amphibians and (ii) to contribute new knowledge on effects of the progestagens norethindrone (NET) and progesterone (P) on the female reproductive system in amphibians. The review focuses on risks of water-borne pharmaceuticals to amphibians; therefore, the compounds addressed are those that have been detected in surface water and for which there are available toxicity data in amphibians, i.e. steroidal hormones (oestrogens, androgens and progestagens), selective serotonin re-uptake inhibitors (SSRIs) and aromatase inhibitors. We focused primarily on toxicity data for environmentally relevant exposure levels when available.

2. AMPHIBIAN EXPOSURE SCENARIOS

Amphibians inhabit a wide range of environments but a common feature is that most species, including the terrestrial ones, breed in water. Many amphibians are generalists and spawn in virtually all types of water bodies, including rivers, lakes, ditches and marine environments, whereas some species are specialized for breeding in, for example, ponds (e.g. *Rana sylvatica*) or rivers (e.g. *Rana boylii*, *Hyla rivularis*, *Ascaphus truei*) [3,4]. The larval period is a critical period for sex differentiation in many amphibians (including *Xenopus* and *Rana* species) and exposure during this life-stage to hormonally active chemicals can disrupt gonadal differentiation (reviewed in [5]). Another sensitive phase of the reproductive cycle is the maturation and release of gametes. During the breeding season, which can last for several months, the adult frogs may be exposed to water-borne chemicals at critical phases of egg and sperm maturation [3].

Amphibians may be exposed to pharmaceuticals via the water during the breeding period and the larval stages in waterways polluted by municipal wastewater or emissions from drug manufacturing sites, as well as in agricultural areas irrigated with wastewater or where domestic stock is kept [6–9]. A number of studies report the presence of hormonally active pharmaceuticals including steroid hormones, aromatase inhibitors and SSRIs in typical breeding habitats for amphibians, including lakes, rivers and streams [10–16].

(a) Types and levels of hormonally active pharmaceuticals in the environment

Natural and synthetic steroid hormones including oestrogens, androgens and progestagens (here defined as natural or synthetic progesterone) are widely used in human and veterinary medicine, in contraceptives or other hormonal therapies. Whereas there are quite a few data on environmental concentrations of oestrogens, less information is available for the environmental concentrations of pharmaceutical androgens and progestagens (reviewed in [17]). Reported concentrations of oestrogens (including EE2) and progestagens (e.g. levonorgestrel (LNG), NET and P) in surface waters (lakes, rivers, streams) are often in the 1–10 ng l\(^{-1}\) range [9–12,14,16] or below (reviewed in [17]).

Testosterone has been detected at concentrations up to 6 ng l\(^{-1}\) in ground water [14] and methylidihydo-testosterone (MDHT), a non-aromatizable anabolic steroid, has been reported to be present in a river in the tens of ng l\(^{-1}\) range [18]. A recent study of river water downstream of a pharmaceutical industry effluent discharge in France revealed that progestrogen receptor agonists were among the most abundant types of hormonally active pharmaceuticals, as determined by chemical analysis and *in vitro* bioassays [9].

Pharmaceuticals that inhibit CYP 19 (aromatase), the enzyme that converts androgens into oestrogens, have potential to impair reproductive development and function (reviewed in [19]). The imidazole clotrimazole is a widely used antifungal agent (in e.g. anti-dandruff shampoos) which is released into the aquatic environment from wastewater treatment works and hospitals [20,21]. In a survey of five UK rivers, clotrimazole was detected in 100% of the samples at concentrations ranging from 6 to 34 ng l\(^{-1}\) with a median of 21 ng l\(^{-1}\) [20].
SSRIs act by increasing extracellular serotonin levels and serotonin neurotransmission and are commonly prescribed for depression, compulsive behaviours and eating disorders. A number of SSRIs, including fluoxetine, sertraline and citalopram, have been detected in the aquatic environment at concentrations up to 0.1 μg l⁻¹ downstream of wastewater treatment plants [20,22,23]. Fluoxetine was shown to have oestrogenic activity in vitro and in uterotrophic assay in rats [24]. In fish studies, exposure to 0.1–0.5 μg fluoxetine l⁻¹ has been shown to increase the plasma oestradiol levels, indicating endocrine effects [25,26].

3. REVIEW OF EFFECTS OF HORMONALLY ACTIVE PHARMACEUTICALS IN AMPHIBIANS

It is well established that exposure to elevated concentrations (in the μg l⁻¹ range) of oestrogens, androgens and progestagens during the larval period can disrupt gonadal differentiation resulting in skewed sex ratios at metamorphosis (reviewed in [5]). There is, however, a very limited number of studies that have investigated adverse effects of environmentally relevant concentrations of steroidal hormones on amphibians.

(a) Oestrogens

Studies in a number of amphibian species have shown that larval exposure to EE2 concentrations in the μg l⁻¹ range can induce female-biased sex ratios indicating male-to-female sex reversal [27,28]. A lifecycle study on Xenopus tropicalis demonstrated that larval exposure to EE2 at concentrations in the low ng l⁻¹ range did not only induce a permanently skewed sex ratio towards females, but also impaired spermatogenesis and reduced fertility in the males as they reached sexual maturity [29]. The frogs were exposed to 1.8, 18 and 180 ng EE2 l⁻¹ for seven weeks from shortly after hatching until metamorphosis, after which they were kept in clean water. Eight months after metamorphosis, there was an increasing proportion of phenotypic females (as determined by histological gonadal sex) with increasing exposure level compared with the control group, indicating male-to-female sex reversal. The fertilization rate of the males that were not sex-reversed (i.e. 14 males exposed to 1.8 ng l⁻¹ and 1 male exposed to 18 ng l⁻¹) was reduced to about 50% of that of the control males when mated with unexposed females. The males exposed to 1.8 ng EE2 l⁻¹ had fewer mature spermatozoa in the lumen of the seminiferous tubules compared with the control group suggesting that a reduced production of mature spermatozoa had a role in the reduced fertility rate. A significant proportion of the adult EE2 exposed phenotypic females lacked oviducts, making them sterile [29]. It was concluded that testicular development and differentiation of the Müllerian ducts (embryonic precursors of the female reproductive tract in vertebrates except teleost fish) are sensitive targets for oestrogen exposure in amphibians. These findings were the first to demonstrate reproductive toxicity following exposure to environmentally realistic EE2 concentrations. The sensitivity to EE2 of the model species X. tropicalis was demonstrated to be comparable to that of the temperate, terrestrial species the common frog, Rana temporaria [30]. As the exposure scenario with respect to the level, route and duration was ecologically relevant and the endpoint studied (i.e. fertilization rate) has relevance to population dynamics this study indicates that EE2 might pose a threat to wild frog populations.

Little is known regarding the mechanisms underlying the developmental reproductive effects of EE2 in amphibians. However, an RNA expression analysis of genetically male Xenopus laevis tadpoles exposed to 840 ng EE2 l⁻¹ showed that three transcripts involved in development of the testis and spermatogenesis (i.e. celf1, dmt1 b and gtsf1) were downregulated compared with the controls [31].

(b) Androgens

Exposure to 30 ng 17α-MDHT l⁻¹ (nominal concentration) enhanced the advertisement calling in male X. laevis frogs, indicating an increase in sexual arousal [32]. Males (10 per group) were individually
exposed to 0.03, 3 and 30 \( \mu g \) MDHT \( l^{-1} \) (nominal concentrations) for 96 h and calling behaviour was recorded each night. The advertisement calling frequency was increased from about 85% in the controls to 95% and above in all MDHT treatment groups. The mechanism of action for this effect was suggested to be an interaction with androgen receptors either locally in the larynx or in the vocal pathway in the central nervous system [32]. Whether or not increased calling behaviour can have adverse effects on the individual or population remains to be determined.

(c) Progestagens

Levonorgestrel has been shown to act as a reproductive toxicant in amphibians, both after larval and adult exposure [33,34]. A life-cycle study on \( X. tropicalis \) revealed that female frogs exposed to 156 ng \( l^{-1} \) during the tadpole stage, and thereafter reared in clean water until they reached sexual maturity, were sterile upon mating with unexposed males [33]. The LNG-exposed females completely lacked oviducts and the percentage of maturing oocytes (i.e. from the first follicular stage up to the mature oocyte) was drastically decreased from about 55% in the controls to about 5% in the exposed females, as determined by a histological evaluation of the ovaries. These results indicate that larval LNG exposure targeted both Müllerian duct differentiation and oogenesis resulting in permanently impaired fertility. No effects of larval exposure to 19 or 156 ng LNG \( l^{-1} \) on the sex ratio or on ovarian histology were detected at metamorphosis [33]. The implication of these findings is that a full life-cycle test seems necessary to disclose the severe consequences of developmental exposure to this type of compound. No effects on testicular development, sperm count or fertility were observed in adult male \( X. tropicalis \) exposed to 19 or 156 ng LNG \( l^{-1} \) during the larval stage suggesting that females are more susceptible than males to developmental toxicity of progestagens in amphibians [33].

In adult \( X. tropicalis \) females, exposure to LNG for four weeks at concentrations as low as 1.3 ng \( l^{-1} \) interrupted oogenesis as determined by a histological evaluation of the ovaries [34]. In females exposed to 1.3 ng LNG \( l^{-1} \) the proportion of vitellogenic oocytes was reduced by 63% compared with the control and the proportion of previtellogenic oocytes was increased by 32% compared with the control [34]. The results imply that oogenesis, and in particular vitellogenesis, is targeted by LNG at low ng \( l^{-1} \) concentrations in adult female amphibians. In a study on \( X. tropicalis \) males (\( n = 7–12 \) per exposure group) exposed to 3, 22 or 187 ng LNG \( l^{-1} \) (measured levels) for four weeks, no effects on testicular histology or sperm quality were detected (M Sätholm, J Fick, C Berg 2014, unpublished results). In male \( X. laevis \) frogs, exposure for 96 h to LNG was shown to increase advertisement calling at exposure levels of 30 ng \( l^{-1} \) and higher [35]. It remains to be determined whether calling behaviour is also affected at lower, more environmentally relevant exposure levels. The susceptibility of amphibians to reproductive toxicity caused by progestagens other than LNG present in the environment is not known.

(d) Selective serotonin re-uptake inhibitors

To determine the effects of exposure to fluoxetine on amphibian development, \( X. tropicalis \) larvae were chronically exposed for eight weeks via the ambient water to 0.6 or 9.6 \( \mu g \) \( l^{-1} \) fluoxetine from hatching until metamorphosis [36]. The animals exposed to 9.6 \( \mu g \) fluoxetine \( l^{-1} \) had an increased concentration of the serotonin metabolite 5-hydroxyindoleacetic acid in the hypothalamus, compared with controls. None of the exposure levels caused any significant changes in time to metamorphosis, thyroid histology, gonadal sex differentiation or aromatase activity in brain and gonads indicating that the effect on the serotonergic system in the hypothalamus was specific [36]. In another study, \( X. laevis \) tadpoles were exposed until metamorphosis (for 10 weeks) to fluoxetine or the SSRI sertraline at 0.1, 1.0 and 10 \( \mu g \) \( l^{-1} \) to determine effects on growth and development. Tadpoles exposed to fluoxetine (10 \( \mu g \) \( l^{-1} \)) or sertraline (0.1, 1 and 10 \( \mu g \) \( l^{-1} \)) exhibited reduced weight at metamorphosis and it was concluded that only sertraline was capable of affecting larval development at environmentally relevant concentrations.
This warrants further research into the consequences of developmental exposures to SSRIs in amphibians.

(e) Aromatase inhibitors

Larval exposure to aromatase inhibitors such as fadrozole and flavone has been shown to disrupt ovarian differentiation resulting in the development of testicles or intersexed gonads in amphibian females [28,38,39]. While these studies demonstrate the susceptibility of ovarian differentiation to aromatase inhibition, very little is known about the effects of exposure to aromatase-inhibiting pharmaceuticals that occur in the aquatic environment. A study on *X. tropicalis* evaluated the effects of seven weeks’ exposure to 2, 14 and 129 μg clotrimazole l⁻¹ on gonadal differentiation and aromatase activity in brain and gonads during gonadal differentiation [40]. No effects of clotrimazole on gonadal differentiation were detected, whereas gonadal aromatase activity was increased in both sexes at exposure levels greater than or equal to 14 μg l⁻¹ [40]. To the best of our knowledge, no data on adverse effects of environmentally relevant concentrations of clotrimazole or other pharmaceutical aromatase inhibitors on amphibians have been reported.

4. EXPERIMENTAL ASSESSMENT OF THE EFFECTS OF THE PROGESTAGENS NORETHINDRONE AND PROGESTERONE ON OOGENESIS

Considering that several progestagens (including NET and P) are present in the environment, information on their effects and potencies is needed in order to understand the risks this group of substances present to exposed wild amphibians. With the aim to determine the adverse effects of NET and P on oogenesis, adult *X. tropicalis* females were exposed via the ambient water for 28 days to 1, 10 or 100 ng l⁻¹ (nominal) of the test compounds after which the full cycle of oogenesis was analysed histologically.

(a) Methods

(i) Experimental set-up

Two experiments were carried out as follows. Sexually mature female *X. tropicalis* (European Xenopus Resource Centre, Portsmouth, UK, experiment 1, or Xenopus One, Dexter, US, experiment 2) were exposed individually to NET (purity > 98%, CAS: 68-22-4, Sigma-Aldrich, Steinheim, Germany) or P (purity > 97%, CAS: 57-83-0, Sigma-Aldrich, Steinheim, Germany) for 28 days via the water (6 l in experiment 1 and 5 l in experiment 2) in separate plastic tanks (Ferplast, Vicenza, Italy). In experiment 1, the exposure groups were: solvent control, 1, 10, 100 ng NET l⁻¹, and 10 and 100 ng P l⁻¹ (nominal concentrations), n = 6 tanks per exposure group with one individual female per tank. In experiment 2, the exposure groups were: solvent control, 1, and 10 ng NET l⁻¹ and 1 and 10 ng P l⁻¹ (nominal concentrations), n = 10 for controls and n = 6 for the NET and P groups, where n = number of tanks, with one individual female per tank. The concentration of the solvent acetone was 0.0002% in all tanks including the controls. The exposure was carried out under semi-static conditions, with half the test solution and water being renewed three times a week. Water samples were collected for chemical analysis once a week, before and after water change. To ensure that all females were in the same reproductive state at the start of the exposure, human chorionic gonadotropin (Sigma-Aldrich, St. Louis, MO, USA) was injected into the dorsal lymph sac which caused all females to ovulate prior to the experiment.

The frogs were maintained in a 12 L : 12 D cycle. Temperature, pH and conductivity were recorded and nitrite and ammonium levels were measured using standard tests from Sera (Gibbon, Sweden). The frogs were fed Horizon XP23 pellets (Skretting, Stockholm, Sweden) or Frog & Tadpole Bites (HBH, Springville, UT, USA) three times a week. There were no indications of exposure-related mortality,
weight loss or other signs of general toxicity. The overall survival rate was 83%. Detailed information on health status and water quality is found in the electronic supplementary material, under ‘Health status and water quality’ and in the electronic supplementary material table S1.

(ii) Sampling and data analysis

A sample (1–2 g) was excised from the ovary (always from the same region) and fixed in formaldehyde. The tissue was dehydrated, embedded in hydroxyethyl methacrylate, sectioned and stained with haematoxylin–eosin as described in Rasar & Hammes [41]. Our previous data on the distribution of oocyte stages in *X. tropicalis* [34] have shown that there is a low variability between histological sections from various parts of the ovary as well as between individuals in the same exposure group. In fact, the distribution of oocyte stages in the control animals in our previous work [34] corresponded well with what is normal in this phylum (reviewed in [42]). Therefore, in one random ovarian section per individual all the oocytes (approx. 300) were scored as previtellogenic, vitellogenic, mature postvitellogenic or atretic according to the criteria in Hausen & Riebesell [43] using a light microscope at 200× magnification. Previtellogenic oocytes (stage I–II) have not incorporated vitellogenin, and vitellogenic oocytes (stage III–V) are undergoing vitellogenesis (vitellogenin granules are clearly visible close to the follicle cells from the beginning of stage III and display an increasingly uniform distribution in the cytoplasm at later stages). The postvitellogenic oocytes are mature, containing an unpigmented equatorial belt separating the animal and vegetal hemisphere. Oocytes undergoing degeneration (containing areas lacking staining) were scored as atretic. The proportions of various stages of follicular oocytes were calculated as percentages of the total number of follicular oocytes per section.

All histological evaluations of oocyte frequencies were made using coded slides. In experiment 1, all evaluations were made by one person only. In experiment 2, two persons evaluated all slides independently and a mean value was calculated. The distribution of oocyte stages in the control ovaries were consistent with that previously reported for *X. tropicalis* [34] and *X. laevis* [42]. Two exposure experiments were run to evaluate the reproducibility of the results.

(iii) Statistical analysis

The statistical analysis of the biological and water quality data was performed in GRAPHPAD PRISM v. 5.0 (GraphPad Software, San Diego, CA, USA) using the one-way analysis of variance (ANOVA) if the data passed the Kolmogorov–Smirnov normality test, otherwise the Kruskal–Wallis test followed by Dunn's multiple comparison test were used. The F-test of equal variance showed no differences between the exposure groups. The level of significance was 0.05.

(b) Results

(i) Ovarian histology

The results show that both NET and P caused an increased proportion of previtellogenic oocytes and a decreased proportion of vitellogenic oocytes, implying inhibited vitellogenesis (table 1). The effects were ascertained at 1 ng NET l⁻¹ (the lowest tested nominal concentration) and at 10 ng P l⁻¹ (nominal) in two independent experiments, demonstrating reproducibility of the results. The mechanism for the inhibitory action of NET and P on the production of vitellogenic oocytes in amphibians is currently not understood. Progesterone has been shown to inhibit the uptake of vitellogenin into the amphibian oocyte in vitro [44] and to reduce vitellogenin synthesis in lizards, birds and fish [45–47], suggesting that both these mechanisms may be involved.
Table 1.

Frequencies of oocyte stages (mean (s.d.)) in ovaries of female X. tropicalis after exposure to progesterone (P) or norethindrone (NET). Statistical significance in probability tests is indicated by asterisks.

<table>
<thead>
<tr>
<th>treatment (ng l⁻¹)</th>
<th>immature oocytes (%)</th>
<th>follicular oocyte stagesb (%)</th>
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<tr>
<td></td>
<td></td>
<td>previtellogenic oocytes</td>
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<td></td>
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<td>vitellogenic oocytes</td>
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<td></td>
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<td>postvitellogenic mature</td>
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<td>postvitellogenic</td>
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<td></td>
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<td>atretic</td>
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<tr>
<td>experiment 1</td>
<td></td>
<td>oocytes</td>
</tr>
<tr>
<td>control (n = 5)</td>
<td>5.4 (3.3)</td>
<td>55 (6)</td>
</tr>
<tr>
<td>NET 1 (n = 4)</td>
<td>30 (36)</td>
<td>71 (6)*</td>
</tr>
<tr>
<td>NET 10 (n = 6)</td>
<td>36 (42)</td>
<td>62 (12)</td>
</tr>
<tr>
<td>NET 100 (n = 4)</td>
<td>42 (47)</td>
<td>70 (9)</td>
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<tr>
<td>P 10 (n = 5)</td>
<td>7.3 (3.6)</td>
<td>79 (14)**</td>
</tr>
<tr>
<td>P 100 (n = 6)</td>
<td>45 (37)*</td>
<td>70c (5)*</td>
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<tr>
<td>experiment 2</td>
<td></td>
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</tr>
<tr>
<td>control (n = 8)</td>
<td>3.3 (2.5)</td>
<td>58 (12)</td>
</tr>
<tr>
<td>NET 1 (n = 5)</td>
<td>3.6 (0.9)</td>
<td>78 (9)*</td>
</tr>
<tr>
<td>NET 10 (n = 4)</td>
<td>2.7 (0.8)</td>
<td>79 (9)*</td>
</tr>
<tr>
<td>P 1 (n = 5)</td>
<td>2.8 (2.2)</td>
<td>71 (6)</td>
</tr>
<tr>
<td>P 10 (n = 6)</td>
<td>4.0 (3.5)</td>
<td>77 (14)*</td>
</tr>
</tbody>
</table>

*Percentage of oocytes in early meiotic prophase of the estimated total number of oocytes in a histological section of the ovary.

bPercentage of follicular stage oocytes of the total number of follicular oocytes in a histological section of the ovary.

n = 5, one individual in the P 100 ng l⁻¹ group had extremely few follicular oocytes (0.2%) and was therefore omitted from the statistical analysis.

*p < 0.05, **p < 0.01.

(ii) Chemical analysis
The chemical analysis showed that, in spite of the biological effects observed in two repeated experiments, the concentrations of NET and P were below detection limit in the water samples from the exposure tanks. The limit of quantification (LOQ) for NET and P was 0.5 ng l\(^{-1}\). Notably, the measured NET and P concentrations in the stock solutions were very close to the nominal concentration of 500 mg l\(^{-1}\), 501 ± 18 mg NET l\(^{-1}\) (n = 6) and 505 ± 22 mg P l\(^{-1}\) (n = 6). Consequently, the actual concentrations of NET and P in the exposure tanks were most probably similar to or lower than the nominal concentrations, not higher. In stability tests of NET or P using the same plastic tanks as those used for the exposure experiments no degradation of the compounds was seen over 28 days. On day 28 the concentrations were determined to be 104 ± 13 ng l\(^{-1}\) of NET and 98 ± 12 ng l\(^{-1}\) of P (n = 3), versus nominals of 100 ng l\(^{-1}\), i.e. less than 5% was lost. Addition of frog feed into the water was shown not to influence the concentrations of NET and P. The measured levels were 102 ± 11 ng l\(^{-1}\) of NET and 103 ± 14 ng l\(^{-1}\) of P (n = 3) 48 after the addition of the feed. Data from the stability trials are presented in the electronic supplementary material. The results of the stability tests further strengthen the assumption that the test concentrations in the exposure tanks were most probably similar to the nominal concentrations. The reason for the lack of measurable levels in the water samples from the exposure tanks is currently not understood but was most probably due to degradation and sorption in the containers used for medium to long-term storage (5–24 months) of the water samples prior to analysis.

(c) Discussion

When determining environmental risks of pharmaceuticals, consideration should be given to potential additive effects of compounds that share a mode of action. Oestrogenic chemicals have been demonstrated to have additive effects at environmentally relevant concentrations highlighting the risk for underestimating the hazard and, therefore, the risk posed by real-life mixtures of chemicals that act via a similar mode of action [48]. Concentrations of individual steroids in surface waters are often in the low ng l\(^{-1}\) range or lower. Consequently, at sites where several compounds of the same type, for example, different progestagens, are present simultaneously the total concentration will probably be at least 1–10 ng l\(^{-1}\) [10,11,14,16].

Developmental exposure to LNG was shown to target Müllerian duct differentiation and oocyte development in female frogs, whereas reproductive organ development in males was less sensitive [33]. The ability of progestagens to induce developmental effects at environmentally relevant concentrations remains to be investigated. The present and previous findings show that the three progestagens, LNG, NET and P, inhibit oogenesis in the same manner, i.e. by interrupting formation of vitellogenic oocytes, after exposure of adult frogs to low ng l\(^{-1}\) concentrations. Suppressed vitellogenesis is associated with reduced egg production and therefore reproductive success, which has been demonstrated in fish [49]. Hence, the present and previous findings imply that several progestagens (LNG, NET and P) impair reproductive function in amphibians at environmental concentrations. Further investigation to elucidate whether these three progestagens can act additively to harm egg development in amphibians is warranted.

(d) Conclusion

A number of hormonally active pharmaceuticals including steroid hormones, SSRIs and aromatase inhibitors are present at low ng l\(^{-1}\) levels in amphibian breeding habitats. In this paper, literature data on the toxicity of hormonally active pharmaceuticals in amphibians were reviewed and it was found that very little data were available regarding adverse effects of environmentally relevant exposure concentrations. EE\(_2\) and the progestagens LNG, NET and P have been shown to impair reproductive functions at environmentally relevant exposure concentrations, which may indicate a risk to wild amphibians. The progestagens are of particular concern given their prevalence, the range of compounds
and that several of them (LNG, NET and P) share the same target—oogenesis—at environmental exposure concentrations, indicating a risk of adverse effects on fertility in wild amphibians.

SUPPLEMENTARY MATERIAL

Supplementary material:

Click here to view. (97K, pdf)

ACKNOWLEDGEMENTS

We are thankful to Margareta Mattsson for excellent technical assistance, and Nicolas Mathieu and Anna Norder for help with the exposure of frogs.

FUNDING STATEMENT

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REFERENCES


https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4213589/


Contaminants of Emerging Concern including Pharmaceuticals and Personal Care Products

Contaminants of emerging concern (CECs), including pharmaceuticals and personal care products (PPCPs), are increasingly being detected at low levels in surface water, and there is concern that these compounds may have an impact on aquatic life. It is important for EPA to be able to evaluate the potential impact of CECs and PPCPs on aquatic life and have an approach for determining protective levels for aquatic organisms.

These chemicals have features that require additional consideration when applying existing ambient water quality criteria for the protection of aquatic life, using EPA’s 1985 Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Life and Their Uses.

Guidelines for Deriving Numerical National Water Quality Criteria

There are many CECs and PPCPs that act as so-called endocrine disruptors (EDCs). EDCs are compounds that alter the normal functions of hormones resulting in a variety of health effects. EDCs can alter hormone levels leading to reproductive effects in aquatic organisms, and evaluating these effects may require testing methodologies not typically available along with endpoints not previously evaluated using current guidelines.

The emerging contaminants may also demonstrate low acute toxicity but cause significant reproductive effects at very low levels of exposure. In addition, the effects of exposure to aquatic organisms during the early stages of life may not be observed until adulthood. Therefore, traditional toxicity test endpoints may not be sufficiently comprehensive for criteria derivation for these chemicals and the chemicals may also have specific modes of action that may affect only certain types of aquatic animals (e.g., vertebrates such as fish).

Therefore, EPA developed a White Paper Aquatic Life Criteria for Contaminants of Emerging Concern: Part I Challenges and Recommendations (see below) detailing the technical issues and recommendations to serve as a basis for modifying the 1985 guidelines. These modifications should enable the Agency to better address CECs and develop ambient water quality criteria when appropriate for protection of aquatic life that makes the best use of available science.

EPA’s Office of Water asked the Science Advisory Board (SAB) for advice on the scientific merit of a white paper that identifies and addresses technical issues in deriving aquatic life criteria for emerging contaminants such as pharmaceuticals and personal care products exhibiting endocrine disrupting activity or other toxic mechanisms.

Science Advisory Board Review of the White Paper

https://www.epa.gov/wqc/contaminants-emerging-concern-including-pharmaceuticals-and-... 9/26/2018
You may need a PDF reader to view some of the files on this page. See EPA’s About PDF page to learn more.

- **White Paper Aquatic Life Criteria for Contaminants of Emerging Concern Part I General Challenges and Recommendations (PDF)** (86 pp, 534 K, June 3, 2008)
- **Water Quality Criteria Determination Memo (PDF)** (6 pp, 53 K, June 2008)
- **SAB Advisory on Aquatic Life WQC for Contaminants of Emerging Concern (PDF)** (63 pp, 368 K, December 2008)
- **EPA Response to SAB Comments on White Paper Titled Aquatic Life Criteria for Contaminants of Emerging Concern (PDF)** (2 pp, 1 MB, May 2009)

LAST UPDATED ON SEPTEMBER 27, 2016
EPA Science Advisory Board (SAB)

Aquatic Life Protection Mode of Action Methodology for Deriving Water Quality Criteria

EPA Designated Federal Officer (DFO): Thomas Armitage
202-564-2155  armitage.thomas@epa.gov

Responsible Committee/Panel: Ecological Processes and Effects Committee Augmented for the Advisory on EPA's Aquatic Life Water Quality Criteria

A list of members can be found in the final report included in the Advisory Activity linked to this panel or committee.

See EPA’s PDF page to learn more about PDF files.

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<th>BACKGROUND</th>
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EPA’s Office of Water has asked the Science Advisory Board (SAB) for advice on the scientific merit of a white paper that identifies and addresses technical issues in deriving aquatic life criteria for emerging contaminants such as pharmaceuticals and personal care products exhibiting endocrine disrupting activity or other toxic mechanisms.

These chemicals have features that require additional consideration when applying existing ambient water quality criteria for the protection of aquatic life, using EPA’s 1985 Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Life and Their Uses. The emerging contaminants may demonstrate low acute toxicity but cause significant reproductive effects at very low levels of exposure. In addition, the effects of exposure to aquatic organisms during the early stages of life may not be observed until adulthood. Therefore, traditional toxicity test endpoints may not be sufficiently comprehensive for criteria derivation for these chemicals and the chemicals may also have very specific modes of action that may affect only certain types of aquatic animals (e.g., vertebrates such as fish).

Last updated on: July 25, 2012
REQUEST FOR QUALIFICATIONS
FOR
ENGINEERING PROFESSIONAL SERVICES
BIG SKY COUNTY WATER & SEWER DISTRICT
BIG SKY, MONTANA
RFQ # 2017-01

SECTION 1 – GENERAL INFORMATION

1.1 Purpose
The Big Sky County Water and Sewer District is soliciting Statements of Qualifications (SOQs) from professional engineering firms to complete wastewater engineering design and study services for selected projects identified in the District’s 5 Year Wastewater Capital Improvement Plan, and Wastewater System Master Plan Update. Three (3) copies of the SOQ, and one electronic searchable PDF file, must be submitted no later than 5:00 PM on June 16, 2017 to the District at the address listed below.

1.2 Questions
Questions regarding this RFQ shall be submitted to:

Big Sky County Water & Sewer District
Ron Edwards, General Manager
P.O. Box 160670
Big Sky, MT 59716
406.995.2660
Email to: office@wsd363.com

1.3 Preparation Costs
The District shall not be responsible for RFQ preparation costs, nor for costs including attorney fees associated with any challenge to the selection of a preferred firm. By submitting a RFQ each firm agrees to be bound in this respect and waives all claims to such costs and fees.

SECTION 2- QUALIFICATION PROPOSAL CONTENT REQUIREMENTS

The SOQ shall be in letter form and shall not exceed 20 pages in length (excluding resumes) and shall be signed by a representative authorized to bind the firm. Information in excess of the page limit allowed will not be evaluated. One page shall be interpreted as one side of single-spaced, typed, 8½” X 11” sheet. Proposals shall contain the following information:

2.1 Title Page
The following information needs to be included:

- The firm’s legal name, address, and telephone number, name of contact person and date; and
- Statement of understanding of the project and summarize the firm’s ability to provide the services required.

2.2 Firm Experience, Capacity, & Past Performance
Provide general background information on the firm including specialized experience, capabilities and unique qualifications to complete projects efficiently and responsively.

2.3 Personnel Qualifications (can be included as appendices to proposal)
Include a project management chart with key personnel and their area of responsibility. Furnish brief resumes for key personnel and identify specialized expertise and training that would benefit the District for the type of work proposed in the scope of services.

2.4 Similar Projects and Experience

Provide a summary of at least five (5) projects completed that are similar in nature to those included in the Scope of Services. Include a reference and contact information for the projects.

2.5 Present and Projected Workloads

Provide information on the present and projected workloads for the next 12 months for the key staff members identified above in section 2.3. Describe how the workload would be managed to ensure adequate and acceptable service to the District.

2.6 Recent and Current Work for the District

Discuss any recent or current work for the District.

2.7 Project Delivery Approach

Provide an outline illustrating the firms approach to quality control and project scoping process.

SECTION 3 SELECTION PROCESS

A selection committee consisting of District staff and Board Members will choose, in its opinion, the most qualified consultant with which to negotiate a Contract. Proposal will be evaluated on the following criteria and the requirements of MCA 18-8-204. The selection committee may choose to interview a short-list of firms or may select directly from the SOQs without conducting further interviews.

1. The overall content and presentation of the SOQ 25%
2. The qualifications and experience of the personnel 30%
3. Related experience on similar projects 20%
4. Capability to meet time and budgets and personnel workloads 10%
5. Recent and Current Work for the District 10%
6. Location 5%

SECTION 4 SCOPE OF SERVICES

The scope of services contemplated by the District includes, but is not limited to:

A. Design services to:

1. Upgrade the existing SBR and Digester blowers to include variable frequency drives. The upgrades may include a complete replacement of the existing blowers or just the addition of variable frequency drives to the existing blowers;

2. Install new SBR treated effluent storage pond piping to allow the pond to be drawn down to a lower level to provide additional storage capacity;

3. Engineer a pipeline plan from the treatment plant site to a new surface discharge location at the Gallatin River. Design services will include a geotechnical evaluation, survey of potential alignment, identification of any easement
requirements, concepts for a discharge structure, and an alignment map. The plans must be in a form that suitable to submit to Montana DEQ for approval; and

4. Add a third SBR basin to the existing wastewater treatment plant.

B. Study and general engineering services:

1. Plan and implement a pilot test to replace the current filtration process with membrane filters and the selection of the most viable and cost effective method to remove Contaminants of Emerging Concern (CECs);

2. Model the treatment plant for current performance and advanced treatment scenarios based on modeling criteria;

3. Investigate and make recommendations for plant modifications to achieve higher levels of treatment and lower water temperature in the plant effluent;

4. Investigate and make recommendations for alternatives to chlorine disinfection. These recommendations (1-4) and any others that come from these investigations may be negotiated into the design services at the District’s discretion.

5. Assist the District with capacity projections for full build-out;

6. Assist the District with an application for a surface discharge permit;

7. Assist the District in the Big Sky Sustainable Water Solutions Collaboration project, to evaluate the final recommendation(s) from the stakeholders group for feasibility and costs; and

8. Provide progress reports and attend District Board meeting from time to time.

------------------------------------------ End of RFQ ------------------------------------------
DATE: September 11, 2018
TO: Sarah Clerget
   Assistant Attorney General
   Counsel for Board of Environmental Review
   Montana Department of Justice
FROM: Kirsten Hughes Bowers; Legal Counsel
   Edward Hayes, Acting Chief Legal Counsel
   Montana Department of Environmental Quality
SUBJECT: Outstanding Resource Water Petition

INTRODUCTION

On January 31, 2018, the Board of Environmental Review (BER) received a petition for rulemaking from Cottonwood Environmental Law Center and Gallatin Wildlife Association (collectively “Cottonwood”) to designate a portion of the Gallatin River, flowing north from the Yellowstone Park Boundary to the confluence with Spanish Creek, as an outstanding resource water (ORW) pursuant to § 75-5-316, Montana Code Annotated (MCA). The petitioned portion of the Gallatin River flows through United States National Forest land and private land.

At its meeting on August 10, 2018, BER determined the Cottonwood petition contained sufficient credible information to proceed to the next step in which BER must determine whether it will accept or reject the petition. See § 75-5-316(3)(a) and (c), MCA. The Department of Environmental Quality (“DEQ”) submits this memorandum to Counsel for BER to assist in preparation of an analysis of the factors in § 75-5-316(3)(c), (d), and (4)(a) – (f), MCA.

HISTORY

In December 2001, BER received a similar petition from American Wildlands requesting initiation of rulemaking to designate the same segment of the mainstem Gallatin River, from the Yellowstone National Park boundary to Spanish Creek, as an ORW. At its meeting in March 2002, BER accepted the American Wildlands petition and directed DEQ to prepare an environmental impact statement (EIS).


Steve Bullock, Governor  |  Tom Livers, Director  |  P.O. Box 200901  |  Helena, MT 59620-0901  |  (406) 444-2544  |  www.deq.mt.gov
hereto as Exhibit 1. After an extended public comment period, the final EIS for the Gallatin River ORW designation was issued on January 9, 2007.

In response to the American Wildlands petition, BER determined the petitioned segment of the Gallatin River met the criteria for designation as an ORW based upon "the presence of an outstanding recreational fishery;" and "other factors that indicate outstanding environmental or economic values." See at § 75-5-316(4)(c) and (f), MCA, and Exhibit 1 at 2294 – 2295. In making its determination that the Gallatin River met the criteria for ORW designation in § 75-5-316(4)(c) and (f), MCA, the BER recognized that the Gallatin River is known nationally as an outstanding recreational fishery and anglers from Montana and out of state contribute to the economy of the state. Pursuant to § 75-5-316(c) and (d), MCA, BER further found that increased protection through ORW designation was necessary to protect the proposed river segment from "continuing development causing increases in nutrient loads to the Gallatin River and some tributaries;" and that the proposed designation was necessary because there was no other effective process available to permanently protect the river segment. See Exhibit 1 at 2295.

The rule amendments, initially proposed in October 2006, were not adopted by the BER. The Greater Yellowstone Coalition informed the BER that the original petitioners, American Wildlands, were no longer pursuing the ORW designation for the Gallatin River; and that conservation organizations, local developers, local property owners, and the Big Sky Water and Sewer District formed the Wastewater Solutions Forum and were seeking "a more collaborative approach to protecting water quality in the Upper Gallatin River." See Letter to the BER from the Greater Yellowstone Coalition dated July 3, 2008, attached hereto as Exhibit 2.

DOES THE SEGMENT OF THE GALLATIN RIVER CURRENTLY PROPOSED FOR ORW DESIGNATION MEET THE CRITERIA OF § 75-5-316(4)?

The BER must consider the criteria in § 75-5-316(4)(a) through (f), in determining whether to designate the petitioned segment of the main stem of the Gallatin River, from the Yellowstone Park Boundary to the confluence with Spanish Creek, as an outstanding resource water (ORW) pursuant to § 75-5-316, Montana Code Annotated (MCA). The Cottonwood petition, currently before the BER, proposes to designate the same segment of the Gallatin River as an ORW that was considered for designation in 2006.

DEQ submits the following analysis of the criteria in § 75-5-316(4)(a) – (f), MCA, to assist in BER’s determination to accept or reject the Cottonwood petition and initiate rulemaking to classify the petitioned segment of the Gallatin River as an ORW:

1. § 75-5-316(4)(a), MCA – the waters have not been designated as wild and scenic. DEQ and Cottonwood agree the waters have not been designated as wild and scenic under the federal Wild and Scenic Rivers Act. See the Cottonwood Petition to the BER for consideration of the Gallatin River as an ORW on page 5.

2. § 75-5-316(4)(b), MCA – there are no endangered or threatened species present in the waters. There are no aquatic endangered or threatened species within the segment of the Gallatin River proposed for designation as an ORW. See Environmental Summary provided by the Montana Natural Heritage Program, attached hereto as Exhibit 3; and See
Memorandum from Travis Horton, Montana Fish, Wildlife and Parks (FWP) to Eric Urban, DEQ, dated September 9, 2018, attached hereto as Exhibit 4.

3. § 75-5-316(4)(c), MCA – the petitioned segment supports an outstanding recreational fishery. DEQ and Cottonwood agree the petitioned segment of the Gallatin River supports an outstanding recreational fishery due to high quality, cold water, and stable flow. See the Cottonwood Petition to BER for consideration of the Gallatin River as an ORW on page 6. See also Exhibit 4 (according to FWP statewide biannual angler surveys conducted between 2009 and 2015, the petitioned segment is between the 12th and the 9th most fished section of water in the state).

4. § 75-5-316(4)(d), MCA – the waters do not provide the only source of suitable water for a municipality or industry. See the September 7, 2018 email from Brent Zundel, Montana Department of Natural Resources (DNRC), to Eric Urban, DEQ, listing active surface water rights in the mainstem of the Gallatin River, attached hereto as Exhibit 5. There are no surface water rights for municipal or industrial users in the Gallatin River mainstem, and the instream reservation for fish and wildlife, held by FWP, is the largest instream surface water right in the petitioned segment of the Gallatin River. Additionally, a search of the public water supply data base disclosed no public water supplies with intakes on the Gallatin River between the Yellowstone National Park boundary and Spanish Creek. See Memo from Lisa Kaufman, DEQ, Public Water Section Manager to Eric Urban, DEQ, Water Quality Planning Bureau Chief, dated September 6, 2018, attached hereto as Exhibit 6.

5. § 75-5-316(4)(e), MCA – the waters do not provide the only source of suitable water for domestic water supply. There are no active surface water rights for domestic purpose along the petitioned segment of the mainstem Gallatin River.

6. § 75-5-316(4)(f), MCA – other factors that indicate outstanding environmental or economic values not specifically mentioned in (a) through (e) above include recreational uses and economic benefit arising from those uses. DEQ and Cottonwood agree the petitioned segment of the Gallatin River supports a variety of recreational uses that provide economic benefit to the state and local economies. See the Cottonwood Petition to BER for consideration of the Gallatin River as an ORW on page 8.

The Water Quality Act requires BER to make written findings that identify the criteria in § 75-5-315(4), MCA that BER believes justify a determination that the water is an ORW. See § 75-5-315(4)(c)(i) and (d)(i), MCA. Based on the analysis of the criteria above, the petitioned segment of the Gallatin River meets the criteria in § 75-5-316(4)(c) and (f) for designation as an ORW based upon “the presence of an outstanding recreational fishery;” and “other factors that indicate outstanding environmental or economic values.” Other factors indicating outstanding environmental or economic values include a variety of recreational uses such as rafting, kayaking, and other water activities; and the economic benefits to the state and local economies.
arising from those uses of the river. The BER made the same determination during the 2006 rulemaking. See Exhibit 1 at 2294 – 2295.

IS ORW DESIGNATION NECESSARY TO PROTECT THE CRITERIA IN ARM 75-5-316(4)?

BER is required to identify the criteria in § 75-5-316(4), MCA that are at risk and explain why the criteria are at risk. § 75-5-316(3)(c)(ii) and (d)(ii), MCA. The criteria at § 75-5-316(4)(c) and (f), MCA, supporting ORW designation include an outstanding recreational fishery and other factors that indicate outstanding environmental or economic values. The criteria may be at risk from continued growth and development near the petitioned segment of the Gallatin River. Fishing and other recreational uses may be adversely affected by increased nutrient loads related to commercial and residential wastewater discharges to surface and groundwater and from nonpoint sources of pollution such as storm water arising from construction activities. The BER made a similar determination during the 2006 rulemaking. See Exhibit 1 at 2295.

ARE THERE EFFECTIVE PROCESSES AVAILABLE, OTHER THAN ORW DESIGNATION, TO ACHIEVE THE NECESSARY PROTECTION OF THE RESOURCE?

BER is required to make a finding that classification as an ORW is necessary because there is no other available process to achieve the necessary protection of the ORW, and must explain why other available processes would not achieve the necessary protection. 75-5-316(3)(c)(iii) and (d)(iii), MCA. In its 2006 rulemaking, BER determined that designation of the petitioned segment of the Gallatin River was necessary because there was no other effective process available to achieve the necessary protections. See Exhibit 1 at 2295. BER reasoned that the ORW designation was necessary to disallow any new or increased point source that would result in permanent change in water quality. § 75-5-316(2), MCA. Without the ORW designation, the BER found there was no effective process that would achieve the necessary permanent protections. Exhibit 1 at 2295. Since the 2006 rulemaking, DEQ adopted Circular DEQ-12A, which provides numeric standards for nitrogen and phosphorus that are protective of beneficial uses of state water.

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BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.30.617 and 17.30.638 pertaining to outstanding resource water designation for the Gallatin River

NOTICE OF PUBLIC HEARING ON
PROPOSED AMENDMENT
(WATER QUALITY)

TO: All Concerned Persons

1. On October 25, 2006, at 3:00 p.m., the Board of Environmental Review will hold a public hearing at the Gallatin Gateway Inn, 76405 Gallatin Road, Gallatin Gateway, Montana to consider the proposed amendment of the above-stated rules.

2. The board will make reasonable accommodations for persons with disabilities who wish to participate in this public hearing or need an alternative accessible format of this notice. If you require an accommodation, contact the board no later than 5:00 p.m., October 18, 2006, to advise us of the nature of the accommodation that you need. Please contact the board secretary at P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2544; fax (406) 444-4386; or e-mail ber@mt.gov.

3. The rules proposed to be amended provide as follows, stricken matter interlined, new matter underlined:

17.30.617 OUTSTANDING RESOURCE WATERS -- DESIGNATION
(1) remains the same.
(2) The mainstem Gallatin River from the Yellowstone National Park boundary to the confluence of Spanish Creek as of [the effective date of legislation approving the ORW designation] is an ORW.

AUTH: 75-5-301, 75-5-316, MCA
IMP: 75-5-316, MCA

REASON: The board is proposing to amend ARM 17.30.617 to designate the mainstem Gallatin River from the Yellowstone National Park boundary to the confluence of Spanish Creek as an Outstanding Resource Water (ORW).

The board received a petition from American Wildlands in December 2001 requesting the board to initiate rulemaking to designate the mainstem Gallatin River from the Yellowstone National Park boundary to the confluence of Spanish Creek as an Outstanding Resource Water (ORW).

At the March 2002 meeting the board received comment on the petition and directed the Department of Environmental Quality to prepare an environmental impact study (EIS) addressing the petition. The draft EIS was released for public comment on September 8, 2006, and a final EIS and Record of Decision (RCD) will be prepared following the close of the comment period.

The petitioned segment of the Gallatin River meets the following criteria from

19-10/5/06
MAR Notice No. 17-254

EXHIBIT
75-5-316(4), MCA: "(c) the presence of an outstanding recreational fishery in the waters;" and "(f) other factors that indicate outstanding environmental or economic values not specifically mentioned in this section (4)."

The Gallatin River is known nationally as an outstanding recreational fishery. This reputation brings in anglers from out of state as well as Montana and contributes to the economy by supporting direct and indirect employment.

The proposed rulemaking is necessary because the increased protection afforded by outstanding resource water designation will protect the Gallatin River from continuing development causing increases in nutrient loads to the Gallatin River and some tributaries. Increasing nutrients will affect the fishery and the economic benefits of recreational fishing.

The proposed designation of the petitioned segment of the Gallatin River is necessary because there is no other effective process available to achieve this protection permanently. Current Administrative Rules of Montana and Title 75, Chapter 5, MCA, allow new and increased point source discharges to the river that meet the board's rules for "non significant" changes in water quality and also allow authorizations to degrade water quality. The ORW designation would not allow new or increased point source that result in permanent changes in water quality, including permanent changes that are considered "non significant" under the Board's rules.

The designation of the Gallatin River as an ORW as proposed is contingent upon concurring action by the Legislature.

17.30.638 OUTSTANDING RESOURCE WATERS — PROHIBITIONS
(1) Any new or increased point source discharge that would result in a permanent change in water quality of an ORW is prohibited. This prohibition does not apply to new or increased point source discharges to an ORW if the point source discharge was approved, authorized, licensed, or permitted by the department or local government body prior to the effective date of the ORW designation.

(2) Any new or increased source discharging to ground water that has a direct hydrologic connection to an ORW is prohibited if the discharge, either by itself or after taking into consideration cumulative effects of other sources that are subject to the prohibitions of the ORW designation, would result in a permanent, measurable change in the water quality of the ORW. This prohibition does not apply to new or increased sources with a direct hydrologic connection to an ORW if the source was approved, authorized, licensed, or permitted by the department or local government body prior to the effective date of the ORW designation.

AUTH: 75-5-301, 75-5-316, MCA
IMP: 75-5-316, MCA

REASON: The board is proposing to amend ARM 17.30.638 to add a new section clarifying that discharges to ground water with a direct hydrologic connection to an ORW are within the statutory mandate prohibiting any permanent change in the water quality of an ORW resulting from point source discharges. See 75-5-316, MCA.

The board is proposing to add language to existing section (1) and proposed MAR Notice No. 17-254 19-10/5/06
section (2) to clarify that existing point sources or ground water sources that will result in discharges to an ORW, which have been approved, authorized, licensed, or permitted by the department prior to the effective date of the ORW's designation, are not subject to the prohibitions in the statute against causing permanent changes in the water quality of an ORW.

4. Concerned persons may submit their data, views, or arguments, either orally or in writing, at the hearing. Written data, views, or arguments may also be submitted to the board secretary at Board of Environmental Review, 1520 E. Sixth Avenue, P.O. Box 200901, Helena, Montana 59620-0901; faxed to (406) 444-4386; or e-mailed to ber@mt.gov, no later than November 2, 2006. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

5. The board will preside over and conduct the hearing.

6. The board maintains a list of interested persons who wish to receive notices of rulemaking actions proposed by this agency. Persons who wish to have their name added to the list shall make a written request that includes the name and mailing address of the person to receive notices and specifies that the person wishes to receive notices regarding: air quality; hazardous waste/waste oil; asbestos control; water/wastewater treatment plant operator certification; solid waste; junk vehicles; infectious waste; public water supplies; public sewage systems regulation; hard rock (metal) mine reclamation; major facility siting; opencut mine reclamation; strip mine reclamation; subdivisions; renewable energy grants/loans; wastewater treatment or safe drinking water revolving grants and loans; water quality; CECRA; underground/above ground storage tanks; MEPA; or general procedural rules other than MEPA. Such written request may be mailed or delivered to the board secretary at Board of Environmental Review, 1520 E. Sixth Ave., P.O. Box 200901, Helena, Montana 59620-0901; faxed to (406) 444-4386; e-mailed to ber@mt.gov; or may be made by completing a request form at any rules hearing held by the board.

7. The bill sponsor notice requirements of 2-4-302, MCA, do not apply.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

/is/ John F. North BY: /is/ Joseph W. Russell
Rule Reviewer JOSEPH W. RUSSELL, M.P.H., Chairman

Certified to the Secretary of State, September 25, 2006.
Montana Board of Environmental Review  
PO Box 200901  
Helena, MT 59620-0901

Dear Board of Environmental Review:

On behalf of the Greater Yellowstone Coalition, I am writing to urge the Board to again extend the public comment period on the proposed rulemaking to designate the Upper Gallatin River as an Outstanding Resource Water (ORW).

The Greater Yellowstone Coalition has supported ORW designation for the Upper Gallatin River since it was petitioned for that status in 2000. As you know, American Wildlands filed the original ORW petition, and until last year, it led that effort.

As you may know, American Wildlands dropped its water program last year, and with it, its commitment to leading the ORW campaign. At the same time, many of the groups that previously were at loggerheads over the ORW proposal – conservation organizations, developers, local property owners, and the Big Sky Water and Sewer District – joined together to pursue a more collaborative approach to protecting water quality in the Upper Gallatin River. This collaborative process is known as the Wastewater Solutions Forum.

Since its formation last year, the Wastewater Solutions Forum successfully raised $60,000 to pay for a feasibility study that will determine how much it would cost to expand the Big Sky Water and Sewer District to include the Gallatin River corridor from the Corral Bar downstream to the Big Sky turnoff. The study will also quantify how expanding the Water and Sewer District would improve water quality in the Upper Gallatin River as compared to an ORW designation. HKM Engineering of Billings is currently putting the finishing touches on the study, and on July 22, it will present it to the Wastewater Solutions Forum.

The Greater Yellowstone Coalition strongly prefers this collaborative approach to protecting water quality in the Gallatin River for two reasons. First, it has more community buy-in than the ORW proposal does. Second, and more importantly, it has the very real potential to actually improve
water quality in the Gallatin River by hooking up existing homes and businesses to an expanded Water and Sewer District. ORW designation would only affect future development.

That being said, we continue to believe it is important that the Board keep ORW designation on the table – at least for the time being – because it provides a powerful incentive for all the various stakeholder groups to continue to work together to arrive at a solution that everyone can agree to. If ORW designation were to be taken off the table, this collaborative process could well unravel.

In closing, we urge the Board to leave the public comment period open on the ORW proposal. Should you have any questions about our position, please do not hesitate to call me at (406) 556-2823 or email me at sbosse@greateryellowstone.org. Thank you for taking our comments into consideration.

Sincerely,

Scott Bosse
Rivers Conservation Coordinator
See attached. No federally listed species. Let me know if you have any questions. There are some G1-G2 global endemic invertebrates, but they aren’t listed.

-Bryce

Bryce A. Maxell  
Program Coordinator  
Montana Natural Heritage Program http://mtnhp.org  
P.O. Box 201800, 1515 East Sixth Ave., Helena, MT 59620-1800  
(406) 444-3989 (office) | (406) 461-1279 (cell) | (406) 444-0266 (fax)  
bmaxell@mt.gov
Introduction to Environmental Summary Report

The Environmental Summary report for your area of interest consists of introductory and related materials in this PDF and an Excel workbook with worksheets summarizing information managed in the Montana Natural Heritage Program’s (MTNHP) databases for: (1) species occurrences; (2) other observed species without Species Occurrences; (3) other species potentially present based on their range, presence of associated habitats, or predictive distribution model output if available; (4) structured surveys (organized efforts following a protocol capable of detecting one or more species); (5) land cover mapped as ecological systems; (6) wetland and riparian mapping; (7) land management categories; and (8) biological reports associated with plant and animal observations. In order to do this in a consistent manner across Montana and allow for rapid delivery of summaries, we have intersected this information with a uniform grid of hexagons that have been used for planning efforts across the western United States (e.g. Western Association of Fish and Wildlife Agencies - Crucial Habitat Assessment Tool). Each hexagon is one square mile in area and approximately one kilometer in length on each side. Summary information for each data layer is then stored with each hexagon and those summaries are added up to an overall summary for the report area you have requested. Users should be aware that summaries do not correspond to the exact boundaries of the polygon they have specified, but instead are a summary across all hexagons intersected by the polygon they specified.

In presenting this information, MTNHP is working towards assisting the user with rapidly assessing the known or potential species and biological communities, land management categories, and biological reports associated with the report area. We remind users that this information is likely incomplete and may be inaccurate as surveys to document species are lacking in many areas of the state, species’ range polygons often include regions of unsuitable habitat, methods of predicting the presence of species or communities are constantly improving, and information is constantly being added and updated in our databases. Field verification by professional biologists of the absence or presence of species and biological communities in a report area will always be an important obligation of users of our data. Users are encouraged to only use this environmental summary report as a starting point for more in depth analyses and are encouraged to contact state, federal, and tribal resource management agencies for additional data or management guidelines relevant to your efforts. Please see the Appendix for introductory materials to each section of the report, additional information resources, and a list of relevant agency contacts.
### Native Species

**Summarized by:** Gallatin (10020008 - 4th Code Watershed)

**Filtered by:** USFWS=LE\',LT\',C\',P\',DM\',PS\'

*Map not shown for scales greater than 1:80,000*

#### Species Occurrences

<table>
<thead>
<tr>
<th>Species of Concern</th>
<th>View in Field Guide</th>
<th>View Predicted Models</th>
<th>View Associated Habitat</th>
<th>View Range Maps</th>
<th>Associated Habitat</th>
<th>Predictive Model</th>
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</thead>
<tbody>
<tr>
<td><strong>Pinus albicaulis</strong> (Whitebark Pine)</td>
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<tr>
<td><strong>Bald Eagle</strong> (Haliaeetus leucocephalus) SSS</td>
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<td><strong>Yellow-billed Cuckoo</strong> (Coccyzus americanus)</td>
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<tr>
<td><strong>Spiranthus diluvialis</strong> (<em>Ledas starworts</em>)</td>
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<td><strong>Peregrine Falcon</strong> (Falco peregrinus)</td>
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<td><strong>Wolverine</strong> (Gulo gulo)</td>
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**Legend**
- **Model Icons:**
  - S: Suitable (native range)
  - O: Occasional
  - M: Moderate
  - L: Low

- **Habitat Icons:**
  - C: Common
  - Occ: Occasional

- **Range Icons:**
  - L: Summer Range
  - W: Winter Range
  - M: Migration Range
  - H: Historic Range

- **Num Obs:**
  - Count of birds with "good precision" (>1000m)
  - Indicates additional poor precision obs (100m to 1000m)

**USFWS**
- Sect: 77
- B: 309
- D: 143

**Last Updated:**
- May 24, 2018
- Dec 15, 2017
- Jun 13, 2014
- Sep 03, 2014

**BLM**
- 44.8433
- -110.7457
- 46.0786
- -111.8966

**Latitude**
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- -110.7457
- 46.0786
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**Longitude**
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**BLM**
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**LATITUDE**
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- 46.0786
- -111.8966

**LONGITUDE**
- 44.8433
- -110.7457
- 46.0786
- -111.8966

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Other Observed Species

- M - Gray Wolf (Canis lupus)

Other Potential Species

- B - Piping Plover (Charadrius melodus)
Structured Surveys

Summarized by: Gallatin (10020008 - 4th Code Watershed)

The Montana Natural Heritage Program (MTNHP) records information on the locations where more than 80 different types of well-defined repeatable survey protocols capable of detecting an animal species or suite of animal species have been conducted by state, federal, tribal, university, or private consulting biologists. Examples of structured survey protocols tracked by MTNHP include: visual encounter and dip net surveys for pond breeding amphibians, point counts for birds, call playback surveys for selected bird species, visual surveys of migrating raptors, kick net stream reach surveys for macroinvertebrates, visual encounter cover object surveys for terrestrial mollusks, bat acoustic or mist net surveys, pitfall and/or snap trap surveys for small terrestrial mammals, track or camera trap surveys for large mammals, and trap surveys for turtles. Whenever possible, photographs of survey locations are stored in MTNHP databases.

MTNHP does not typically manage information on structured surveys for plants; surveys for invasive species may be a future exception.

Within the report area you have requested, structured surveys are summarized by the number of each type of structured survey protocol that has been conducted, the number of species detections/observations resulting from these surveys, and the most recent year a survey has been conducted.

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<thead>
<tr>
<th>Survey Type</th>
<th>Survey Count</th>
<th>Obs Count</th>
<th>Recent Survey</th>
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<td>AR-Amphibian/Reptile Lentic</td>
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<td>B-Bald Eagle Nest</td>
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<td>B-BBS</td>
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<td>B-Winter Breeding Owl</td>
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<td>E-Eurasian Water-mill#af力求</td>
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<td>E-Non-invasive Mussel Plankton Tow</td>
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<tr>
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<tr>
<td>O-Muscule</td>
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<td>R-PreY</td>
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<td>S-PreY</td>
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<tr>
<td>T-PreY</td>
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<td>U-PreY</td>
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<td>V-PreY</td>
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<td>Z-PreY</td>
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</tbody>
</table>

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Notes on and Appropriate Uses of Land Cover

The Land Cover data used in Map Viewer are based on classifications of 30-meter Landsat satellite imagery. The base data were classified as part of the national ReGAP project, using imagery from the late 1990s and early 2000s. Classification accuracy varies from system to system, but statewide and local assessments have not been completed to-date. Generally, systems occurring as small patches (e.g., fens, mountain mahogany shrublands) or those making up smaller percentages of various administrative boundaries (e.g., all of those listed under the Additional Limited Land Cover folder below) will be less accurately classified than systems occurring as matrices or large patches (e.g., mixed grass prairie, lodgepole pine forests). Similarly, areas where land use and land cover has changed significantly over the past decade may not be correctly classified. Users are cautioned that the appropriate scale for use of the data is 1:100,000. Accuracy improvements are ongoing. To submit updated information, please email mtnhp@mt.gov.
Forest and Woodland Systems
Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Montane Douglas-fir Forest and Woodland

In Montana, this ecological system occurs on the east side of the Continental Divide, north to about the McDonald Pass area, and along the Rocky Mountain Front. This system is associated with a dry to submesic continental climate regime with annual precipitation ranging from 51 to 102 centimeters (20-40 inches), with maximum in winter or late spring. Winter snowbanks typically melt off in early spring at lower elevations. Elevations range from valley bottoms to 1,980 meters (6500 feet) in northern Montana and up to 2,286 meters (7500 feet) on warm aspects in southern Montana. It occurs on north-facing aspects in most areas, and south-facing aspects at higher elevations. This is a Douglas-fir (Pseudotsuga menziesii) dominated system without any maritime floristic composition. Fire disturbance intervals are as infrequent as 500 years, and as a result, individual trees and forests can attain great age on some sites (500 to 1,500 years). In Montana, this system occurs from lower montane to lower subalpine environments and is prevalent on calcareous substrates. Common understory shrubs include common ninebark (Physocarpus malvaceus), common juniper (Juniperus communis), Rocky Mountain juniper (Juniperus scopulorum), birch-leaf spirea (Spiraea betulifolia), snowberry (Symphoricarpos species), creeping Oregon grape (Mahonia repens) and Canadian buffaloberry (Shepherdia canadensis). The Douglas-fir/pinegrass (Calamagrostis rubescens) type is the most ubiquitous association found within this system in Montana.

Forest and Woodland Systems
Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland

Engelmann spruce (Picea engelmannii) and subalpine fir (Abies lasiocarpa) make up a substantial part of the montane and lower subalpine forests of the Montana Rocky Mountains and mountain island ranges of north-central and west-central Montana. Spruces usually associated with fir and occurs as either a climax co-dominant or as a persistent, long-lived seral species in most upper elevation fir-habitat types. Dry to mesic spruce-dominated forests range from 884-1,595 meters (2,900-5,200 feet) west of the Continental Divide, and 1585-2,073 meters (5,200-6,800 feet) east of the Continental Divide in the northern and central portions of the state. This system can be found at elevations up to 2,986 meters (9,500 feet) in southwestern Montana. Forests are found on very steep mountain slopes, high-elevation ridge tops and upper slopes, plateau-like surfaces, basins, alluvial terraces, well-drained benches, and inactive stream terraces. Tree canopy characteristics are relatively uniform. In northern Montana, Engelmann spruce hybridizes with its boreal counterpart, white spruce (Picea glauca). Douglas-fir (Pseudotsuga menziesii), lodgepole pine (Pinus contorta), and western larch (Larix occidentalis) (west of the Continental Divide) are seral but often present in these forests. The understory is comprised of a mixture of shrubs, forbs and graminoids tolerant of warmer and drier soil conditions than those found on the more mesic to wet-spruce-fir system. The drier occurrences of this system are especially common on steep slopes at upper elevations throughout the eastern Rocky Mountains, whereas the more mesic occurrences form substantial cover west of the Continental Divide in the Flathead, Lolo, Bitteroot and Kootenai river drainages.

Human Land Use

Agriculture

Cultivated Crops

These areas used for the production of crops, such as corn, soybeans, small grains, sunflowers, vegetables, and cotton, typically on an annual cycle. Agricultural plant cover is variable depending on season and type of farming. Other areas include more stable land cover of orchards and vineyards.

Grassland Systems

Montane Grassland

Rocky Mountain Lower Montane, Foothill, and Valley Grassland

This grassland system of the northern Rocky Mountains is found at lower montane to foothill elevations in mountains and valleys throughout Montana. These grasslands are floristically similar to Big Sagebrush Steppe but are defined by shorter summers, colder winters, and young soils derived from recent glacial and alluvial material. They are found at elevations from 548 - 1,650 meters (1,800-5,413 feet). In the lower montane zone, they range from small meadows to large open parks surrounded by conifers; below the lower treeline, they occur as extensive foothill and valley grasslands. Soils are relatively deep, fine-textured, often with coarse fragments, and non-saline. Microphytic crust may be present in high-quality occurrences. This system is typified by cool-season perennial bunch grasses and forbs (>25%) cover, with a sparse shrub cover (<10%). Rough fescue (Festuca campestris) is dominant in the northwestern portion of the state and Idaho fescue (Festuca idahoensis) is dominant or co-dominant throughout the range of the system. Bluebunch wheatgrass (Pseudoroegneria spicata) occurs as a co-dominant throughout the range as well, especially on xeric sites. Western wheatgrass (Pascopyrum smithii) is consistently present, often with appreciable coverage (>10%) in lower elevation occurrences in western Montana and virtually always present, with relatively high coverages (>25%), on the edge of the Northwestern Great Plains region. Species diversity ranges from a high of more than 50 per 400 square meter plot on mesic sites to 15 (or fewer) on xeric and disturbed sites. Most occurrences have at least 25 vascular species present. Farmland conversion, noxious species invasion, fire suppression, heavy grazing and oil and gas development are major threats to this system.
Shrubland, Steppe and Savanna Systems
Sagebrush Steppe

Montane Sagebrush Steppe

This system dominates the montane and subalpine landscape of southwestern Montana from valley bottoms to subalpine ridges and is found as far north as Glacier National Park. It can also be seen in the island mountain ranges of the north-central and south-central portions of the state. It primarily occurs on deep-soiled to stony flats, ridges, nearly flat ridgetops, and mountain slopes. In general, this system occurs in areas of gentle topography, fine soils, subsurface moisture or mesic conditions, within zones of higher precipitation and areas of snow accumulation. It occurs on all slopes and aspects, variable substrates and all soil types. The shrub component of this system is generally dominated by mountain big sagebrush (Artemisia tridentata ssp. vashoniana). Other co-dominant shrubs include silver sagebrush (Artemisia cana ssp. viscidula), subalpine big sagebrush (Artemisia tridentata ssp. plicifolia), three tip sagebrush (Artemisia tripartita ssp. tripartita) and antelope bitterbrush (Purshia tridentata). Little sagebrush (Artemisia arbuscula ssp. arbuscula) shrublands are only found in southwestern Montana on sites with a perched water table. Wyoming big sagebrush (Artemisia tridentata ssp. wyomingensis) sites may be included within this system if occurrences are at montane elevations, and are associated with montane graminoids such as Idaho fescue (Festuca idahoensis), spike fescue (Leucopoa inigii), or poverty oatgrass (Danthonia intermedia). In areas where sage has been eliminated by human activities like burning, discing or poisoning, other shrubs may be dominant, especially rubber rabbitbrush (Ericameria nauseosa), and green rabbitbrush (Chrysothamnus viscidiflorus). Because of the mesic site conditions, most occurrences support a diverse herbaceous undergrowth of grasses and forbs. Shrub canopy cover is extremely variable, ranging from 10 percent to as high as 40 or 50 percent.

Forest and Woodland Systems
Conifer-dominated forest and woodland (xeric-mesic)

Rocky Mountain Lodgepole Pine Forest

This forested system is widespread in upper montane to subalpine zones of the Montana Rocky Mountains, and east into island ranges of north-central Montana and the Bighorn and Beartooth ranges of south-central Montana. These are montane to subalpine forests where the dominance of lodgepole pine (Pinus contorta) is related to fire history and topographic conditions. In Montana, elevation ranges from 375 to 2,743 meters (1,200-9,000 feet). These forests occur on flats to slopes of all degrees and aspect, as well as valley bottoms. Fire is frequent, and stand-replacing fires are common. Following stand-replacing fires, lodgepole pine will rapidly colonize and develop into dense, even-aged stands. Most forests in this ecological system occur as early- to mid-successional forests persisting for 50-200 years on warmer, lower elevation forests, and 150-400 years in subalpine forests. They generally occur on dry to intermediate sites with a wide seasonal range of temperatures and long precipitation-free periods in summer. Snowfall is heavy and supplies the major source of soil water used for growth in early summer. Vigorous stands occur where the precipitation exceeds 533 millimeters (21 inches). These lodgepole forests are typically associated with rock types weathering to acidic substrates, such as granite and rhyolite. In west-central Montana ranges such the Big Belts and the Rocky Mountain Front, these forests are found on limestone substrates. These systems are especially well developed on the broad ridges and high valleys near and east of the Continental Divide. Succession proceeds at different rates, moving relatively quickly on low-elevation, mesic sites and particularly slowly in high-elevation forests such as those along the Continental Divide in Montana.

Grassland Systems
Montane Grassland

Rocky Mountain Subalpine-Montane Mesic Meadow

This system is restricted to sites from lower montane to subalpine elevations where finely textured soils, snow deposition, or wind swept conditions limit tree establishment. Many occurrences are small patches, and are often found in mosaics within woodlands, dense shrublands, or just below alpine communities. Elevations range from 600 to 2,011 meters (2,000-6,600 feet) in the northern Rocky Mountains and up to 2,286-2,692 meters (7,500-8,800 feet) in the mountains of southwestern Montana. This system occurs on gentle to moderate-gradients slopes and in relatively moist habitats. Soils are typically seasonally moist to saturated in the spring, but dry out later in the growing season. At montane elevations, soils are usually clays or silt loams, and some occurrences may have inclusions of hydric soils in low, depressional areas. At subalpine elevations, soils are derived from a variety of parent materials, and are usually rocky or gravelly with good aeration and drainage, but with a well developed organic layer. Some occurrences are more heavily dominated by grasses, while others are more dominated by forbs. Common grasses include tufted hairgrass (Deschampsia caespitosa), showy oniongrass (Melica spectabilis), mountain brome (Bromus carinatus), blue wildrye (Elymus glaucus), arrow sedge (Carex atherodes), and small wing sedge (Carex microptera). Forb dominated meadows usually comprise a wide species diversity which differs from montane to subalpine elevations. Shrubs such as shubby cinquefoil (Dasiphora fruticosa ssp. floribunda) and snowberry (Symphoricarpos species) are occasional but not abundant. This system differs from the Rocky Mountain Alpine Montane Wet Meadow system in that it soils dry out by mid-summer.
Forest and Woodland Systems
Deciduous dominated forest and woodland

**Aspen Forest and Woodland**

This widespread ecological system is more common in the southern and central Rocky Mountains, but occurs in the montane and subalpine zones throughout much of Montana north into Canada. It is similar to the Inter-Mountain Basins Aspen Mixed Conifer Forest-Woodland found in the Big Snowy Mountains, but lacks the conifer component. Distribution of this system is primarily limited by adequate soil moisture required to meet its high evaporative demand, length of growing season, and temperatures. Mean annual precipitation where these systems occur is generally greater than 38 centimeters (15 inches) and typically greater than 51 centimeters (20 inches), except in semi-arid environments where occurrences are restricted to mesic microsites such as seeps or areas below large snow drifts. Stands can occur on gentle to moderate slopes, in swales, or on level sites. At lower elevations, occurrences are found on cooler, north aspects and mesic sites. Soils are usually deep and well developed with rock often absent from the soil. Soil texture ranges from sandy loam to clay loams. This system describes mesic forests and woodlands dominated by quaking aspen (Populus tremuloides) without a significant conifer component (<25% relative tree cover). This aspen system can be stable and long-lived with little encroachment of coniferous species. The understorey structure may be complex with multiple shrub and herbaceous layers, or simple, with just an herbaceous layer. The herbaceous layer may be dense or sparse, dominated by mesic grasses or forbs. Occurrences of this system often originate, and are likely maintained, by stand-replacing disturbances such as crown fire, disease, windthrow, elk and beaver activity.

**Human Land Use**

**Developed**

3% (30,551 Acres)

Wetland and Riparian Systems
Floodplain and Riparian

**Rocky Mountain Lower Montane-Foothill Riparian Woodland and Shrubland**

This ecological system is found throughout the Rocky Mountain and Colorado Plateau regions. In Montana, it ranges from approximately 945 to 2,042 meters (3,100 to 6,700 feet), characteristically occurring as a mosaic of multiple communities that are tree-dominated with a diverse shrub component. It is dependent on a natural hydrologic regime, especially annual to episodic flooding. Occurrences are found within the flood zone of rivers, on islands, sand or cobble bars, and on immediate streambanks. It can form large, wide occurrences on mid-channel islands in larger rivers or narrow bands on small, rocky canyon tributaries and well-drained benches. It is also typically found in backwater channels and other perennially wet but less scourred sites, such as floodplains, swales and irrigation ditches. In some locations, occurrences extend into moderately high intermountain basins where the adjacent vegetation is sage steppe. Dominant trees may include boxelder maple (Acer negundo), narrowleaf cottonwood (Populus angustifolia), Plains cottonwood (Populus deltoides), Douglas-fir (Pseudotsuga menziesii), peachleaf willow (Salix amygdaloides), or Rocky Mountain juniper (Juniperus scopulorum). Dominant shrubs include Rocky Mountain maple (Acer glabrum), thimble alder (Alnus incana), river birch (Betula occidentalis), redbud dogwood (Cornus sericea), hawthorne (Crataegus spp.), chokecherry (Prunus virginiana), skunkbush sumac (Rhus trilobata), Drummond’s willow (Salix drummondiana), sandbar willow (Salix exigua), Pacific willow (Salix lucida), rose (Rosa species), silver buffaloberry (Shepherdia argentea), or snowberry (Symphoricarpos species). Exotic trees of Russian olive (Elaeagnus angustifolia) and saltcedar (Tamarix species) may invade some stands in southeastern and south-central Montana.

**Human Land Use**

**Agriculture**

**Pasture/Hay**

2% (20,530 Acres)

These agriculture lands typically have perennial herbaceous cover (e.g. regularly-shaped plantings) used for livestock grazing or the production of hay. There are obvious signs of management such as irrigation and haying that distinguish it from natural grasslands. Identified CRP lands are included in this land cover type.

**Alpine Systems**

**Alpine Grassland and Shrubland**

**Alpine Turf**

In Montana, this system occurs above upper treeline throughout the Montana Rocky Mountain ranges, and east into the mountain island ranges. Elevations range from as low as 6,600 ft in southwestern to 10,500 feet in southwestern Montana. Turf communities form on gentle to moderate upper slopes, flat ridges, valleys, basins, and gentle summit ridges where soil has become relatively stabilized and the water supply persists until fall. At these elevations, the growing season typically ranges from 60 to 90 days. During the growing season, these areas are subjected to windy conditions and widely variable diurnal temperatures. Freezing temperatures and snow can occur throughout the summer months. Turf communities are composed of a diversity of rhizomatous sedges, rushes, woodrushes, grasses and forbs that form a dense turf that is rarely greater than 12 cm (5 inches) tall. Depending on slope protection, soil development, snow depth, turf communities can range from dry to mesic expressions.
Forest and Woodland Systems
Conifer-dominated forest and woodland (mesic-wet)

**Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland**

These forests are similar to Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland (4242), but occur in locations with cold-air drainage or ponding, or where snowpacks linger late into the summer, such as north-facing slopes and high-elevation ravines. They are distinguished by their occurrence on mesic to wet microsites within the matrix of the drier (and warmer) subalpine spruce-fir or lodgepole pine forests. The microsites include north-facing slopes, swales or ravines, toeslopes, cold pockets, and other locations where available soil moisture is higher or lasts longer into the growing season. This system can extend down in elevation below the subalpine zone in places where cold-air ponding occurs, especially on north and east aspects. Elevations range from 884 to 1,981 meters (2,900-6,500 feet) west of the Continental Divide, and 1,585 to 2,682 meters (5,200-8,800 feet) east of the Continental Divide. Spruce is usually associated with subalpine fir and occurs either as a climax co-dominant or as a persistent, long-lived seral species in most upper elevation subalpine fir stands. Mountain hemlock (Tsuga mertensiana) occurs as small patches within the matrix of this mesic spruce-fir system, but only in the more maritime of environments of northeastern Montana, in the coldest and wettest sites. The shrub understory contains many ericaceous species such as rusty leaf manzesia (Menziesia ferruginea), dwarf huckleberry (Vaccinium caespitosum), mountain huckleberry (Vaccinium membranaceum), bilberry (Vaccinium myrtillus), grouse whortleberry (Vaccinium scoparium), pink mountain heath (Rhododendron empetriforme), black twinberry honeysuckle (Lonicera involucrata), gooseberry (Ribes species) and thimbleberry (Rubus parviflorus). The herbaceous understory contains mesic forbs, graminoids, and ferns and fern allies on the wettest sites. Moss cover is often high. Stand-replacing fires are less common in mesic spruce-fir forests than in dry-mesic forests.

**Additional Limited Land Cover**

- 1% (17.154 Acres) **Big Sagebrush Steppe**
- 1% (16.794 Acres) **Developed, Open Space**
- 1% (15.395 Acres) **Rocky Mountain Subalpine-Upper Montane Grassland**
- 1% (14.814 Acres) **Alpine-Montane Wet Meadow**
- 1% (13.120 Acres) **Recently burned forest**
- 1% (12.951 Acres) **Low Intensity Residential**
- 1% (11.292 Acres) **Insect-Killed Forest**
- 1% (9.521 Acres) **Alpine Bedrock and Scree**
- 1% (8.896 Acres) **Rocky Mountain Subalpine Woodland and Parkland**
- 1% (7.580 Acres) **Rocky Mountain Montane-Foothill Deciduous Shrubland**
- 1% (7.041 Acres) **Commercial / Industrial**
- 1% (6.847 Acres) **Harvested forest-tree regeneration**
- 1% (5.982 Acres) **Rocky Mountain Subalpine Deciduous Shrubland**
- 1% (5.928 Acres) **Harvested forest-grass regeneration**
- <1% (3.934 Acres) **Introduced Upland Vegetation - Annual and Biennial Forbland**
- <1% (3.825 Acres) **Alpine Dwarf-Shrubland**
- <1% (2.883 Acres) **Alpine Fell-Field**
- <1% (2.880 Acres) **Post-Fire Recovery**
- <1% (2.750 Acres) **Open Water**
- <1% (2.720 Acres) **Major Roads**
- <1% (2.595 Acres) **Harvested forest-shrub regeneration**
- <1% (2.166 Acres) **High Intensity Residential**
- <1% (2.045 Acres) **Interstate**
- <1% (1.567 Acres) **Rocky Mountain Cliff, Canyon and Massive Bedrock**
- <1% (852 Acres) **Aspen and Mixed Conifer Forest**
- <1% (718 Acres) **Railroad**
- <1% (606 Acres) **Burned Sagebrush**
- <1% (491 Acres) **Quarries, Strip Mines and Gravel Pits**
- <1% (407 Acres) **Rocky Mountain Foothill Limber Pine - Juniper Woodland**
- <1% (398 Acres) **Recently burned shrubland**
- <1% (386 Acres) **Rocky Mountain Subalpine-Montane Birkan Woodland**
- <1% (216 Acres) **Rocky Mountain Subalpine-Montane Birkan Shrubland**
- <1% (126 Acres) **Mountain Mahogany Woodland and Shrubland**
- <1% (103 Acres) **Rocky Mountain Poco Site Lodgepole Pine Forest**
- <1% (97 Acres) **Low Sagebrush Shrubland**
- <1% (86 Acres) **Rocky Mountain Ponderosa Pine Woodland and Savanna**
- <1% (47 Acres) **Emergent Marsh**
<1% (16 Acres)  Rocky Mountain Wooded Vernal Pool
<1% (12 Acres)  Rocky Mountain Lower Montane-Foothill Shrubland
<1% (11 Acres)  Great Plains Saline Depression Wetland
<1% (7 Acres)  Glacier and Ice Field
<1% (6 Acres)  Great Plains Riparian
<1% (2 Acres)  Rocky Mountain Conifer Swamp
<1% (2 Acres)  Northern Rocky Mountain Lower Montane Riparian Woodland and Shrubland
<1% (1 Acres)  Geysers and Hot Springs
<1% (1 Acres)  Introduced Riparian and Wetland Vegetation
<1% (0 Acres)  Rocky Mountain Mesic Montane Mixed Conifer Forest
<1% (0 Acres)  Rocky Mountain Subalpine-Montane Fen
Wetland and Riparian Mapping

Summarized by: Gallatin (10020008 - 4th Code Watershed)

1,181,754 Acres (1.26% of Montana)

Notes on Appropriate Uses of Wetland and Riparian Mapping

Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands differently than the NWI.

MTNHP Wetland and Riparian Mapping data are intended for use in publications at a scale of 1:12,000 or smaller. Historic wetland mapping is intended for use in publications at a scale of 1:24,000 or smaller. Mapped wetlands do not represent precise wetland boundaries, and digital wetland data cannot substitute for an on-site determination of jurisdictional wetlands.

Wetland and Riparian Mapping

P - Palustrine

UB - Unconsolidated Bottom

F - Semipermanently Flooded
(no modifier)

x - Excavated

G - Intermittently Exposed
(no modifier)

x - Excavated

K - Artificially Flooded

x - Excavated

P - Palustrine, UB - Unconsolidated Bottom

Wetlands where mud, silt or similar fine particles cover at least 25% of the bottom, and where vegetation cover is less than 30%.

64 Acres PUBF
61 Acres PUBFx
85 Acres PUBG
39 Acres PUBGx
23 Acres PUBK
23 Acres PUBKx

P - Palustrine, AB - Aquatic Bed

Wetlands with vegetation growing on or below the water surface for most of the growing season.

856 Acres PABF
355 Acres PABFb
12 Acres PABFb
<table>
<thead>
<tr>
<th>US - Unconsolidated Shore</th>
<th>P - Palustrine, US - Unconsolidated Shore</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Temporarily Flooded</td>
<td>Wetlands with less than 75% areal cover of stones, boulders, or bedrock. AND with less than 30% vegetative cover. AND the wetland is irregularly exposed due to seasonal or irregular flooding and subsequent drying.</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>20 Acres</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>16 Acres PUSA</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>2 Acres PUSAx</td>
</tr>
<tr>
<td>C - Seasonally Flooded</td>
<td>34 Acres PUSC</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>22 Acres PUSC</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>3 Acres PUSCh</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>9 Acres PUSCx</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EM - Emergent</th>
<th>P - Palustrine, EM - Emergent</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Temporarily Flooded</td>
<td>Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>11,613 Acres PEMA</td>
</tr>
<tr>
<td>d - Partially Drained/Ditched</td>
<td>11,259 Acres PEMAD</td>
</tr>
<tr>
<td>f - Farmed</td>
<td>15 Acres PEMAF</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>67 Acres PEMAH</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>271 Acres PEMAX</td>
</tr>
<tr>
<td>B - Saturated</td>
<td>17 Acres PEMB</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>17 Acres PEMB</td>
</tr>
<tr>
<td>C - Seasonally Flooded</td>
<td>4,942 Acres PEMC</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>4,357 Acres PEMC</td>
</tr>
<tr>
<td>f - Farmed</td>
<td>&lt;1 Acres PEMCF</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>11 Acres PEMCH</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>574 Acres PEMCX</td>
</tr>
<tr>
<td>F - Semipermanently Flooded</td>
<td>77 Acres PEMK</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>64 Acres PEMK</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>3 Acres PEMP</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>10 Acres PEMPX</td>
</tr>
<tr>
<td>K - Artificially Flooded</td>
<td>49 Acres PEMKx</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>49 Acres PEMKx</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SS - Scrub-Shrub</th>
<th>P - Palustrine, SS - Scrub-Shrub</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Temporarily Flooded</td>
<td>Wetlands dominated by woody vegetation less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>4,103 Acres PSSA</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>4,041 Acres PSSA</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>11 Acres PSSAh</td>
</tr>
<tr>
<td>C - Seasonally Flooded</td>
<td>51 Acres PSSAx</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>468 Acres PSSC</td>
</tr>
<tr>
<td>b - Beaver</td>
<td>444 Acres PSSCh</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>&lt;1 Acres PSSCh</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>4 Acres PSSChx</td>
</tr>
<tr>
<td>F - Semipermanently Flooded</td>
<td>12 Acres PSSX</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>8 Acres PSSP</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>4 Acres PSSPh</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FO - Forested</th>
<th>P - Palustrine, FO - Forested</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Temporarily Flooded</td>
<td>Wetlands dominated by woody vegetation greater than 6 meters (20 feet) tall.</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>16 Acres PFDA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L - Lacustrine (Lakes)</th>
<th>L - Lacustrine (Lakes), 1 - Limnetic, UB - Unconsolidated Bottom</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Limnetic</td>
<td>Deep waterbodies with mud or silt covering at least 25% of the bottom.</td>
</tr>
<tr>
<td>UB - Unconsolidated Bottom</td>
<td>291 Acres LIUBH</td>
</tr>
<tr>
<td>H - Permanently Flooded</td>
<td>72 Acres LIUBH</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>219 Acres LIUBH</td>
</tr>
</tbody>
</table>
### 2 - Littoral

<table>
<thead>
<tr>
<th>US - Unconsolidated Shore</th>
<th>L - Lacustrine (Lakes), 2 - Littoral, US - Unconsolidated Shore</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Temporarily Flooded</td>
<td>3 Acres</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>3 Acres L2USAh</td>
</tr>
<tr>
<td>C - Seasonally Flooded</td>
<td>11 Acres</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>11 Acres L2USCh</td>
</tr>
</tbody>
</table>

Shorelines where there is less than 75% areal cover of stones, boulders, or bedrock, and less than 30% vegetation cover. The area is also irregularly exposed due to seasonal or irregular flooding and subsequent drying.

### R - Riverine (Rivers)

#### 2 - Lower Perennial

<table>
<thead>
<tr>
<th>UB - Unconsolidated Bottom</th>
<th>R - Riverine (Rivers), 2 - Lower Perennial, UB - Unconsolidated Bottom</th>
</tr>
</thead>
<tbody>
<tr>
<td>F - Semipermanently Flooded</td>
<td>142 Acres R2UBF</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>90 Acres R2UBF</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>52 Acres R2UBFx</td>
</tr>
<tr>
<td>G - Intermittently Exposed</td>
<td>34 Acres R2UBG</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>144 Acres R2UBG</td>
</tr>
<tr>
<td>H - Permanently Flooded</td>
<td>1,339 Acres R2UBH</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>1,339 Acres R2UBH</td>
</tr>
</tbody>
</table>

Stream channels where the substrate is at least 25% mud, silt or other fine particles.

#### 3 - Upper Perennial

<table>
<thead>
<tr>
<th>UB - Unconsolidated Bottom</th>
<th>R - Riverine (Rivers), 3 - Upper Perennial, UB - Unconsolidated Bottom</th>
</tr>
</thead>
<tbody>
<tr>
<td>F - Semipermanently Flooded</td>
<td>42 Acres R3UBF</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>11 Acres R3UBAF</td>
</tr>
<tr>
<td>h - Diked/Impounded</td>
<td>1 Acres R3UBFh</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>30 Acres R3UBFx</td>
</tr>
<tr>
<td>G - Intermittently Exposed</td>
<td>257 Acres R3UBG</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>257 Acres R3UBG</td>
</tr>
<tr>
<td>H - Permanently Flooded</td>
<td>815 Acres R3UBH</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>815 Acres R3UBH</td>
</tr>
</tbody>
</table>

Stream channels where the substrate is at least 25% mud, silt or other fine particles.

#### R - Riverine (Rivers), 3 - Upper Perennial, US - Unconsolidated Shore

Shorelines with less than 75% areal cover of stones, boulders, or bedrock and less than 30% vegetation cover. The area is also irregularly exposed due to seasonal or irregular flooding and subsequent drying.

### 4 - Intermittent

<table>
<thead>
<tr>
<th>SB - Stream Bed</th>
<th>R - Riverine (Rivers), 4 - Intermittent, SB - Stream Bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - Temporarily Flooded</td>
<td>38 Acres</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>18 Acres R4SB</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>20 Acres R4SBAx</td>
</tr>
<tr>
<td>C - Seasonally Flooded</td>
<td>437 Acres</td>
</tr>
<tr>
<td>(no modifier)</td>
<td>248 Acres R4SB</td>
</tr>
<tr>
<td>x - Excavated</td>
<td>189 Acres R4SBCx</td>
</tr>
</tbody>
</table>

Active channel that contains periodic water flow.

### Rp - Riparian

#### 1 - Lotic

<table>
<thead>
<tr>
<th>SS - Scrub-Shrub</th>
<th>Rp - Riparian, 1 - Lotic, SS - Scrub-Shrub</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no modifier)</td>
<td>4,563 Acres Rp1SS</td>
</tr>
</tbody>
</table>

This type of riparian area is dominated by woody vegetation that is less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

<table>
<thead>
<tr>
<th>FO - Forested</th>
<th>Rp - Riparian, 1 - Lotic, FO - Forested</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no modifier)</td>
<td>7,613 Acres Rp1FO</td>
</tr>
</tbody>
</table>

This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.

<table>
<thead>
<tr>
<th>EM - Emergent</th>
<th>Rp - Riparian, 1 - Lotic, EM - Emergent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(no modifier)</td>
<td>1,520 Acres Rp1EM</td>
</tr>
</tbody>
</table>

Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.

#### 2 - Lentic
| SS - Scrub-Shrub (no modifier) | 10 Acres Rp2SS | Rp - Riparian, 2 - Lentic, SS - Scrub-Shrub
This type of riparian area is dominated by woody vegetation that is less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions. |
| FO - Forested (no modifier) | 12 Acres Rp2FO | Rp - Riparian, 2 - Lentic, FO - Forested
This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall. |
| EM - Emergent (no modifier) | 1 Acres Rp2EM | Rp - Riparian, 2 - Lentic, EM - Emergent
Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season. |
Land Management

Summarized by: Gallatin (10020008 - 4th Code Watershed)

Land Management Summary

Ownership  Tribal  Easements

Public Lands  US Forest Service

USFS Ranger Districts
- Beaverhead-Deerlodge National Forest, Madison Ranger District
- Custer Gallatin National Forest, Bozeman Ranger District
- Custer Gallatin National Forest, Gardiner Ranger District
- Custer Gallatin National Forest, Hebgen Lake Ranger District
- Custer Gallatin National Forest, Yellowstone Ranger District

USFS National Forest Boundaries
- Beaverhead-Deerlodge National Forest
- Custer Gallatin National Forest

USFS Wilderness Areas
- Lee Metcalf Wilderness, Monument Mountain Unit
- Lee Metcalf Wilderness, Spanish Peaks Unit
- Lee Metcalf Wilderness, Taylor-Hilgard Unit

578,192 Acres (49%)
533,009 Acres (45%)
485,352 Acres (41%)
485,352 Acres (41%)

Other Boundaries (possible overlap)

583,110 Acres
544,354 Acres
36 Acres
126,580 Acres
2,047 Acres

583,110 Acres
82 Acres
583,027 Acres

112,394 Acres
32,013 Acres
66,719 Acres
13,752 Acres
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<td>97,933 Acres (8%)</td>
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<td>96,536 Acres (8%)</td>
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<td>21,714 Acres (2%)</td>
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<td>42,195 Acres (4%)</td>
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<td>557 Acres (&lt;1%)</td>
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<td>30,627 Acres (3%)</td>
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<td>1,443 Acres (&lt;1%)</td>
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<tr>
<td></td>
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<td>286 Acres (&lt;1%)</td>
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**Land Management Summary**
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<tr>
<th>Ownership</th>
<th>Tribal</th>
<th>Easements</th>
<th>Other Boundaries (possible overlap)</th>
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<tbody>
<tr>
<td>Private Lands or Unknown Ownership</td>
<td>505,629 Acres (43%)</td>
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</table>
Summarized by: Gallatin (10020008 - 4th Code Watershed)

Within the report area you have requested, citations for all reports and publications associated with plant or animal observations in Montana Natural Heritage Program (MNHP) databases are listed and, where possible, links to the documents are included.

The MNHP plans to include reports associated with terrestrial and aquatic communities in the future as allowed for by staff resources. If you know of reports or publications associated with species or biological communities within the report area that are not shown in this report, please let us know: mnhp@mt.gov


Confluence Consulting Inc. 2010. Montana Department of Transportation Wetland Mitigation Monitoring Reports (various sites). MDT Helena, MT.

Confluence Consulting Inc. 2011. Montana Department of Transportation Wetland Mitigation Monitoring Reports (various sites). MDT Helena, MT.

Confluence Consulting Inc. 2012. Montana Department of Transportation Wetland Mitigation Monitoring Reports (various sites). MDT Helena, MT.

Confluence Consulting Inc. 2013. Montana Department of Transportation Wetland Mitigation Monitoring Reports (various sites). MDT Helena, MT.


Kruse, William, Mark Wilson, Chris Hunter and Daniel Gustafson. 2006. Conservation agreement and strategy for Thermae Riffle Beetle (Zaitzeva thermae) and Brown’s Riffle Beetle (Microcyclopus brownii) at the Bozeman Fish Technology Center, Bozeman, Montana.


# Invasive and Pest Species

Summarized by: Gallatin (10020008 - 4th Code Watershed)

## Aquatic Invasive Species

<table>
<thead>
<tr>
<th>Species</th>
<th>Note</th>
<th>Predictive Model</th>
<th>Associated Habitat</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>V. Potamogeton crispus (Curly-leaf Pondweed)</td>
<td>N2B/A15</td>
<td>Not Available</td>
<td>Not Assigned</td>
<td>1</td>
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<tr>
<td>I. Orobanche viridis (Vermiculata)</td>
<td>N5</td>
<td>Not Available</td>
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<td>2</td>
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<tr>
<td>V. Iris pseudacorus (Yellowflag Iris)</td>
<td>N2A/A15</td>
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<td>V. Enhalus acoroides</td>
<td>N1A</td>
<td>Not Available</td>
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<td>7</td>
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<tr>
<td>V. Echium vulgare (Buddleia)</td>
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<tr>
<td>V. Lythrum salicaria</td>
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<td>Not Available</td>
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<td>11</td>
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<tr>
<td>V. Polygonum cuspidatum</td>
<td>N1B</td>
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<td>7</td>
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<tr>
<td>V. Polygonum x bohemicum</td>
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<td>Not Available</td>
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<td>V. Heracleum aurantacum</td>
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<tr>
<td>V. Iris pseudacorus</td>
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<tr>
<td>V. Lepidium latifolium (Perrenial Pepperweed)</td>
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<td>V. Ranunculus acris</td>
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<tr>
<td>V. Senecio jacobaea</td>
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<tr>
<td>V. Centaurea stoebe</td>
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<td>V. Cirsium arvense</td>
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<tr>
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Agricultural Pests

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INTRODUCTION
The Montana Natural Heritage Program (MTNHP) is Montana’s source for reliable and objective information on Montana’s native species and habitats, emphasizing those of conservation concern. MTNHP was created by the Montana legislature in 1983 as part of the Natural Resource Information System (NRIS) at the Montana State Library (MSL). MTNHP is “a program of information acquisition, storage, and retrieval for data relating to the flora, fauna, and biological community types of Montana” (MCA 90-15-102). MTNHP’s activities are guided by statute (MCA 90-15) as well as through ongoing interaction with, and feedback from, principal data source agencies such as Montana Fish, Wildlife, and Parks, the Montana Department of Environmental Quality, the Montana Department of Natural Resources and Conservation, the Montana University System, the US Forest Service, and the US Bureau of Land Management. The enabling legislation for MTNHP provides the State Library with the option to contract the operation of the Program. Since 2006, MTNHP has been operated as a program under the Office of the Vice President for Research and Creative Scholarship at the University of Montana (UM) through a renewable 2-year contract with the MSL. Since the first staff was hired in 1985, the Program has logged a long record of success, and developed into a highly respected, service-oriented program. MTNHP is widely recognized as one of the most advanced and effective of over 80 natural heritage programs throughout the Western Hemisphere.

VISION
Our vision is that public agencies, the private sector, the education sector, and the general public will trust and rely upon MTNHP as the source for information and expertise on Montana’s species and habitats, especially those of conservation concern. We strive to provide easy access to our information in order for users to save time and money, speed environmental reviews, and inform decision making.

CORE VALUES
• We endeavor to be a single statewide source of accurate and up-to-date information on Montana’s plants, animals, and aquatic and terrestrial biological communities.
• We actively listen to our data users and work responsively to meet their information and training needs.
• We strive to provide neutral, trusted, timely, and equitable service to all of our information users.
• We make every effort to be transparent to our data users in setting work priorities and providing data products.

CONFIDENTIALITY
All information requests made to the Montana Natural Heritage Program are considered library records and are protected from disclosure by the Montana Library Records Confidentiality Act (MCA 22-1-11).

INFORMATION MANAGED
Information managed at the Montana Natural Heritage Program includes: (1) lists of, and basic information on, plant and animal species and biological communities; (2) plant and animal surveys, observations, species occurrences, predictive distribution models, range polygons, and conservation status ranks; and (3) land cover and wetland and riparian mapping and the conservation status of these and other biological communities.
Data Use Terms and Conditions

- Montana Natural Heritage Program (MTNHP) products and services are based on biological data and the objective interpretation of those data by professional scientists. MTNHP does not advocate any particular philosophy of natural resource protection, management, development, or public policy.

- MTNHP has no natural resource management or regulatory authority. Products, statements, and services from MTNHP are intended to inform parties as to the state of scientific knowledge about certain natural resources, and to further develop that knowledge. The information is not intended as natural resource management guidelines or prescriptions or a determination of environmental impacts. MTNHP recommends consultation with appropriate state, federal, and tribal resource management agencies and authorities in the area where your project is located.

- Information on the status and spatial distribution of biological resources produced by MTNHP are intended to inform parties of the state-wide status, known occurrence, or the likelihood of the presence of those resources. These products are not intended to substitute for field-collected data, nor are they intended to be the sole basis for natural resource management decisions.

- MTNHP does not portray its data as exhaustive or comprehensive inventories of rare species or biological communities. Field verification of the absence or presence of sensitive species and biological communities will always be an important obligation of users of our data.

- MTNHP responds equally to all requests for products and services, regardless of the purpose or identity of the requester.

- Because MTNHP constantly updates and revises its databases with new data and information, products will become outdated over time. Interested parties are encouraged to obtain the most current information possible from MTNHP, rather than using older products. We add, review, update, and delete records on a daily basis. Consequently, we strongly advise that you update your MTNHP data sets at a minimum of every three months for most applications of our information.

- MTNHP data require a certain degree of biological expertise for proper analysis, interpretation, and application. Our staff is available to advise you on questions regarding the interpretation or appropriate use of the data that we provide. Contact information for MTNHP staff is posted at: http://mtnhp.org/contact.asp

- The information provided to you by MTNHP may include sensitive data that if publicly released might jeopardize the welfare of threatened, endangered, or sensitive species or biological communities. This information is intended for distribution or use only within your department, agency, or business. Subcontractors may have access to the data during the course of any given project, but should not be given a copy for their use on subsequent, unrelated work.

- MTNHP data are made freely available. Duplication of hard-copy or digital MTNHP products with the intent to sell is prohibited without written consent by MTNHP. Should you be asked by individuals outside your organization for the type of data that we provide, please refer them to MTNHP.

- MTNHP and appropriate staff members should be appropriately acknowledged as an information source in any third-party product involving MTNHP data, reports, papers, publications, or in maps that incorporate MTNHP graphic elements.

- Sources of our data include museum specimens, published and unpublished scientific literature, field surveys by state and federal agencies and private contractors, and reports from knowledgeable individuals. MTNHP actively solicits and encourages additions, corrections and updates, new observations or collections, and comments on any of the data we provide.

- MTNHP staff and contractors do not cross or survey privately-owned lands without express permission from the landowner. However, the program cannot guarantee that information provided to us by others was obtained under adherence to this policy.
Suggested Contacts for Natural Resource Agencies

As required by Montana statute (MCA 90-15), the Montana Natural Heritage Program works with state, federal, tribal, nongovernmental organizations, and private partners to ensure that the latest animal and plant distribution and status information is incorporated into our databases so that it can be used to inform a variety of planning processes and management decisions. In addition to the information you receive from us, we encourage you to contact state, federal, and tribal resource management agencies in the area where your project is located. They may have additional data or management guidelines relevant to your efforts. In particular, we encourage you to contact the Montana Department of Fish, Wildlife, and Parks for the latest data and management information regarding hunted and high-profile management species and to use the U.S. Fish and Wildlife Service's Information Planning and Conservation (IPAC) website [http://ecos.fws.gov/ipac/] regarding U.S. Endangered Species Act listed Threatened, Endangered, or Candidate species.

For your convenience, we have compiled a list of relevant agency contacts and links below:

### Montana Fish, Wildlife, and Parks

<table>
<thead>
<tr>
<th>Fish Species</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Bison</td>
<td>Zachary Shattuck <a href="mailto:zshattuck@mt.gov">zshattuck@mt.gov</a> (406) 444-1231 or Lee Nelson <a href="mailto:jeenelson@mt.gov">jeenelson@mt.gov</a> (406) 444-2447</td>
</tr>
<tr>
<td>Black-footed Ferret</td>
<td></td>
</tr>
<tr>
<td>Black-tailed Prairie Dog</td>
<td>Lauri Hanauska-Brown <a href="mailto:LHanauska-Brown@mt.gov">LHanauska-Brown@mt.gov</a> (406) 444-5209</td>
</tr>
<tr>
<td>Bald Eagle</td>
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<tr>
<td>Golden Eagle</td>
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<tr>
<td>Common Loon</td>
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<tr>
<td>Least Tern</td>
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<tr>
<td>Piping Plover</td>
<td>John Vore <a href="mailto:ivore@mt.gov">ivore@mt.gov</a> (406) 444-5209</td>
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<tr>
<td>Whooping Crane</td>
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<tr>
<td>Grizzly Bear</td>
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<td>Greater Sage Grouse</td>
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<td>Trumpeter Swan</td>
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<tr>
<td>Big Game</td>
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<td>Upland Game Birds</td>
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<tr>
<td>Furbearers</td>
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<tr>
<td>Managed Terrestrial Game and Nongame Animal Data</td>
<td>Smith Wells – MFWP Data Analyst <a href="mailto:smith.wells@mt.gov">smith.wells@mt.gov</a> (406) 444-3759</td>
</tr>
<tr>
<td>Fisheries Data</td>
<td>Adam Petersen – MFWP Fish Data Manager <a href="mailto:apetersen@mt.gov">apetersen@mt.gov</a> (406) 444-1275</td>
</tr>
<tr>
<td>Scientific Collector's Permits</td>
<td>Karen Speeg for Wildlife <a href="mailto:kspeeg@mt.gov">kspeeg@mt.gov</a> (406) 444-2612</td>
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<tr>
<td></td>
<td>Kim Wedde for Fisheries <a href="mailto:kim.wedde@mt.gov">kim.wedde@mt.gov</a> (406) 444-5594</td>
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### Regional Contacts

<table>
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<tr>
<td>1</td>
<td>(Kalispell)</td>
<td>(406) 752-5501</td>
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<td>2</td>
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<td>(406) 542-5500</td>
</tr>
<tr>
<td>3</td>
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<td>(406) 994-4042</td>
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<tr>
<td>4</td>
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<td>(406) 454-5840</td>
</tr>
<tr>
<td>5</td>
<td>(Billings)</td>
<td>(406) 247-2940</td>
</tr>
<tr>
<td>6</td>
<td>(Glasgow)</td>
<td>(406) 228-3700</td>
</tr>
<tr>
<td>7</td>
<td>(Miles City)</td>
<td>(406) 234-0900</td>
</tr>
</tbody>
</table>
United States Fish and Wildlife Service:
Information Planning and Conservation (IPAC) website: http://ecos.fws.gov/ipac/

Bureau of Land Management

<table>
<thead>
<tr>
<th>Montana Field Office Contacts:</th>
<th>Billings  (406) 896-5013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Butte  (406) 533-7600</td>
</tr>
<tr>
<td></td>
<td>Dillon  (406) 683-8000</td>
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<td></td>
<td>Malta  (406) 654-5100</td>
</tr>
<tr>
<td></td>
<td>Miles City  (406) 233-2800</td>
</tr>
<tr>
<td></td>
<td>Missoula  (406) 329-3914</td>
</tr>
</tbody>
</table>

United States Forest Service

Regional Office – Missoula, Montana Contacts

| Wildlife Program Leader       | Tammy Fletcher  tammyfletcher@fs.fed.us  (406) 329-3588 |
| Wildlife Ecologist            | Cara Staab      cstaab@fs.fed.us  (406) 329-3677 |
| Fish Program Leader           | Scott Spaulding scottspaulding@fs.fed.us  (406) 329-3287 |
| Fish Ecologist                | Cameron Thomas cathomas@fs.fed.us  (406) 329-3087 |
| TES Program                   | Lydia Allen     lrallen@fs.fed.us  (406) 329-3558 |
| Interagency Grizzly Bear Coordinator | Scott Jackson sjackson03@fs.fed.us  (406) 329-3664 |
| Regional Botanist             | Steve Shelly    sshelly@fs.fed.us  (406) 329-3041 |

Tribal Nations

Assiniboine & Gros Ventre Tribes – Fort Belknap Reservation
Assiniboine & Sioux Tribes – Fort Peck Reservation
Blackfeet Tribe - Blackfeet Reservation
Chippewa Creek Tribe - Rocky Boy’s Reservation
Crow Tribe – Crow Reservation
Little Shell Chippewa Tribe
Northern Cheyenne Tribe – Northern Cheyenne Reservation
Salish & Kootenai Tribes - Flathead Reservation
Introduction to Native Species

Within the report area you have requested, separate summaries are provided for: (1) Species Occurrences (SO) for plant and animal Species of Concern, Special Status Species (SSS), Important Animal Habitat (IAH) and some Potential Plant Species of Concern; (2) other observed non Species of Concern or Species of Concern without suitable documentation to create Species Occurrence polygons; and (3) other non-documented species that are potentially present based on their range, predicted suitable habitat model output, or presence of associated habitats. Each of these summaries provides the following information when present for a species: (1) the number of Species Occurrences and associated delineation criteria for construction of these polygons that have long been used for considerations of documented Species of Concern in environmental reviews; (2) the number of observations of each species; (3) the geographic range polygons for each species that the report area overlaps; (4) predicted relative habitat suitability classes that are present if a predicted suitable habitat model has been created; (5) the percent of the report area that is mapped as commonly associated or occasionally associated habitat as listed for each species in the Montana Field Guide; and (6) a variety of conservation status ranks and links to species accounts in the Montana Field Guide. Details on each of these information categories are included under relevant section headers below or are defined on our Species Status Codes page. In presenting this information, the Montana Natural Heritage Program (MTNHP) is working towards assisting the user with rapidly determining what species have been documented and what species are potentially present in the report area. We remind users that this information is likely incomplete as surveys to document native and introduced species are lacking in many areas of the state, information on introduced species has only been tracked relatively recently, the MTNHP’s staff and resources are restricted by declining budgets, and information is constantly being added and updated in our databases. Thus, field verification by professional biologists of the absence or presence of species and biological communities will always be an important obligation of users of our data.

If you are aware of observation datasets that the MTNHP is missing, please report them to the Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov. If you have observations that you would like to contribute, you can submit animal observations using our online data entry system at http://mtnhp.org/AddObs/ plant and animal observations via Excel spreadsheets posted at http://mtnhp.org/observations.asp, or to the Program Botanist or Senior Zoologist.

Observations
The MTNHP manages information on more than 1.8 million animal and plant observations that have been reported by professional biologists and private citizens from across Montana. The majority of these observations are submitted in digital format from standardized databases associated with research or monitoring efforts and spreadsheets of incidental observations submitted by professional biologists and amateur naturalists. At a minimum, accepted observation records must contain a credible species identification (i.e. appropriate geographic range, date, and habitat and, if species are difficult to identify, a photograph and notes on key identifying features), a date or date range, observer name, locational information (ideally with latitude and longitude in decimal degrees), notes on numbers observed, and species behavior or habitat use (e.g., is the observation likely associated with reproduction). Bird records are also required to have information associated with date-appropriate breeding or overwintering status of the species observed. MTNHP reviews observation records to ensure that they are mapped correctly, occur within date ranges when the species is known to be present or detectable, occur within the known seasonal geographic range of the species, and occur in appropriate habitats. MTNHP also assigns each record a locational uncertainty value in meters to indicate the spatial precision associated with the record’s mapped coordinates. Only records with locational uncertainty values of 10,000 meters or less are included in environmental summary reports and number summaries are only provided for records with locational uncertainty values of 1,000 meters or less.
Species Occurrences
The MTNHP evaluates plant and animal observation records for species of higher conservation concern to determine whether they are worthy of inclusion in the Species Occurrence (SO) layer for use in environmental reviews; observations not worthy of inclusion in this layer include long distance dispersal events, migrants observed away from key migratory stopover habitats, and winter observations. An SO is a polygon depicting what is known about a species occupancy from direct observation with a defined level of locational uncertainty and any inference that can be made about adjacent habitat use from the latest peer-reviewed science. If an observation can be associated with a map feature that can be tracked (e.g., a wetland boundary for a wetland associated plant) then this polygon feature is used to represent the SO. Areas that can be inferred as probable occupied habitat based on direct observation of a species location and what is known about the foraging area or home range size of the species may be incorporated into the SO. Species Occurrences generally belong to one of the following categories:

Plant Species Occurrences
A documented location of a specimen collection or observed plant population. In some instances, adjacent, spatially separated clusters are considered subpopulations and are grouped as one occurrence (e.g., the subpopulations occur in ecologically similar habitats, and their spatial proximity likely allows them to interbreed). Tabular information for multiple observations at the same SO location is generally linked to a single polygon. Plant SO’s are only created for Species of Concern and Potential Species of Concern.

Animal Species Occurrences
The location of a verified observation or specimen record typically known or assumed to represent a breeding population or a portion of a breeding population. Animal SO’s are generally: (1) buffers of terrestrial point observations based on documented species’ home range sizes; (2) buffers of stream segments to encompass occupied streams and immediate adjacent riparian habitats; (3) polygonal features encompassing known or likely breeding populations (e.g., a wetland for some amphibians or a forested portion of a mountain range for some wide ranging carnivores); or (4) combinations of the above. Tabular information for multiple observations at the same SO location is generally linked to a single polygon. Species Occurrence polygons may encompass some unsuitable habitat in some instances in order to avoid heavy data processing associated with clipping out habitats that are readily assessed as unsuitable by the data user (e.g., a point buffer of a terrestrial species may overlap into a portion of a lake that is obviously inappropriate habitat for the species). Animal SO’s are only created for Species of Concern and Special Status Species (e.g., Bald Eagle).

Other Occurrence Polygons
These include significant biological features not included in the above categories, such as Important Animal Habitats like bird rookeries and bat roosts, and peatlands or other wetland and riparian communities that support diverse plant and animal communities.
Geographic Range Polygons
Geographic range polygons have not yet been defined for most plant species. Native year-round, summer, winter, migratory and historic geographic range polygons as well as polygons for introduced populations have been defined for most animal species for which there are enough observations, surveys, and knowledge of appropriate seasonal habitat use to define them (see examples to left). These native or introduced range polygons bound the extent of known or likely occupied habitats for non-migratory and relative sedentary species and the regular extent of known or likely occupied habitats for migratory and long-distance dispersing species; polygons may include unsuitable intervening habitats. For most species, a single polygon can represent the year-round or seasonal range, but breeding ranges of some colonial nesting water birds and some introduced species are represented more patchily when supported by data. Some ranges are mapped more broadly than actual distributions in order to be visible on statewide maps (e.g., fish).

Predicted Suitable Habitat Models
Recent predicted suitable habitat suitability models have not yet been created for most plant species. For animal species for which models have been completed, the environmental summary report includes simple, rule-based, associations with streams for fish and other aquatic species and mathematically complex Maximum Entropy models (Phillips et al. 2006, Ecological Modeling 190:231-259) constructed from a variety of statewide biotic and abiotic layers and presence only data for individual species contributed to Montana Natural Heritage Program databases for most terrestrial species. For the Maximum Entropy models, we reclassified 90 x 90-meter continuous model output into suitability classes (unsuitable, low, moderate, and optimal) then aggregated that into the one square mile hexagons used in the environmental summary report; this is the finest spatial scale we suggest using this information in management decisions and survey planning. Full model write ups for individual species that discuss model goals, inputs, outputs, and evaluation in much greater detail are posted on the MTNHP's Predicted Suitable Habitat Models page. Evaluations of predictive accuracy and specific limitations are included with the metadata for models of individual species. Model outputs should not be used in place of on-the-ground surveys for species. Instead model outputs should be used in conjunction with habitat evaluations to determine the need for on-the-ground surveys for species. We suggest that the percentage of predicted optimal and moderate suitable habitat within the report area be used in conjunction with geographic range polygons and the percentage of commonly associated habitats to generate lists of potential species that may occupy broader landscapes for the purposes of landscape-level planning.

Associated Habitats
Within the boundary of the intersected hexagons, we provide the approximate percentage of commonly or occasionally associated habitat for vertebrate animal species that regularly breed, overwinter, or migrate through the state; a detailed list of commonly and occasionally associated habitats is provided in individual species accounts in the Montana Field Guide. We assigned common or occasional use of each of the 82 ecological systems mapped in Montana by: (1) using personal knowledge and reviewing literature that
summarizes the breeding, overwintering, or migratory habitat requirements of each species; (2) evaluating structural characteristics and distribution of each ecological system relative to the species' range and habitat requirements; (3) examining the observation records for each species in the state-wide point observation database associated with each ecological system; and (4) calculating the percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system to get a measure of numbers of observations versus availability of habitat. Species that breed in Montana were only evaluated for breeding habitat use, species that only overwinter in Montana were only evaluated for overwintering habitat use, and species that only migrate through Montana were only evaluated for migratory habitat use. In general, species were listed as associated with an ecological system if structural characteristics of used habitat documented in the literature were present in the ecological system or large numbers of point observations were associated with the ecological system. However, species were not listed as associated with an ecological system if there was no support in the literature for use of structural characteristics in an ecological system, even if point observations were associated with that system. Common versus occasional association with an ecological system was assigned based on the degree to which the structural characteristics of an ecological system matched the preferred structural habitat characteristics for each species as represented in the scientific literature. The percentage of observations associated with each ecological system relative to the percent of Montana covered by each ecological system was also used to guide assignment of common versus occasional association.

We suggest that the percentage of commonly associated habitat within the report area be used in conjunction with geographic range polygons and the percentage of predicted optimal and moderate suitable habitat from predictive models to generate lists of potential species that may occupy broader landscapes for the purposes of landscape-level planning. Users of this information should be aware that land cover mapping accuracy is particularly problematic when the systems occur as small patches or where the land cover types have been altered over the past decade. Thus, particular caution should be used when using the associations in assessments of smaller areas (e.g., evaluations of public land survey sections).
Introduction to Land Cover

Land Use/Land Cover is one of 15 Montana Spatial Data Infrastructure framework layers considered vital for making statewide maps of Montana and understanding its geography. The layer records all Montana natural vegetation, land cover and land use, classified from satellite and aerial imagery, mapped at a scale of 1:100000, and interpreted with supporting ground-level data. The baseline map is adapted from the Northwest ReGAP (NWGAP) project land cover classification, which used 30m resolution multi-spectral Landsat imagery acquired between 1999 and 2001. Vegetation classes were drawn from the Ecological System Classification developed by NatureServe (Comer et al. 2003). The land cover classes were developed by Anderson et al. (1976). The NWGAP effort encompasses 12 map zones. Montana overlaps seven of these zones. The two NWGAP teams responsible for the initial land cover mapping effort in Montana were Sanborn and NWGAP at the University of Idaho. Both Sanborn and NWGAP employed a similar modeling approach in which Classification and Regression Tree (CART) models were applied to Landsat ETM+ scenes. The Spatial Analysis Lab within the Montana Natural Heritage Program was responsible for developing a seamless Montana land cover map with a consistent statewide legend from these two separate products. Additionally, the Montana land cover layer incorporates several other land cover and land use products (e.g., MSDI Structures and Transportation themes and the Montana Department of Revenue Final Land Unit classification) and reclassifications based on plot-level data and the latest NAIP imagery to improve accuracy and enhance the usability of the theme. Updates are done as partner support and funding allow, or when other MSDI datasets can be incorporated. Recent updates include fire perimeters and agricultural land use (annually), energy developments such as wind, oil and gas installations (2014), roads, structures and other impervious surfaces (various years): and local updates/improvements to specific ecological systems (e.g., central Montana grassland and sagebrush ecosystems). Current and previous versions of the Land Use/Land Cover layer with full metadata are available for download at the Montana State Library's Geographic Information Clearinghouse.

Within the report area you have requested, land cover is summarized by acres of Level 1, Level 2, and Level 3 Ecological Systems.

Literature Cited


Introduction to Wetland and Riparian

Within the report area you have requested, wetland and riparian mapping is summarized by acres of each classification present. Summaries are only provided for modern MTNHP wetland and riparian mapping and not for outdated (NWI Legacy) or incomplete (NWI Scalable) mapping efforts; described here. MTNHP has made all three of these datasets and associated metadata available for separate download on the Montana Wetland and Riparian Framework MSDI download page.

Wetland and Riparian mapping is one of 15 Montana Spatial Data Infrastructure framework layers considered vital for making statewide maps of Montana and understanding its geography. The wetland and riparian framework layer consists of spatial data representing the extent, type, and approximate location of wetlands, riparian areas, and deepwater habitats in Montana.

Wetland and riparian mapping is completed through photointerpretation of 1-m resolution color infrared aerial imagery acquired from 2005 or later. A coding convention using letters and numbers is assigned to each mapped wetland. These letters and numbers describe the broad landscape context of the wetland, its vegetation type, its water regime, and the kind of alterations that may have occurred. Ancillary data layers such as topographic maps, digital elevation models, soils data, and other aerial imagery sources are also used to improve mapping accuracy. Wetland mapping follows the federal Wetland Mapping Standard and classifies wetlands according to the Cowardin classification system of the National Wetlands Inventory (NWI) (Cowardin et al. 1979, FGDC Wetlands Subcommittee 2013). Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands differently than the NWI. Similar coding, based on U.S. Fish and Wildlife Service conventions, is applied to riparian areas (U.S. Fish and Wildlife Service 2009). These are mapped areas where vegetation composition and growth is influenced by nearby water bodies, but where soils, plant communities, and hydrology do not display true wetland characteristics. These data are intended for use in publications at a scale of 1:12,000 or smaller. Mapped wetland and riparian areas do not represent precise boundaries and digital wetland data cannot substitute for an on-site determination of jurisdictional wetlands.

A detailed overview, with examples, of both wetland and riparian classification systems and associated codes can be found at: http://mtnhp.org/help/MapViewer/WetRip_Classification.asp

Literature Cited
Introduction to Land Management

Within the report area you have requested, land management information is summarized by acres of federal, state, and local government lands, tribal reservation boundaries, private conservation lands, and federal, state, local, and private conservation easements. Acreage for “Owned”, “Tribal”, or “Easement” categories represents non-overlapping areas that may be totaled. However, “Other Boundaries” represents managed areas such as National Forest boundaries containing private inholdings and other mixed ownership which may cause boundaries to overlap (e.g. a wilderness area within a forest). Therefore, acreages may not total in a straight-forward manner.

Because information on land stewardship is critical to effective land management, the Montana Natural Heritage Program (MTNHP) began compiling ownership and management data in 1997. The goal of the Montana Land Management Database is to manage a single, statewide digital data set that incorporates information from both public and private entities. The database assembles information on public lands, private conservation lands, and conservation easements held by state and federal agencies and land trusts and is updated on a regular basis. Since 2011, the Information Management group in the Montana State Library’s Digital Library Division has taken an increasingly active role in managing layers of the Montana Land Management Database in partnership with the MTNHP.

Public and private conservation land polygons are attributed with the name of the entity that owns it. The data are derived from the statewide Montana Cadastral Parcel layer. Conservation easement data shows land parcels on which a public agency or qualified land trust has placed a conservation easement in cooperation with the land owner. The dataset contains no information about ownership or status of the mineral estate. For questions about the dataset or to report errors, please contact the Montana Natural Heritage Program at (406) 444-5354 or mtnhp@mt.gov. You can download various components of the Land Management Database and view associated metadata at the Montana State Library’s GIS Data List at the following links:

Public Lands
Conservation Easements
Private Conservation Lands
Managed Areas

Map features in the Montana Land Management Database or summaries provided in this report are not intended as a legal depiction of public or private surface land ownership boundaries and should not be used in place of a survey conducted by a licensed land surveyor. Similarly, map features do not imply public access to any lands. The Montana Natural Heritage Program makes no representations or warranties whatsoever with respect to the accuracy or completeness of this data and assumes no responsibility for the suitability of the data for a particular purpose. The Montana Natural Heritage Program will not be liable for any damages incurred as a result of errors displayed here. Consumers of this information should review or consult the primary data and information sources to ascertain the viability of the information for their purposes.
Introduction to Invasive and Pest Species

Within the report area you have requested, separate summaries are provided for: Aquatic Invasive Species; Noxious Weeds, Agricultural Pests, and Forest Pests that have been documented or potentially occur there based on their known distribution in the state. Definitions for each of these invasive and pest species categories can be found on our Species Status Codes page.

Each of these summaries provides the following information when present for a species: (1) the number of observations of each species; (2) the geographic range polygons for each species, if developed, that the report area overlaps; (3) predicted relative habitat suitability classes that are present if a predicted suitable habitat model has been created; (4) the percent of the report area that is mapped as commonly associated or occasionally associated habitat as listed for each species in the Montana Field Guide; and (5) and links to species accounts in the Montana Field Guide. Details on each of these information categories are included under relevant section headers under the Introduction to Native Species above or are defined on our Species Status Codes page. In presenting this information, the Montana Natural Heritage Program (MTNHP) is working towards assisting the user with rapidly determining what invasive and pest species have been documented and what species are potentially present in the report area. We remind users that this information is likely incomplete as surveys to document introduced species are lacking in many areas of the state, information on introduced species has only been tracked relatively recently, the MTNHP’s staff and resources are restricted by declining budgets, and information is constantly being added and updated in our databases. Thus, field verification by professional biologists of the absence or presence of species will always be an important obligation of users of our data.

If you are aware of observation or survey datasets for invasive or pest species that the MTNHP is missing, please report them to the Program Coordinator bmaxell@mt.gov Program Botanist apipp@mt.gov or Senior Zoologist dbachen@mt.gov. If you have observations that you would like to contribute, you can submit animal observations using our online data entry system at http://mtnhp.org/AddObs/, plant and animal observations via Excel spreadsheets posted at http://mtnhp.org/observations.asp, or to the Program Botanist or Senior Zoologist.
Additional Information Resources

- Home Page for Montana Natural Heritage Program (MTNHP)
- MTNHP Staff Contact Information
- Montana Field Guide
- MTNHP Species of Concern Report - Animals and Plants
- MTNHP Species Status Codes - Explanation
- MTNHP Predicted Suitable Habitat Models (for select Animals and Plants)
- MTNHP Request Information page
- Montana Cadastral
- Montana Code Annotated
- Montana Department of Environmental Quality
- Montana Fisheries Information System
- Montana Fish, Wildlife, and Parks Subdivision Recommendations
- Montana GIS Data Layers
- Montana GIS Data Bundler
- Montana Greater Sage-Grouse Project Submittal Site
- Montana Ground Water Information Center
- Montana Legislative Environmental Policy Office Publications
  (Including Index of Environmental Permits required in Montana and Guide to the Montana Environmental Policy Act)
- Montana Environmental Policy Act (MEPA)
- MEPA Analysis Resource List
- Laws, Treaties, Regulations, and Permits on Animals and Plants
- Montana Spatial Data Infrastructure Layers
- Montana State Historic Preservation Office Review and Compliance
- Montana Water Information System
- Montana Web Map Services
- National Environmental Policy Act
- U.S. Fish and Wildlife Service Information for Planning and Conservation (Section 7 Consultation)
- Web Soil Survey Tool
TO: Eric Urban, Montana Department of Environmental Quality

FROM: Travis Horton, Montana Fish, Wildlife & Parks

SUBJECT: Gallatin River Outstanding Recreational Fishery

DATE: 9 September 2018

Dear Mr. Urban,

The Gallatin River does provide an Outstanding Recreational Fishery. The high quality water quality, cold water and stable flows provide for a high-density stable fishery that is highly used by the angling public.

Montana Fish, Wildlife & Parks conducts a biannual statewide angler survey. The results of this survey show the following:

<table>
<thead>
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<th>Year</th>
<th>Angler Days</th>
<th>State Rank</th>
<th>Regional Rank</th>
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<td>2015</td>
<td>51,370</td>
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<td>56,887</td>
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<td>2009</td>
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<td>12</td>
<td>3</td>
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</tbody>
</table>

The high-density fish population coupled with a high-level of public access have resulted in annual angler use levels of between 47,000 and 57,000 angler days between 2009 and 2015. This popular fishery has varied from the 12th most fish section or water to the 9th most fish section of water in the state between 2009 and 2015. Furthermore, in Region 3 (Southwest Montana) the Gallatin River varies from the 2nd most fished section of water to the 4th most fished section of water in the region. Although I don’t have economic data readily available, the Gallatin River fishery is an important part of the economy.

Arctic grayling exist in the lower part of the Gallatin River (near Spanish Creek). At this time, Arctic grayling are not a candidate for listing under the Endangered Species Act, but a 2014 decision on their status has been remanded by the 9th Circuit Court to the U.S. Fish and Wildlife Service for further review. It is possible that they may become a candidate species again or get listed under the Endangered Species Act in the near future. Arctic grayling are a State of Montana species of special concern. Finally, westslope cutthroat trout also exist in some tributaries of the Gallatin River and they are also a State of Montana species of special concern.
In summary, the Gallatin River fishery is extremely important fishery in the State of Montana.

Please let me know if you have any further questions.

Sincerely,

[Signature]

Travis Horton, Region 3 Fisheries Manager

cc. Eileen Ryce, Mark Deleray
Hi Eric,

I have attached a spreadsheet. I included only active surface water rights from the mainstem of the Gallatin River (or West Gallatin River – appears both ways in our database).

One tab has all individual results listed – this might be helpful for water rights with multiple points of diversion because this will list each point of diversion as a new row for the same water right.

One tab has all duplicates removed, so each water right is listed only once. This might be more useful if you just wanted to add up the total flow rate and weren’t concerned about the location of different points of diversion, etc.

As one might suspect, there aren’t many water rights along this reach – the biggest is FWP’s instream reservation, and all the major canals divert from the river below Spanish Creek. It looks like I picked up the NPS reserved water rights from the Compact, but those would be only within the Park itself.

Please call or email if I can help further!

Brent

---
Brent Zundel
406-556-4508
BZundel@mt.gov

From: Zundel, Brent
Sent: Friday, September 7, 2018 10:04 AM
To: Urban, Eric <EURban@mt.gov>
Subject: RE: Gallatin from YNP to Spanish Creek

Sure thing, Eric! I’ll get you a spreadsheet today.

Brent

---
Brent Zundel
406-556-4508
BZundel@mt.gov

From: Urban, Eric
Sent: Friday, September 7, 2018 10:01 AM
To: Zundel, Brent <BZundel@mt.gov>
Subject: Gallatin from YNP to Spanish Creek

Brent- Thanks for the help on this request. At this point a spreadsheet should satisfy our needs.
Thanks again,

Eric

Eric Urban
Bureau Chief, Water Quality Planning Bureau
Montana Department of Environmental Quality
1520 East 6th Ave
Helena, MT 59620
(406) 444-2680
eurban@mt.gov
TO: Eric Urban, Bureau Chief WQP
FROM: Lisa Kaufman, SWTR Manager, PWS
DATE: September 6, 2018
SUBJECT: Gallatin River

As requested, a search of the public water supply database for systems with source water on the Gallatin River has been completed. There are no public water supplies with intakes on the Gallatin River between Yellowstone Park and Spanish Creek.
MEMORANDUM

TO: The Board of Environmental Review
FROM: Sarah Clerget, Assistant Attorney General
RE: Outstanding Resource Water Statutory Process
DATE: April 23, 2018

INTRODUCTION

This memorandum responds to the board’s request at its April 6, 2018 meeting for a legal analysis and breakdown of Mont. Code Ann. § 75-5-316 as well as the Board’s options with regard to Cottonwood Environmental Law Center’s Petition to classify the Gallatin River as an outstanding resource water (ORW), received on January 31, 2018. Cottonwood’s petition asks the Board classify a section of the Gallatin River from the boundary of Yellowstone National Park to the confluence with Spanish Creek in Gallatin Canyon as an ORW.

ANALYSIS

A person may petition the Board to classify state waters as an ORW. Once the Board receives a petition, Mont. Code Ann. § 75-5-316 outlines a very specific process and criterion for the Board to use in deciding whether or not to adopt a rule designating an ORW. This process consists of three basic steps:

(1) An “initial review” to determine whether the petition contains sufficient information;
(2) A decision to adopt or reject the petition;
(3) A MAPA Rulemaking process

This process is laid out visually in the attached flow chart.
1. Initial Review

The board shall initially review the petition against certain criteria to determine if “the petition contains sufficient credible information for the Board to accept the petition.” Mont. Code Ann. § 75-5-316(3)(a).

If the Board determines there IS “sufficient credible information,” then it can proceed to step 2, described below. If the Board determines there is NOT “sufficient credible information,” then it may reject the petition by making a written statement giving “the reasons for the rejection and the petitions deficiencies.” Mont. Code Ann. § 75-5-316(3)(b).

2. Accept or Reject the Petition

The Board must next decide whether it intends to accept or reject the petition. Mont. Code Ann. § 75-5-316(3)(c). This decision involves an analysis of whether, based on the preponderance of the evidence:

1. the water constitutes an outstanding water resource based on criteria outlined in (4)(a)-(f) (below);
2. increased protection is necessary to protect the water because the water is at risk of having one or more of the below criterion, compromised as a result of pollution; and
3. classification is necessary because there is no other effective process to achieve the necessary protection (including the nondegradation policy¹).

¹ 75-5-303 is the nondegradation policy which provides that existing uses of state waters and the level of water quality necessary to protect those uses must be maintained and protected. The statute directs that high-quality waters must be maintained and that DEQ may not degrade high-quality waters unless by a preponderance of evidence the following conditions are met:
   i. degradation is necessary because there are no economically, environmentally, and technologically feasible modifications to the proposed project that would result in no degradation;
   ii. the proposed project will result in important economic or social development and the benefits of the development exceeds the costs to society of allowing degradation;
   iii. existing and anticipated use of state water will be fully protected; and
   iv. the least degrading water quality protection practices will be implemented by the applicant prior to and during the proposed activity.
Mont. Code Ann. § 75-5-316(3)(c)-(d). The subsection (4) criterion the Board must consider include:

a. whether the waters have been designated as wild and scenic;
b. the presence of endangered or threatened species in the waters;
c. the presence of an outstanding recreational fishery in the waters;
d. whether the waters provide the only source of suitable water for a municipality or industry;
e. whether the waters provide the only source of suitable water for domestic water supply; and
f. other factors that indicate outstanding environmental or economic values not specifically mentioned in this subsection.


If the board determines that all of these factors necessitate accepting the petition, then it must make a written finding explaining its reasoning in detail and indicating that it intends to accept the petition. Mont. Code Ann. § 75-5-316(3)(c), (5).

The Board must then give the public notice that it intends to adopt the petition, through the process described in Mont. Code Ann. § 75-5-316(5). Id. After the public process is complete (if that process does not change the Board’s position), then the Board must issue a written decision accepting or rejecting the petition. Mont. Code Ann. § 75-5-316(5)(f).

After the petition is accepted, the Board must direct the department to prepare an Environmental Impact Statement (EIS). Mont. Code Ann. § 75-5-316(6). The petitioner must pay the cost of the EIS (Mont. Code Ann. § 75-5-316(6)(b)(i)) and the Board may not grant or deny a petition (step 3, below) until the cost of the EIS is paid in full. Mont. Code Ann. § 75-5-316(7). The Board must consult with other relevant state and local agencies or governments before moving to step 3. Mont. Code Ann. § 75-5-316(7).

After the EIS is complete and the Board has consulted with everyone necessary, the Board may deny the petition for one of the two following reasons:

i. the requirements of (1)-(3) listed in section 2 above (from 3)(c)), are not met; or
ii. based on information available from the EIS or otherwise, classification as an ORW would “cause significant adverse environmental, social, or economic impacts.”
If the Board still wishes to proceed after the EIS and consultation is complete, then it grants the petition and proceeds to step (3), below.

3. **Rulemaking**

Once the Board grants the petition for rulemaking, it must propose a rule identifying the ORW and go through the regular MAPA rulemaking procedure (including notice, hearing, comments, etc.). Mont. Code Ann. § 75-5-316(8)(c). After the public process is complete, the Board may (if it wishes) adopt the rule designating the ORW. Such a rule does not become effective until the legislature approves it. Mont. Code Ann. § 75-5-316(9).

smc/clr
Receive Petition to Designate ORW

(1) Initial Review: Does petition contain "sufficient credible information?"
   Yes
   - Written Finding (Board Intends to Accept Petition)
   - Public Notice/Hearing (BEFORE accepting)
   - Final Decision Accepting Petition (including response to public comments)
   - EIS; Rulemaking Process (Public Notice/Hearing); Payment Received
   - (3) Grant Petition (Adopt a Rule Designating ORW)

   No
   - Written Reasons for Rejection and Petition's Deficiencies
   - Final Decision Rejecting Petition (including response to public comments)

(2) Based on preponderance, does petition meet 3(a) and (4) factors
   Yes
   - Written Finding (Board Intends to Accept Petition)
   - Public Notice/Hearing (BEFORE accepting)
   - Final Decision Accepting Petition (including response to public comments)

   No
   - Written Reasons for Rejection and Petition's Deficiencies

(3) Grant Petition (Adopt a Rule Designating ORW)

Deny Petition (written reasons)

Legislative Review of Rule
TO:       The Montana Board of Environmental Review

FROM:    Sarah Clerget, Board Attorney

RE:     In the matter of Columbia Falls Aluminum Company’s Appeal of DEQ’s Modifications of Montana Pollutant Discharge Elimination System Permit No. MT0030066, Columbia Falls, Flathead County, MT

DATE:    September 21, 2018

The purpose of this memo is to assist BER when reviewing a hearing examiner’s proposed decision in a contested case proceeding.

The record before the Board consists of a written record and any oral arguments presented to the Board. Pursuant to the contested cases provisions of the Montana Administrative Procedures Act (MAPA), Mont. Code Ann. § 2-4-601 et. seq., as the hearing examiner in this case, I issued Proposed Findings of Fact, Conclusions of Law and Order (Proposed Order) on September 6, 2018. I also issued an Order on Exceptions on September 7, 2018. On September 20, 2018, the parties jointly requested an extension of time to file their exceptions briefs. In consultation with and at the direction of the Board Chair, I denied this motion on September 21, 2018. The parties were directed to, and did, file their exceptions briefs on September 28, 2018.

The Proposed Order and the parties Exceptions Briefs are included in the Board’s materials for the October 5th meeting. In addition to the written materials, the parties can make oral arguments to the Board at the October 5th meeting.

Based on the written record and the oral arguments before the Board, it must decide, by seconded motion, what to do with my Proposed Order. MAPA provides BER with the following options:
The agency may adopt the proposal for decision as the agency's final order. The agency in its final order may reject or modify the conclusions of law and interpretation of administrative rules in the proposal for decision but may not reject or modify the findings of fact unless the agency first determines from a review of the complete record and states with particularity in the order that the findings of fact were not based upon competent substantial evidence or that the proceedings on which the findings were based did not comply with essential requirements of law. The agency may accept or reduce the recommended penalty in a proposal for decision but may not increase it without a review of the complete record.

Mont. Code Ann. § 2-4-621(3).

In other words, BER has three options regarding what action to take upon review of a hearing examiner’s proposed order:

1. Accept the proposed order in its entirety and adopt it as the Board’s final order;
2. Accept the findings of fact in the proposed order, but modify the conclusions of law or interpretations of administrative rules; or
3. Reject the proposed order, review the entire record that was before the hearing examiner, find that the Proposed Order is not supported by substantial evidence, and modify the findings of fact and conclusions of law in the proposed order accordingly. This could mean a modified order granting summary judgment, an order denying summary judgment and ordering a hearing, or some combination of the two.

When choosing among these three options, the Board should keep certain legal standards in mind. Regarding options (2) and (3), the agency may “correct a hearing examiner’s incorrect conclusions of law” in a final order, without having to review the entire factual record. Mont. Dept. Transp. v. Mont. Dept. Labor and Indus., 2016 MT 282, ¶ 23 (herein, MDOT); Mont. Code Ann. § 2-4-621(3). However, the agency is more constrained with regard to modifying findings of fact. The agency cannot discard a hearing examiner’s factual findings. Mayer v. Bd. of Psychologists, 2014 MT 85, ¶¶ 7, 27-29. “Under MAPA, an agency may reject a hearing officer’s findings of fact only if, upon review of the complete record, the agency first determines that the findings were not based upon
competent substantial evidence.” *Blaine Cnty. v. Stricker*, 2017 MT 80, ¶ 25 ((internal quotations marks omitted; citing *Moran v. Shotgun Willies*, 270 Mont. 47, 51, 889 P.2d 1185, 1187 (1995), Mont. Code Ann. § 2-4-621(3)). “In reviewing findings of fact, the question is not whether there is evidence to support different findings, but whether competent substantial evidence supports the findings actually made.” *Mayer*, ¶ 27 (citing *Knowles v. State ex rel. Lindeen*, 2009 MT 415, ¶ 21 (emphasis supplied in *Knowles*)).

In other words, “[w]hen an agency has utilized a hearing examiner rather than personally hearing and observing the evidence, the agency may not reject or modify the examiner’s findings of fact unless they are clearly erroneous.” *MDOT*, ¶ 13. “An agency abuses its discretion if it modifies the findings of a hearing officer without first determining that the findings were not supported by substantial evidence.” *Stricker*, ¶ 25. “[A]n agency’s rejection or modification of a hearing officer’s findings cannot survive judicial review unless the court determines as a matter of law that the hearing examiner’s findings are not supported by substantial evidence.” *Id.* (internal citations omitted). With regard to whether substantial credible evidence supports the factual findings, *Stricker* explained:

> Substantial evidence is evidence that a reasonable mind might accept as adequate to support a conclusion. It consists of more [than] a mere scintilla of evidence but may be less than a preponderance. The evidence is viewed in the light most favorable to the prevailing party when determining whether findings are supported by substantial credible evidence.

*Stricker*, ¶ 26 (internal citations and quotations omitted); *see also Mayer*, ¶ 27 (quoting Black’s Law Dictionary 635, 636, 639, 640 (Bryan A. Garner ed., 9th ed., Thomson Reuters 2009)).

Members of the Board may therefore look at any portions of the underlying record in order to decide whether or not findings of facts are supported by “competent substantial evidence,” but once the Board determines that factual findings are not so supported, the Board must review the entire record before modifying any fact found by the Hearing Examiner. If any Board member would like to review any part of the record, he or she should contact the Hearing Assistant, Aleisha Solem, at asolem@mt.gov or 406-444-1496, and she will coordinate how best to provide the requested material to the Board member.
Once a decision is made, BER may utilize the Board Secretary or Board Attorney to assist in drafting the final order memorializing the Board’s substantive decision, for the signature of the Board Chair. If the decision is dispositive (ending the case), then the aggrieved party may appeal to state District Court for review. If the Board’s decision is not dispositive, the Board can decide to retain jurisdiction of this matter or assign it to a hearings examiner for further proceedings.
The Board of Environmental Review (BER or Board), through its appointed hearing examiner, held a contested case hearing in this matter on November 16-18 and November 21, 2016 at 1712 9th Ave., Helena, Montana. Kurt R. Moser appeared on behalf of the Montana Department of Environmental Quality (DEQ or Department). Cathy A. Laughner and W. John Tietz appeared on behalf of appellant Columbia Falls Aluminum Company (CFAC). The hearing concerned CFAC’s appeal of Montana Pollutant Discharge Elimination System (MPDES) Permit No. MT0030066, issued to CFAC on July 25, 2014. The hearing included testimony from Steven Wright, Scott Mason, Dr. Kevin Viggo Brix, David Stagliano, Christine Weaver, Dr. Terri Mavencamp, Dr. Jon Kenning, and James Lloyd; and exhibits from both parties. The matter is now ripe for decision. The hearing examiner proposes to the Board the following findings of fact, conclusions of law, and order:
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INTRODUCTION

The problem documented in this case has remained unresolved since at least the 1980s: what to do with the contaminated groundwater seeping from underneath the Columbia Falls Aluminum plant into a back channel of the Flathead River, a.k.a “Outfall 006.” Unfortunately, BER cannot entirely rectify this problem on the present record. It can, however, order DEQ and CFAC to directly address and collectively solve it within the pending 2014 MPDES permit.

The permitting history for CFAC shows that DEQ (and its predecessor agency, Montana Department of Health and Environmental Sciences or MDHES), the Federal Environmental Protection Agency (EPA), and CFAC all have been aware for decades that groundwater underlying the CFAC plant has been discharging various pollutants through discrete and diffuse seeps above and below the ground and water level in an area of about 1,500 feet along the north bank and in a backwater area of the Flathead River. In 1996 the EPA found that CFAC’s discharges, and DEQ’s permitting of them, was unacceptable. However, DEQ’s solution in 1999 was essentially to draw a circle around the CFAC plant and permit all the discharges CFAC was causing within that circle. DEQ then failed to re-address the problem for over a decade, allowing CFAC’s 2003 application for re-issuance of the 1999 permit to sit unattended until 2013 (when a lawsuit prompted them to review it). Based on CFAC’s re-submitted application, and a public
comment period (in which CFAC commented on the draft permit), DEQ issued a new permit to CFAC in 2014 that was substantially different than the 1999 permit. The greatest change in the 2014 permit, and the one that forms the basis for this appeal, is the way in which DEQ reconfigured Outfall 006.

In the course of issuing the 2014 permit, DEQ recognized the failures of the 1999 permit and attempted to rectify them. Most of the 2014 permit, and in particular Outfalls 007-013, represent this successful effort to bring CFAC and its permitting scheme into compliance with the purpose and standards of the Montana Water Quality Act (WQA) and the Federal Water Pollution Control Act (the Clean Water Act or CWA). These new Outfalls, and the overall permit, do a lot to further the definition, location, monitoring, and treatment of what was permitted as Outfall 006 in 1999. However, seemingly because of time or administrative constraints, DEQ’s effort fell short with what is left of Outfall 006 in the 2014 permit.

At the hearing, CFAC had the burden of proving, by a preponderance of the evidence, that the 2014 permit DEQ issued to CFAC violated the law. *MEIC v. DEQ*, 2005 MT 96, ¶16. CFAC has met that burden in three ways: (1) the 2014 permit does not “provide for compliance” as required by ARM 17.30.1311(1); (2) the 2014 permit describes Outfall 006 as a single location at 48°23’22”N latitude, -114°8’29”W longitude, which does not comport with the reality that there are
many discrete and diffuse seeps in the area of the backwater channel along the riverbank; and (3) CFAC and the public did not have an opportunity to comment on Figure 2 attached to the 2014 Permit, in violation of ARM 17.30.1376.

However, CFAC also argued at the hearing that the solution going forward was to reverse course: CFAC wants BER to essentially re-issue a permit that DEQ (admittedly in error) issued in 1999 and that allows for basically unlimited and unmonitored discharges of cyanide (at least) into a backwater of the Flathead River at Outfall 006. This is also unacceptable. There is simply not, at present, enough data available to determine whether or how CFAC’s discharges have affected or will affect the beneficial uses of the backwater or main channel of the Flathead River, including the affects to aquatic life. The data that is available indicates that CFAC’s discharges violate (by several magnitudes) the water quality parameters set by Circular DEQ-7, at least with respect to cyanide in the back channel. It is therefore clear that the 1999 permitting scheme meets neither the purpose nor the specific standards of the WQA and the CWA. BER cannot permit CFAC to violate the WQA/CWA by essentially unlimited pollutant discharges at Outfall 006.

Unfortunately, no one appears to have sufficient information (at least based on the evidence presented at the hearing) to determine how the permit should be constructed to “provide for compliance” with the WQA/CWA with regard to Outfall 006. CFAC’s proposed solution is essentially for DEQ to continue
permitting exceedance of the WQA/CWA standards, while DEQ’s solution is to require immediate compliance with WQA/CWA standards, knowing that CFAC cannot comply, which is a violation of ARM 17.30.1311(1). The present record does not articulate if or how CFAC may be able to monitor or control Outfall 006, or whether it is even possible to describe, measure, or treat it in any way that might comply with the standards and purpose of the WQA and CWA.

Because BER can neither permit CFAC to violate the WQA/CWA nor permit DEQ to violate ARM 17.30.1311(1), and because there is insufficient evidence before BER to allow it to modify the permit to satisfy both requirements, the BER must remand the issue to DEQ for further analysis and revision. Mont. Code Ann. § 75-5-403(2). Ultimately, it is DEQ’s responsibility to write a permit (based on information provided by CFAC) that both complies with the WQA/CWA and ARM 17.30.1311(1). The current permit does not. To comply, DEQ must therefore gather or require, as part of the permit revision, any other data or information it may need to write such a permit that fulfills both requirements. This may include (but not be limited to) requiring CFAC: provide additional, specific locations for Outfall 006; request or propose a compliance plan and schedule; perform a mixing zone study; and/or perform a biological survey. Based on this additional information, DEQ must then revise the permit in any way that complies with both the WQA/CWA and ARM 17.30.1311(1). This may include
(but not be limited to): finding that what was previously designated as Outfall 006 is not a “point source” within the meaning of ARM 17.30.1304; granting any appropriate mixing zone; and/or imposing a compliance schedule.

While remand will add time to what is already regrettably prolonged problem, it is the legally available option to the BER at this time and on this record. Armed with the findings and conclusions contained herein, the parties must find a viable solution with respect to what remains of Outfall 006 in the 2014 permit and craft viable revision on remand.

**PROCEDURAL HISTORY**

On August 22, 2014, CFAC filed with BER a *Notice of Appeal and Request for Hearing* (NOA) pursuant to Mont. Code Ann. § 75-5-403 and ARM 17.30.1370(4). The NOA alleged that DEQ modified its MPDES Permit No. MT0030066 on July 25, 2014 in violation of applicable laws. Specifically, CFAC appealed: (1) the changes to the previously designated mixing zone; (2) the description of Outfall 006; (3) failure of the permit to account for treatment achieved by the pond system and by attenuation of pollutants by natural soil and groundwater; (4) compliance point for the acute aquatic life standard for total cyanide; and (5) any other elements inconsistent with applicable laws and rules. BER assigned all aspects of the case to a hearing examiner for resolution and proposed decision pursuant to Mont. Code Ann. § 2-4-611.
On March 6, 2015, hearing examiner Benjamin Reed issued a First Prehearing Order directing the parties to file a proposed stipulated schedule. On March 11, 2015, the parties complied and on March 25, 2015 Mr. Reed issued a Scheduling Order.

On November 25, 2015, CFAC filed a Motion to Compel and moved for partial summary judgment. As a result, the parties filed a Joint Motion to Vacate the Remaining Scheduling Order Dates on April 12, 2016. On April 8, 2016, Mr. Reed issued an Order on CFAC’s Motion to Compel granting in camera review of certain documents; on April 21, 2016, after that review, DEQ was ordered to produce most of the documents. Mr. Reed also issued an Order denying CFAC’s Motion for Partial Summary Judgment the same day.

On June 22, 2016, a telephonic scheduling conference was held to discuss the remaining scheduling dates’ an updated Scheduling Order followed on July 13, 2016. The parties filed their prehearing memos on September 16, 2016. On October 4, 2016, the parties submitted Stipulated Facts (SF) and DEQ filed a Motion in Limine requesting the exclusion of expert testimony; the motion was fully briefed and DEQ provided supplemental authority, which CFAC rebutted. Mr. Reed determined at the final pretrial conference that CFAC’s expert would be allowed to testify and DEQ would be allowed to object.
Mr. Reed presided over the contested case hearing on November 16-18 and 21, 2016, receiving both testimony and exhibits from DEQ and CFAC. On December 2, 2016, Mr. Reed asked the parties for additional briefing regarding the legal basis for a surface water mixing zone. The parties complied and the issue was fully briefed by December 23, 2016.

At the Board’s December 9, 2016 meeting, Mr. Reed indicated he had given his resignation to the Attorney General’s Office but would render a proposed decision to the Board on this case. Mr. Reed further indicated that Andres Haladay would take over as attorney and hearing examiner for the Board.

The parties filed their proposed findings of fact and conclusions of law on February 3, 2017. On March 1, 2017, Mr. Haladay, acting as the Board attorney, issued a memo to the Board and simultaneously issued a Notice to the parties indicating the Board’s options regarding Mr. Reed’s unavailability for the purpose of rendering a proposed decision under Mont. Code Ann. § 2-4-621. Mr. Haladay at that time recommended that the Board re-assign the case and give the parties the options listed in Mont. Code Ann. § 2-4-621(1) in order to ensure a timely proposed order. On March 3, 2017, CFAC and DEQ filed Responses indicating their preference to give Mr. Reed additional time in which to issue his proposed decision. At the March 31, 2017 Board meeting, Mr. Haladay indicated he had spoken to Mr. Reed and believed he was going to issue a proposed decision to the
Board. The Board unanimously voted to appoint Mr. Haladay as hearing examiner for the limited purpose of dealing with procedural matters once Mr. Reed issued his proposed decision.

In September 2017, Mr. Haladay left state employment and the undersigned was appointed as the Board’s attorney. Prior to BER’s September 29, 2017 meeting, DEQ’s proposed findings of fact and conclusions of law (FOFCOL) in this case were included in the Board’s meeting materials. At the September meeting, the Board appointed the undersigned to act as hearing examiner for procedural aspects of the case and instructed her to convene a conference with the parties to discuss the status of the case and to inquire as to any thoughts the parties may have to assist the Board with this case in the absence of any proposed findings and conclusions from Mr. Reed.

On October 18 and November 20, 2017, the undersigned held telephonic status conferences as directed. Prior to the second conference, CFAC submitted a Response requesting voluntary recusal of Board member John Dearment, arguing that ex parte communication had occurred when DEQ’s Proposed FOFCOL was released to the Board, and requesting an independent review regarding whether this proceeding could “fairly continue.”

On December 5, 2017, the undersigned issued a Proposed Order indicating options available to the Board regarding Mr. Reed’s unavailability. On
December 8, 2017, the Board held a regularly scheduled meeting and by unanimous vote, found DEQ’s proposed findings of fact and conclusions of law were inadvertently disclosed and would be disregarded. The Board also found Mr. Reed unavailable as hearing examiner pursuant to Mont. Code Ann. § 2-4-621. The Board elected to have a special meeting to discuss whether to order a new hearing and how to assign the case.

The special meeting was held January 5, 2018. Prior to the meeting, CFAC submitted a Notice indicating that, pursuant to Mont. Code Ann. § 2-4-622, it did not seek re-hearing of this matter and did not object to the undersigned rendering proposed findings of fact, conclusions of law, and decision from the existing November 2016 record. The Board appointed the undersigned as a hearing examiner and ordered her to render proposed findings of fact, conclusions of law, and decision from the existing record.

**FINDINGS OF FACT**

Having reviewed the record, including the November 2016 hearing transcript and all exhibits admitted at that hearing, the undersigned makes the following factual findings:
A. Background: Plant, Production, and Water

1. The aluminum plant at issue in this case is located outside of Columbia Falls, Montana, on the north side of the Flathead River. Ex. C-26; Ex. D-30.¹

2. A color map depicting the area at issue in this case is found in Ex. C-26.

3. The aluminum plant was originally owned and operated by Aluminum Primary Operations (ARCO). CFAC was formed in 1985 and bought the aluminum operation and property the same year. Hearing Transcript (Tr.) 91:17-18, 157:11-17.

4. The plant historically made aluminum from aluminum ore. Ore was placed in aluminum reduction pots which through an electric chemical reaction reduced the ore to aluminum metal. At the bottom of the pot is a liner or cathode. A side chemical reaction in the liner generates cyanide, and when the liner reaches the end of its useful life, it becomes “spent potliner” containing cyanide. Tr. 93:2-16.

5. The East, Center, and West landfills at the plant contain spent potliner from the aluminum reduction pots. The West landfill was determined to be the source contributing cyanide to the Flathead River. DEQ required Best

¹ Exhibits C-26 and D-30 similarly depict the CFAC facilities, however D-30 differs in that it contains three pages versus C-26’s one. Additionally, D-30 highlights CFAC’s surface water and ground mixing zones. These differences are not material to this decision.
Management Practices (BMPs) to prevent infiltration, capping the West landfill in 1994/1995. Tr. 144: 18-21, 145:1-7; Ex. C-12, at 1; Ex. C-5 (Statement of Basis, p.2).³

6. CFAC’s internal records show that it contributed spent potliner to the East landfill only, a lined landfill, between 1985 and 1990. Tr. 91:17-18, 157:11-17.

7. Historic landfills located on the site do not have leachate collection systems associated with them. Tr. 141:11-145:22.

8. Groundwater in the unconsolidated aquifer below the facility flows from the north to the south toward the Flathead River. Ex. C-11.⁴

9. Site groundwater seeps into the Flathead River from both discrete and diffuse locations and along CFAC’s property boundary with the Flathead River. Tr. 150:5-10, 494:5-14.

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² Exhibits C-12 and D-9 are substantially different. Both exhibits do exist in DEQ’s historical files and were admitted at hearing. Tr. 296:2-298:4. However, Wright and Mason’s testimony referred to C-12. For the purposes of this and other findings of fact, C-12 will be used.

³ Exhibits C-5 and D-1 are substantially the same. In addition to the 1994 permit, C-5 also contains the statement of basis. These differences are not material to this or other findings of fact.

⁴ Exhibits C-11 and D-32 are substantially the same except that C-11 is the complete 1998 renewal application and D-32 contains only attachment A of the renewal application. These differences are not material to this or other findings of fact.
10. There are many discrete and diffuse seeps along the river bank, above and below the water line, in the area of the backwater channel depicted in Ex. C-26; Ex. D-30; Ex. C-28.

11. The seeps are naturally occurring precipitation driven, groundwater, that enter from Tea Kettle Mountain north of the site and move underneath CFAC’s property. There are no man-made channels. Tr. 23: 1-25, 45:24, 46:1-5, 51:1-52:23, 150:10, 179:3-7; Ex. C-2; Ex. C-11; Ex. C-12 at 11; Ex. C-19; Ex. C-28.

12. The backwater area where these groundwater seeps occur contains ducks, dragonflies, damsel flies, clouds of aquatic insects, midges, mosquitoes, raccoon and deer tracks. Snails are on rocks on the outflow to the river. It has all the characteristics of a typical backchannel. Tr. 411:21-25, 412:1-25, 413:1-4; Ex. C-51.

13. Total groundwater flow from beneath the CFAC plant reporting to the Flathead River is estimated to be approximately 270,000 gallons per day. Ex. C-11.

14. This estimated total groundwater flow represents approximately 0.004% of average streamflow in the Flathead River at Columbia Falls. Ex. C-11.

15. A 1988 EPA report and field investigation noted that EPA had reviewed sampling from 1980 to 1988, and concluded the groundwater was

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5 Exhibits C-19 and D-13 are substantially the same except for the following differences: C-19 is in color and does not contain the administrative time stamps from DEQ. These differences are not material to this or other findings of fact.
contaminated with cyanide which was discharging to the Flathead River. Tr. 29:13-30:25; Ex. C-6 at 26, 30.

16. An inspection report written by EPA in 1996 stated that flowing seeps of over 1,000 feet were observed along the Flathead River, and many of the seeps would be covered-up during high-flow events. Tr. 26:11-17, 27:2.

17. CFAC ceased aluminum production from its facility in 2009. Tr. 120:12-14.

18. In spring 2015, CFAC announced the permanent closure of its aluminum production facility after more than five years of being out of production. Tr. 120:9-20; Stipulated Facts (SF) ¶ 26.

19. Production-based wastewater is no longer being generated from CFAC’s operations. Tr. 178:8-10.

20. The CFAC site has now been designated as a Federal Superfund site. SF ¶ 28; Tr. 173:1-4.

21. CFAC is conducting a remedial investigation/feasibility study pursuant to a U.S. EPA Region VIII administrative settlement agreement and order on consent, dated November 30, 2015. The purpose of this study is: (a) to determine the nature and extent of contamination and any threat to the public health, welfare, and the environment caused by the release or the threatened release of hazardous substances, pollutants, or contaminants at or from the site; (b) to
identify and evaluate remedial alternatives to prevent, mitigate, or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the site; and (c) to recover response and oversight costs. SF ¶ 27.

B. Cyanide

22. Cyanide is an organic molecule and is broken down by numerous processes. SF ¶ 1.

23. Iron cyanide is a large molecule, does not cross the cell membrane, and is not very toxic. “Free cyanide” is the form that causes toxicity. Tr. 82:16-83:12.

24. Iron cyanide behaves differently under different environmental conditions. Under certain environmental conditions, iron cyanide may be broken down into hydrogen cyanide and suddenly become very toxic. With the presence of iron cyanide, and under the right conditions, it is possible to have periodic toxic events, even though iron cyanide itself may not be particularly toxic. Tr. 627:1-630:8, 632:13-636:1.

25. Modeling of cyanide is not straightforward and is dependent upon many varying environmental conditions. Tr. 636:11-638:2.
26. Total cyanide is a toxic substance and the state’s aquatic life standards for total cyanide are 22 mg/L [micrograms/liter] (acute) and 5.2 mg/L (chronic). Circular DEQ-7 - Montana Numeric Water Quality Standards 23 (Oct. 2012).

27. Cyanide has not been detected in the Flathead River at Riv-M, a sampling point on the north side of the main channel of the Flathead River depicted in Ex. C-26; Tr. 233:7-8; Ex. C-20, at 31 (2014 Permit Fact Sheet).6

28. Total cyanide, which would include iron cyanide, has not been detected at Riv-M. Ex. C-21 at 7; Tr. 349:20-350:7, 647:15-16, 648:18-20, 650:10-17.

29. Cyanide has been detected in the backwater area of the Flathead River, upstream of Riv-M with a maximum concentration of 53 mg/L. Tr. 233:2-6; Ex. C-20, at 31.

30. Historically detected in the seep water is “total” cyanide ranging from 180-420 mg/L. Tr. 82:16-83:12.

31. Data covering the past 20 years shows cyanide in the seep area is typically 200 mg/L. Tr. 216:15-25, 217:122.

6 Exhibits C-20 and D-12 are substantially the same. In addition to the 2014 Fact Sheet, exhibit C-20 also contains the draft permit issued for public comment. These differences are not material to this or other findings of fact.

7 Exhibits C-21 and D-17 are substantially the same. Exhibit C-21 contains attachments while exhibit D-17 does not. These differences are not material to this or other findings of fact.

C. 1984 MGWPCS Permit

33. On September 17, 1984, MDHES (predecessor to DEQ) issued a Montana Groundwater Pollution Control System (MGWPCS) Permit, Permit No. MGWPCS 0005 (herein, 1984 permit) to ARCO. SF ¶ 2; Tr. 121:18-122:8; Ex. C-3.

34. The 1984 permit covered discharges to groundwater from ARCO’s aluminum reduction operation located at NE¼ SE¼ Sec. 3, T30N R20W, Columbia Falls, Flathead County. Ex. C-3; Ex. C-1; Tr. 90:23-91:2.

35. Under the 1984 permit, groundwater beyond the aluminum plant boundary was not to be degraded (Tr. 91:3-4, Ex. C-3, at 4.), but the permit allowed degradation of groundwater within the property boundaries. Tr. 124:4-6, 8-10; Ex. C-43.

D. 1994 MPDES Permit

36. On July 9, 1993, CFAC submitted a Montana Pollutant Discharge Elimination System (MPDES) application to DEQ. The cover letter stated the application was “for a MPDES permit for the groundwater release to the Flathead River adjacent to the plant.” SF ¶ 5; Tr. 19:11-17; Ex. C-49.
37. Form 2D of the Application stated that the operations contributing flow to the discharge was groundwater contaminated by historical spent potlining disposal practices. SF ¶ 5; Tr. 19:11-17; Ex. C-49.

38. “Best management practices (BMPs) where limits are infeasible” was the approach taken by DEQ since the first permit in 1984. Correspondence between DEQ and CFAC leading up to the first 1994 permit states that control through management practices was the approach taken. Tr. 241:11-21, 242:1-13.

39. On May 1, 1994, DEQ issued MPDES Permit No. MT0030066 (herein, 1994 permit) to CFAC; it was issued for a five year period. SF ¶ 5; Ex. C-5.

40. The 1994 Permit authorized CFAC to discharge process wastewater from its aluminum reduction plant to groundwaters discharging to the Flathead River. [ Permit No. MT0030066 issued 5/1/94 - cover page]. SF ¶ 5, Tr. 19:11-17, Ex. C-5.

41. The 1994 permit did not contain any designated mixing zones (surface or groundwater, acute or chronic). Ex. C-5. Neither DEQ nor MDHES issued a discharge permit to CFAC or ARCO containing any surface water mixing zone prior to April 29, 1993. Ex. C-3, Ex. C-5.

E. **1996-1997 EPA Involvement**

43. From its inspection and review of historical site data, EPA determined that groundwater seeps flowing beneath the CFAC facility contained high levels of cyanide and fluoride and that these seeps constituted unpermitted discharges to the Flathead River. The EPA inspection concluded that the primary source of cyanide was an abandoned on-site landfill previously used for the disposal of used pot liners. Ex. D-3.

44. Following the September 1996 inspection, EPA determined that corrective action was necessary to address CFAC’s unpermitted discharges to the Flathead River as follows:

The unpermitted seeps discharging to the Flathead River must be addressed. This must be done either through obtaining a MPDES Permit for the discharges, which will require that the discharges be treated to meet designated standards or they must cease. This probably means that they need to be captured prior to discharge to the River and pumped to a location where they are not discharging to the River.

Ex. D-3 at 3.

45. In December 4, 1996 letters, the EPA Assistant Regional Administrator sent a Notice of Violation to DEQ’s Director. This Notice of Violation requested DEQ take an enforcement action against CFAC for the unpermitted discharges of cyanide and fluoride occurring into the Flathead River. The letter included a summary of violations and reported that a representative sample of the unpermitted discharge (seep water) was collected which contained 0.199 mg/L of cyanide and 2.68 mg/L of fluoride. The summary of violations also
stated: “The documented discharges are not authorized by a National Pollutant Discharge Elimination System (NPDES) permit and are considered to be violations of Section 301 (a) of the Clean Water Act.” Ex. D-4 (second letter of two, at 2).

46. In DEQ’s January 8, 1997 letter responding to EPA, the Department acknowledged that “the unauthorized seep discharge identified on property owned by CFAC is a discharge of wastes requiring a discharge permit under Section 75-5-605(2)(b) MCA of the Montana Water Quality Act.” DEQ further indicated it would require CFAC to either obtain a MPDES permit for the discharge or eliminate the discharge and also recognized that it was unknown whether the discharge would be able to meet effluent standards. Ex. D-5; Ex. C-8.8

47. DEQ thus acknowledged in 1997 that the seep discharge at the CFAC site required a point source discharge permit or needed to be eliminated. SF ¶ 4.

48. In a letter dated March 31, 1997, DEQ notified CFAC that the method by which DEQ had previously addressed CFAC’s seep discharge to the Flathead River was unacceptable to the EPA, and the EPA required DEQ to list the seep as an outfall and assign specific effluent limits. Ex. C-42 at 2.9

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8 Exhibits D-5 and C-8 are identical.
9 Exhibits C-42 and D-6 both contain the letter from DEQ to CFAC dated 3/31/97, however C-42 also contains additional letters dated 10/17/97, and 2/5/98. These differences are not material to this or other findings of fact.
49. Also in the March 31, 1997 letter, DEQ stated that the areas of state waters exceeding standards for cyanide and fluoride would dictate the boundaries of a mixing zone, and in the case of discharges to groundwater (which in turn discharge to surface water) the groundwater mixing zone may extend into surface water. SF ¶ 6; Ex. C-42 at 2-3.

50. This DEQ letter, explained that because CFAC could not control the volume and concentration of the seep discharge, effluent limits were not assigned in the 1994 permit. Tr. 38:22-39:2; Ex. C-42.

51. DEQ’s letter also indicated it would not pursue an enforcement action against CFAC because CFAC’s 1993 application (for a permit) sought to cover the seeps, even though the 1994 Permit only addressed groundwater discharging from the percolation ponds and did not permit a surface water discharge of contaminated site groundwater flowing from historic site disposal practices. The letter further indicated that the “seep discharge” was never authorized to discharge through an outfall and never assigned effluent limits because the volume and concentration were not controlled by current plant operations and effluent limits were not contained within the federal regulations (40 CFR Subchapter, Part 421, Subpart B) for primary aluminum smelters. Ex. C-42.

52. In a subsequent letter dated October 17, 1997, DEQ notified CFAC that the groundwater seeps resulting from historical spent potlining disposal
practices should be given new outfall number 006; that a hydrogeologic investigation of the property and monitoring records demonstrate a direct hydrologic connection between groundwater beneath the facility and the Flathead River; that the groundwater does flow beneath the north percolation ponds that received plant process wastewater discharges; and that the discharge from historical disposal of spent potliners is being regulated under the permit program per EPA requirements. SF ¶ 7; Ex. C-42.

F. 1999 MPDES Permit


55. On January 4, 1999, DEQ reissued MPDES Permit No. MT0030066 to CFAC (herein the 1999 permit); the 1999 permit became effective on February 1, 1999 and technically expired on January 31, 2004. SF ¶ 9; Ex. C-15.10


10 Exhibits C-15 and D-8 are similar, however C-15 also contains replacement pages issued on 2/3/99 and 6/1/99. These differences are not material to this or other findings of fact.
57. Outfall 006 was defined in Section I.B. of the 1999 permit as:

Outfall 006 is ground water flowing beneath the plant site and discharging to surface water in the Flathead River along a reach extending from Latitude 48° North, 23′ 18″, Longitude 144° East, 7′ 19″ to Latitude 48° North, 23′ 13″, Longitude 144° East, 9′ 04. The ground water receives wastewater from the north pond, south ponds, west pond, plant drywells, landfills used for historical waste disposal practices, Quonset building septic system, outdoor vehicle wash water, head tank overflow, head tank cleaning water, production well testing and maintenance discharges, lawn irrigation and dust control discharges.

SF ¶10; Ex. C-15.

58. The reach described as Outfall 006 has been estimated to be over one-mile long. Ex. D-29; Tr. 493:17-494:14.


60. Exhibit 1 of the 1999 permit (Ex. C-20-A) depicts a somewhat triangular shaped surface water mixing zone covering the backwater area along the north bank of the Flathead River (where the groundwater seeps occur) and including about half of the main channel of the river for 150 feet after the end of the backwater. The mixing zone ends before the Riv-M sampling point, which is downstream in the river. Tr. 213:16-21; Ex. C-12; Ex. C-20-A; Ex. C-26.
61. Exhibit 2 of the 1999 permit (Ex. C-20-B) depicts a groundwater mixing zone that is very large, and generally circular, covering basically the parameter of the CFAC plant. Ex. C-20-B; Ex. C-26.

62. DEQ specifically described the mixing zone boundaries as:

The ground water mixing zone for CN [total cyanide] and F [fluoride] (Exhibit 1) extends within a polygon defined by a point on the north bank of the Flathead River located 3630 feet west of well PW-7, extending northward 300 feet to the Burlington Northern railroad tracks, then 31 degrees for a distance of 4,500 feet to the roadway along the northern edge of the West Landfill, following that roadway eastward to a second roadway adjacent to the Cedar Creek diversion ditch, then southeastward along the ditch roadway for 1930 feet, then southward for 3,500 feet along the fence line to the access roadway on the south side of the South Percolation Ponds, then westward along the pond access roadway to the point of origin.

The surface water mixing zone (Exhibit 2) consists of a segment of the Flathead River extending from a point on the north bank located 2,100 west of well PW-7, westward to a point on the north bank located 4,600 feet west of well PW-7.

SF ¶ 11; Ex. C-15.

63. In the Statement of Basis accompanying the 1999 permit, and which describes the derivation of the conditions of the permit and the reasons for them, DEQ made the following findings:

a. CN [cyanide] is not persistent in surface water due to photo-degradation and volatilization, and the bioaccumulation factor for CN is 1.

b. The mixing zones provided for in MPDES Permit No. MT0030066 would have no effect on fish migration in the Flathead River.
c. The area exceeding the acute CN standard extends for a length of 150 feet and a width of several feet depending on flow. DEQ determined this limited extend will not inhibit fish migration.

d. A water quality assessment completed by CFAC does not identify threatened or impaired uses.

e. The standards for fluoride and cyanide that have been exceeded in Outfall 006 are due principally to the effects of past disposal practices and so “there are no specific limits placed on Outfall 006 because the concentrations of [fluoride] and [cyanide] in groundwater cannot be controlled by current plant operations.”

f. There was no known aggregate toxic effect of CN with other constituents in the discharge entering surface water.

g. Whole effluent toxicity testing is not required.

h. There are no spawning or nursery areas, no effects to fish migration, and attraction to the cyanide concentration in the acute mixing zone backwater channel.

i. There was no anticipated impact on aquatic species or other species.

SF ¶ 13; Ex. C-12.

64. Thus, the 1999 permit allowed exceedance of the acute standard for cyanide (22 mg/L) within the mixing zone areas (delineated on the maps found at Ex. C-20-A and Ex. C-20-B) and the Statement of Basis concluded that there was no harm to fish migration and no anticipated impact on aquatic species or other species from that exceedance. Tr. 208:23-25, 212:17-213:12; Ex. C-12.

65. The 1999 permit did not set Technology Based Effluent Limitations (TBELs) or Water Quality Based Effluent Limitations (WQBELs) to address the contamination occurring from the historic landfills and did not include monitoring for the discharge coming from Outfall 006. Ex. C-15.
66. The stated reason for this was that “[t]here are no specific limits placed on Outfall 006 because the concentrations of F and CN in ground water cannot be controlled by current plant operations.” Ex. C-12 at 7.

67. While the 1999 permit was written to respond in some ways to EPA’s September 1996 investigation and subsequent report, the 1999 permit never required that CFAC’s discharges be pumped to a location for treatment, never assigned effluent limits for CFAC’s discharges of cyanide and fluoride at Outfall 006, and never required treatment of the discharges to meet designated standards. Tr. 130:2-131:25; Ex. C-12 at 6, 4; Ex. C-15.

68. The 1999 permit thus allowed CFAC essentially unlimited and unmonitored discharges of cyanide, in exceedance of the water quality standard, within the mixing zone - which included basically the entire plant (for groundwater) and the backwater and main channel of the Flathead River (for surface water) - with the justification that CFAC could not control the discharges and there was no anticipated impact. Ex. C-12, Ex. C-20-A, Ex. C-20-B.

69. Riv-M is the compliance point for both acute and chronic water quality standards, outside of the mixing zones, which have been met the over the duration of the 1999 permit. Tr. 215:13-14; Ex. C-26.

70. A DEQ inspection on August 7, 2003 noted no violations of the 1999 permit. SF ¶ 14.
G. **2003 and 2013 Permit Renewal Applications**

71. On July 30, 2003, CFAC submitted its application for renewal of Permit MT0030066, and its application fee 180 days before the expiration date. Ex. C-16.\(^{11}\)

72. Following review of this application, DEQ found that CFAC’s application was substantially complete on October 28, 2003. Ex. C-17.\(^{12}\)

73. Within its 2003 application, CFAC requested the continuance of the groundwater and surface water mixing zones. SF ¶15; Ex. C-16.

74. DEQ did not request any information to determine whether mixing zones would be allowed or indicate that the 1998 mixing zone study was insufficient. Ex. C-17.

75. DEQ took no action on CFAC’s 2003 permit application until 2011, when a DEQ employee, Tom Reid, started working on a draft fact sheet. That 2011 draft fact sheet, however, “never went anywhere” and CFAC was not informed of it. Tr. 488:12-25.

76. It was not until ten years after CFAC’s 2003 application, in February 2013, that another DEQ/permit writer, Christine Weaver, was assigned and began

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\(^{11}\) Exhibits C-16 and D-36 are similar. Exhibit C-16 contains not only the cover letter from CFAC to DEQ but also the 2003 application for renewal of MPDES Permit MT0030066. These differences are not material to this or other findings of fact.

\(^{12}\) Exhibits C-17 and D-10 are identical.
working on CFAC’s 2003 permit application. This work began in response to a law suit regarding DEQ’s backlogged permits. Tr. 487:20-22, 568:24-570:14.

77. Although the 1999 Permit expired on January 31, 2004, the conditions of the expired permit remained in force until the effective date of a new permit, pursuant to ARM 17.30.1313.

78. During spring 2013, DEQ determined the 2003 application was now outdated and an updated permit application was required for the renewal. Tr. 487:20-23.

79. On May 2, 2013, DEQ sent a letter to CFAC requesting an updated renewal application. Ex. C-18.\(^\text{13}\)

80. The letter expressly requested CFAC update certain information, but did not specifically ask for an update to the mixing zone study. DEQ requested the following information from CFAC: (1) Outfall Identification; (2) Average Flow; (3) Production Estimates; and (4) Effluent Characteristics. SF ¶ 16; Ex. C-18; Tr. 567:7-10, 570:12-14.


\(^\text{13}\) Exhibits C-18 and D-11 are identical.
82. CFAC made corrections to several forms sent by email August 8, 2013. Ex. C-20 at 2.

83. Although CFAC had ceased aluminum production from its facility in 2009, CFAC submitted its updated application with the assumption that production could restart at any time. Tr. 172:11-20; SF ¶ 17; Ex. C-19.

84. In CFAC’s updated submittal, it again requested renewal of both surface and groundwater mixing zones as included in the 1999 permit, noting that details regarding those mixing zones were included in the 2003 application submittal. SF ¶ 17; Ex. C-19.

85. DEQ did not provide a notice of deficiency with CFAC’s update application in 2013. SF ¶ 18.

86. DEQ also did not request CFAC provide any actual biological data. SF ¶ 19.

87. In 2013, DEQ had discussions with CFAC concerning the need to provide DEQ specific locations in order to characterize the discharges of the landfills as point sources. Tr. 482:22-486:20, 502:20-503:13.

88. DEQ represented to CFAC that previously permitted outfalls would need to be reconfigured and be assigned appropriate TBELs and WQBELs. Tr. 547:02-550:08.
89. During the renewal process, DEQ questioned whether Outfall 006 was necessary at all. Tr. 474:2-21, 481:18-482:21, 527:3-22, 540:6-18.

90. Ms. Weaver wrote on April 9, 2013 that, “[t]he 1998 permit assess the request for mixing zones, and provided a groundwater mixing zone for cyanide and fluoride, and surface water mixing for cyanide. (See Exhibits 1 and 2). ARM 17.30.505(1) states DEQ must determine applicability of currently granted mixing zones, and the mixing zones will remain in effect until evidence that it will impair existing or anticipated uses.” Tr. 559:4-12.

91. Ms. Weaver wrote in an April 2013 memorandum that she believed the existing surface and groundwater mixing zones in permit No. 0030066 qualified for continued authorization. Tr. 559:22-560:7; Ex. C-53.

92. DEQ’s August 2013 internal draft Fact Sheet prepared for permit No. 0030066 stated that DEQ would maintain the acute mixing zone length of 150 feet, and the elevated cyanide concentration is not expected to inhibit fish migration. Tr. 564:4-6, 12-16.

93. Ms. Weaver recalled that Tom Reid, (author of the partial 2011 draft fact sheet) disagreed with the mixing zones included in the August 2013 internal draft fact sheet because, “cyanide is not ammonia or chlorine essentially.” Tr. 565:12-15.
94. In the October 2013 draft Fact Sheet Ms. Weaver wrote that she did not agree with the opinion of no acute mixing zone for cyanide. Tr. 570:17-25; Ex. C-56.

95. DEQ’s October 2013 draft Fact Sheet stated:

Circular DEQ7 provides an acute cyanide aquatic life standard of 22 micrograms per liter. DEQ granted a cyanide acute surface water mixing zone as part of the 1998 renewal (Figure 4, Exhibit 2) after CFAC provided information that the initial dilution will not threaten or impair existing beneficial use, and that cyanide is not stable in the environment. It will naturally degrade by a variety of mechanisms. CFAC exceeded the acute cyanide standard within the surface water mixing zone. DMR data for Flathead River mixing zone monitoring location RIV2 showed a maximum concentration of 53 micrograms per liter. It is unknown whether cyanide exceeded acute water quality standards at the end of the acute water mixing zone length of 150 feet. DEQ will maintain the acute surface water mixing zone length of 150 feet for cyanide.

Ex. C-56 at 33.

96. In response to CFAC’s 2003/2013 application, DEQ did not research the rate of cyanide decay, did not consult with its scientist with respect to dissipation of cyanide persistence or dissipation, and did not look at or review the literature provided by CFAC regarding cyanide and the breakdown of cyanide. Tr. 574:7-19, 576:1-18, 585:3-12; Ex. C-60.

H. 2014 Permit

98. The public notice indicated that a draft permit, fact sheet, and an environmental assessment had been prepared for the CFAC facility and that public comments were being accepted and needed to be received or postmarked prior to April 4, 2014. SF ¶ 20.

99. The draft 2014 permit was substantially different than the 1999 permit (and therefore the 2003 and 2013 applications submitted by CFAC) in that it imposed effluent limits on CFAC’s discharges of cyanide (among other things), contained a new description of Outfall 006 as a single location, changed the surface water mixing zone for Outfall 006, did not grant a groundwater mixing zone for Outfall 006, and included new Outfalls (007-013) for point sources that had been previously included in Outfall 006 under the 1999 permit. Ex. C-20; Ex. C-15.

100. DEQ also had discussions with CFAC in 2013 concerning the need to provide DEQ specific locations in order to characterize the discharges of the landfills as point sources. Tr. 482:22-486:20, 502:20-503:13. Since CFAC never provided this information to DEQ, DEQ concluded that the landfills did not meet the definition of a point source and therefore could not be covered as such under an MPDES Permit. Tr. 140:16-141:2, 505:20-506:16; Ex C-18 at 2.
101. Although the landfills are not included in the 2014 permit as sources contributing to Outfall 006, other sources are permitted therein as contributing to the discharge at Outfall 006. Tr. 504:11-22.

102. Since the 2014 draft permit no longer included the landfills (i.e., historic disposal practices) as point sources, these sources of pollution were also not included within the groundwater mixing zone delineation. When issuing the 2014 permit, DEQ determined that the previous groundwater mixing zone (from 1999) was inappropriately applied to the entire facility, rather than applied to each individual outfall. Ex. C-20 at 30.

103. During the renewal process for the 2014 permit, DEQ questioned whether Outfall 006 was necessary at all. Tr. 474:2-21, 481:18-482:21, 527:3-22, 540:6-18. CFAC nonetheless insisted an Outfall 006 remain in the permit. Tr. 482:7-17.

104. DEQ then determined that if Outfall 006 could still be permitted, it would need to be done so in accordance with State rules, i.e., Outfall 006 would need to be identified as a discrete seep. Tr. 482:7-17, 493:17-494:25, 502:20504:10.

105. DEQ therefore required CFAC to identify a discrete location for the Outfall 006 seep. CFAC complied and provided a discrete location for Outfall
106. However, CFAC stated that the only reason it included a single latitude and longitude location for Outfall 006 on Form 2E was because the form was configured to allow only one entry. Tr. 61:17-63:02.

107. While the north and south pond systems may provide some primary treatment prior to release to groundwater, CFAC has not provided either a method for determining the ponds’ treatment performance or a method for compliance monitoring after the ponds but prior to dilution by groundwater. Ex. C-22 at 3-4.

108. Therefore, as to Outfalls 007, 008, and 009, DEQ considers the three associated discharge pipes to be the last point of control prior to state waters and requires compliance for associated WQBELs limits at those discharge locations Exhibit C-22 at 3-4.

109. The 2014 Permit sets limits and requires CFAC demonstrate permit compliance using total or total recoverable concentrations of pollutants (except where a water quality criterion is specifically established as a dissolved

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14 Exhibits C-22 and D-19 are similar exhibits. In addition to DEQ’s Response to Comments C-22 also contains a cover letter, the 2014 permit with figures, and attachments 2, 3, and 5. These differences are not material to this or other findings of fact.
parameter, *e.g.*, aluminum), and is in concert with the numeric criteria in Circular DEQ-7. Ex. D-18 at 5-15.

110. EPA Region VIII Mixing Zone and Dilution Policy recommends that discharges are permitted to meet acute aquatic life criteria at the end of pipe in order to reduce the risks posed by mixing zones. Ex. D-20; Tr. 612:25-614:6.

111. DEQ found there was reasonable potential for CFAC’s discharges to cause or contribute to an exceedance of established total cyanide water quality criteria. Tr. 512:3-513:25.

112. When DEQ establishes a WQBEL, it requires monitoring to demonstrate compliance. For purposes of establishing limits and associated compliance points, DEQ requires monitoring at the end-of-pipe. Tr. 515:7-516:18.

113. While the 1999 permit required instream monitoring for cyanide at Riv-M, CFAC’s 1999 permit did not establish a WQBEL to control CFAC’s discharges of cyanide into the Flathead River. Ex. C-15.

114. DEQ does not establish instream compliance points for purposes of monitoring compliance with an effluent limit; if there is an exceedance of water quality standards, there is no practical way to trace a violation to the discharger. Tr. 515:25-516:18.
115. The 2014 permit set a WQBEL for dissolved aluminum at the point of discharge of Outfall 006 (end of pipe). CFAC did not appeal the WQBEL compliance point for dissolved aluminum. Tr. 516:19-25.

116. CFAC has no control over the natural precipitation and groundwater flow as it moves through the site. Unless the contamination is removed from the site, the leaching of pollution from the historic landfills will be perpetual. Tr. 178:20-179:18, 482:22-483:5.

117. The draft 2014 permit and fact sheet that stated CFAC had not demonstrated that cyanide would naturally “dissipate” sufficiently in the receiving water. Ex. C-20.

118. The February 2014 draft permit distributed for public comment erroneously included Exhibit 1 and 2 — the figures of the groundwater and surface water mixing zones from the 1999 permit. Tr. 185:4-186:1-24, 188:2-10, 191:4-14; Ex. C-20; Ex. C-21-A; Ex. C-21-B.

119. Figure 2 attached to the final July 2014 permit shows the large mixing zone, and the chlorine and ammonia acute mixing zones. Ex. C-22; Ex. D-26.

120. Neither CFAC nor the public had an opportunity to comment on Figure 2 attached to the final July 2014 Permit. Ex. C-22.

121. The 2014 Fact Sheet stated: “In general, an acute mixing zone (zone of initial dilution) is not granted for toxic or persistent substances [ARM
17.30.506(2)(D)].” However, ARM 17.30.506(2)(d) states the following: “where a discharge of a parameter is at a concentration that is both toxic and persistent, it may be appropriate to deny a mixing zone.” Ex. C-20 at 31.

122. DEQ acknowledged at the Hearing that the February 2014 Fact Sheet was incorrect on this point. Tr. 580:1-8.


125. CFAC commented that the draft permit listed an effluent limit of 22 mg/L at Outfall 006 (groundwater seep), that data for over the past 20 years shows cyanide in the seep area is typically 200 mg/L, therefore, if the February 2014 draft permit became effective CFAC would be in immediate noncompliance. Tr. 216:15-217:122.

126. Permit writer Christine Weaver felt the information provided in CFAC’s April 4, 2014 comments on the February 2014 draft permit were strong evidence to support an acute mixing zone for cyanide. Tr. 590:8-591:2; Ex. C-63.
127. On July 25, 2014, DEQ issued MPDES Permit No. MT0030066 (herein, 2014 permit) to CFAC, with an effective date of September 1, 2014. Ex. D-18.\textsuperscript{15}

128. The 2014 permit states the following with regard to Outfall 006:

**Location:** Daylighting of groundwater at discrete seep with discharges to the Flathead River.
48°23’22”N latitude, -114°8’29”W longitude

**Mixing Zone:** Granted chronic dilution of 10%, no acute dilution.
(See Mixing zone delineation in Figure 1.)

**Treatment:** Unknown average flow. No Treatment.

... Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 006 at the groundwater seep prior to discharge into the Flathead River:

- **Aluminum Dissolved:** mg/L 143 Daily Max, 71 Ave. Monthly
- **Cyanide:** mg/L 22 Daily Max, 11 Ave. Monthly

In addition, there shall be no acute toxicity in the effluent discharged by the facility from Outfall 006.

Ex. D-18.

129. The final 2014 permit is identical to the draft 2014 permit with respect to Outfall 006 with the exception that the final permit contains the additional notations of “(See Mixing zone delineation in Figure 1.).” Ex. D-18; Ex. C-20.

\textsuperscript{15} Exhibits C-22 and D-19 also contain the 2014 permit.
130. Concurrent with issuing the 2014 permit, on July 25, 2014, DEQ also issued a Response to Comments, including CFAC’s comments on the 2014 draft permit and issued the Final Environmental Assessment. SF ¶ 23; Ex. C-22.

131. DEQ determined in its February and July 2014 EA that there is no anticipated impact on terrestrial, aquatic, or other species to the permit as issued (i.e. with no mixing zone at effluent limits at “end of pipe” for Outfall 006). DEQ has not done an EA for a permit with a mixing zone, a compliance plan, or that does not include Outfall 006 as a point source. Ex. D-16; Ex. D-23.

132. Among CFAC’s comments to the draft permit was a comment that the location for Outfall 006, as a single latitude and longitude location, was incorrect. Ex. C-22.

133. DEQ responded by citing the latitude and longitude location given to DEQ on CFAC’s application Form 2C and 2E and concluding that therefore “Outfall 006 is a specific location provided” in both forms. Ex. C-22.

134. The 2014 permit set forth three groundwater mixing zones for corresponding discharges from newly identified outfalls—Outfall 007, 009, and 013. Ex. D-18 at Figure 3.

136. At the hearing, CFAC provided videos showing the many discrete and diffuse seeps in the backwater area. CFAC does not know the exact locations of all of these seeps and they are not constant. Ex. C-28.

137. The discrete seep located at the latitude and longitude in the description of Outfall 006 in the 2014 permit was dry and CFAC was unable to sample it after the 2014 permit was issued. Subsequently, DEQ directed CFAC to sample in a different location. Tr. 69:7-70:25.


139. In a September 18, 2014, letter DEQ informed CFAC that, as a result of its appeal, certain conditions of the 2014 permit would be stayed and that all other conditions of the renewed permitted were fully effective and enforceable pursuant to ARM 17.30.1379. SF ¶ 25; Ex. D-22.

140. If not appealed, CFAC would have been in immediate non-compliance with the 2014 permit as issued by DEQ. Tr. 217:7-17. CFAC would not be compliant with the new requirement: “Effective immediately and lasting the duration of the permit, the following effluent limits will apply at the groundwater seep prior to discharge into the Flathead River.” Tr. 182:14-183:6.
CONCLUSIONS OF LAW

A. Ultimate Issue

From the foregoing findings of fact, the undersigned makes the following conclusions of law:

1. CFAC timely appealed Permit No. MT0030066 and BER has jurisdiction to consider this appeal pursuant to Mont. Code Ann. § 75-5-403(2) and ARM 17.30.1370(4).

2. Pursuant to Mont. Code Ann. § 75-5-403(2), “after the hearing, the Board shall affirm, modify, or reverse the action of the department” with respect to the permit being appealed.

3. At the hearing, CFAC had the burden of proving, by a preponderance of the evidence, that DEQ’s permitting decision violated the law. MEIC v. DEQ, 2005 MT 96, ¶16.

4. CFAC met this burden by showing facts and law sufficient to establish by a preponderance of the evidence that DEQ’s permitting decisions with respect to Outfall 006 in Permit No. MT0030066 violated the law in the following ways:

   a. The permit does not “provide for compliance” as required by ARM 17.30.1311(1);
   b. The permit describes Outfall 006 as a single location at 48°23’22” latitude, -114°8’29” longitude, which does not comport with the reality that there are many discrete and diffuse seeps in the area of the backwater channel along the riverbank;
c. CFAC and the public did not have an opportunity to comment on Figure 2 attached to the July 2014 Permit, in violation of ARM 17.30.1376.

5. Because CFAC has met its burden and shown that DEQ’s permitting decision violated the law with respect to Outfall 006 in the permit, DEQ’s decision to modify and grant the permit must be reversed and the permit remanded back to DEQ for further analysis and revision with respect to Outfall 006. Mont. Code Ann. § 75-5-403(2).

6. There was insufficient information presented at the hearing to determine how the permit should be revised with regard to Outfall 006, for example, if or how Outfall 006 can be described, measured, or controlled in order to comply with the standards and purpose of the WQA and CWA, and therefore remand to DEQ for further analysis and revision is appropriate. Mont. Code Ann. § 75-5-403(2).

7. As part of the permit revision or remand, DEQ in its discretion may require more information from CFAC, including but not limited to requiring that CFAC: provide specific additional locations for Outfall 006, request or propose a compliance plan and schedule, perform a mixing zone study, or perform a biological survey.

8. DEQ may, in its discretion and based on the additional information provided by CFAC, revise the permit in any way that complies with the WQA and
CWA, including but not limited to: finding that what was previously labelled Outfall 006 is not a “point source” within the meaning of ARM 17.30.1304, granting any appropriate mixing zone (acute, chronic, groundwater, or surface water), or imposing a compliance schedule.

9. To assist the parties in the revision of the permit with regard to Outfall 006, the undersigned includes the following conclusions of law on specific issues of law presented by the parties through various arguments at the hearing and in post-hearing briefing, but which collectively did not change the ultimate conclusion that CFAC met its burden as stated above:

B. Point Source

10. “Discharge of a pollutant” or “discharge of pollutants” each means any addition of any pollutant or combination of pollutants to state waters from any point source. This definition includes additions of pollutants into water of the state from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other person which do not lead to a treatment works. ARM 17.30.1304(22).

11. “Point source” means any discernible, confined, or discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft, from
which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff. ARM 17.30.1304(51).

12. If a source cannot be properly characterized as a point source for purposes of MPDES Permitting, it cannot be regulated under an MPDES permit. See ARM 17.30.1301(l) and ARM 17.30.1304(22).

13. Based on the present record, it is not possible to determine whether Outfall 006 is, or should be, determined a “point source discharge” within the meaning of ARM 17.30.1304.

14. Because the description of Outfall 006 in the permit is unlawful and does not comport with the reality of the many seeps, and because neither party has (or can, at present) provided a satisfactory alternative location for the seeps or a source of the pollutants the seeps contain to include in the permit, further evidence and analysis is required regarding both the exact location and the source of the seeps.

15. As part of the remand process, DEQ (with information provided by CFAC) must determine whether the multiple seeps along the riverbank, above and below the water level, which were previously designated as Outfall 006 in the 1999 permit should be designated a “point source discharge” and therefore regulated under an MPDES permit.
C. Cyanide

16. All permit effluent limitations for metals must be expressed in terms of “total recoverable metal” unless the applicable standard is expressed as dissolved. ARM 17.30.1345(5). With the exception of aluminum, the standards for all metals in Circular DEQ-7 are expressed as total recoverable.

17. Total cyanide is a toxic substance and state aquatic life standards for total cyanide are 22 mg/L (acute) and 5.2 mg/L (chronic). Circular DEQ-7 - Montana Numeric Water Quality Standards 23 (Oct. 2012).

18. When DEQ determines that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a Montana numeric criteria within a Montana water quality standard for an individual pollutant, an MPDES permit must contain effluent limits for that pollutant. 40 C.F.R. § 122.44(d) (adopted by reference through ARM 17.30.1344).

19. DEQ was correct to establish WQBELs for total cyanide as set forth the Final 2014 MPDES Permit. See Ex. D-18.

20. Among other things, stated Congressional goals and policy of the Clean Water Act include “the national policy that the discharge of toxic pollutants in toxic amounts be prohibited” and that “the national goal that the discharge of pollutants into navigable waters be eliminated by 1985.” 33 U.S.C. § 1251(a).
Providing MPDES permit coverage for the uncontrolled release of acutely toxic levels of cyanide from CFAC’s onsite landfills does not serve the goals or policies of the Clean Water Act and cannot be countenanced.

**D. Mixing Zones**

21. Pursuant to the legislative mandate of Mont. Code Ann. § 75-5-301(4), the Board of Environmental Review has adopted rules concerning the granting of mixing zones. *See* ARM 17.30.501 through 518.

22. The authority to incorporate mixing zones within MPDES and MGWPCS permits is established under the Montana Water Quality Act. Mont. Code Ann. § 75-5301 and 75-5-401. “A ‘mixing zone’ means an area established in a permit or final decision on nondegradation issued by the department where water quality standards can be exceeded, subject to conditions imposed by the department that are consistent with the rules adopted by the board.” Mont. Code Ann. § 75-5-103(21) (emphasis added). The mixing zone rules are found at Admin. R. Mont. Title 17, chapter 30, subchapter 5, and general DEQ procedures are set forth at ARM 17.30.515.

23. DEQ determines whether a mixing zone is appropriate for a particular discharge and may determine that “no mixing zone shall be granted.” ARM 17.30.515(1).
24. The federal water quality regulations at 40 C.F.R. 122.44(d) establish that an MPDES permit should include water quality based effluent limits when the discharge cannot meet State water quality standards.

25. To establish any mixing zone under a discharge permit, DEQ must first determine the applicability of a mixing zone and, if applicable, its size, configuration, and location after assessing information received from the applicant concerning the biological, chemical, and physical characteristics of the receiving water. ARM 17.30.505(1).

26. Although not defined in ARM, colloquially DEQ and CFAC refer to several types of mixing zones, including “acute mixing zones,” which allow for “acute dilution,” and “chronic mixing zones,” which allow for “chronic dilution” of the discharged water. As part of DEQ’s decision whether to grant a mixing zone, it must therefore also decide whether to grant either a groundwater or surface water mixing zone for either acute or chronic dilutions—e.g. a “chronic groundwater mixing zone,” an “acute groundwater mixing zone,” a “chronic surface water mixing zone,” or an “acute surface water mixing zone.”

27. Before any mixing zone exists at all, it must first be granted for individual parameters present in a discharge. ARM 17.30.505(1). And, while mixing zones may be granted under certain circumstances, DEQ may also
determine that all applicable numeric criteria must be met at the point of discharge (and thereby deny a mixing zone). See ARM 17.30.505(2).

28. In the evaluation of mixing zone information, DEQ is afforded discretion to determine whether it will request any additional information concerning the biological, chemical, and physical characteristics of the receiving waters or whether DEQ will request a water quality assessment under ARM 17.30.506. ARM 17.30.505(1).

29. CFAC was first granted mixing zones in the 1999 permit, which contained designated groundwater and surface water mixing zones.

30. The groundwater mixing zone established in the 1999 permit was improperly applied to the entire facility, rather than applied to each permitted outfall. Ex. D-12, at 30, Ex. D-19, at 8.

31. The 2014 permit granted CFAC a chronic (“chronic dilution of 10%”) surface water mixing zone for Outfall 006, which was larger than the surface water mixing zone from the 1999 permit (and therefore larger than what CFAC requested in its 2003/2013 application). However, DEQ denied an acute surface water mixing zone or any (chronic or acute) groundwater mixing zone for Outfall 006, all of which had existed previously in the 1999 permit.

32. There is no requirement that DEQ issue or re-issue a permit that is identical to the one that was issued in 1999. DEQ must continually evaluate
MDPES permits through the renewal process and has an on-going duty to apply state and federal regulations and to update permits consistently to adhere to any applicable regulatory or policy changes. Mont. Code Ann. § 75-5-402, 33 U.S.C. § 1342 (b)(1).

33. The issuance of an MPDES permit does not convey property rights of any sort, or any exclusive privilege. ARM 17.30.1312(1).

34. For sources discharging under a permit issued by the Department prior to April 29, 1993, any mixing allowed under the permit will remain in effect until renewal. Upon renewal, any previously allowed mixing zone will be designated in the renewed permit, unless there is evidence that the previously allowed mixing zone will impair existing or anticipated uses. ARM 17.30.1378.

35. However, in order for a permittee to receive the preferential treatment afforded to a pre-April 29, 1993 mixing zone under ARM 17.30.505(1)(c), a source must have been previously permitted with a designated mixing zone. ARM 17.30.1378.

36. Because CFAC had no discharge permit that expressly designated a mixing zone prior to April 29, 1993, the grandfathering provision found at ARM 17.30.505(1)(c) does not apply to CFAC’s request for mixing zones.

37. Because the grandfathering provision found at ARM 17.30.505(1)(c) does not apply to CFAC, the mixing zones sought in CFAC’s 2003/2013
application (originally granted in the 1999 permit) do not receive the preferential treatment afforded by ARM 17.30.505(1)(c) and DEQ was correct to analyze CFAC’s 2003/2013 request for a mixing pursuant to ARM 17.30.515.

38. “Acute toxicity” means a condition in which ambient water concentrations exceed the application of the acute aquatic life standards given in department Circular DEQ-7. ARM 17.30.502(1).

39. Acute standards for aquatic life for any parameter may not be exceeded in any portion of a mixing zone, unless DEQ specifically finds that allowing minimal initial dilution will not threaten or impair existing beneficial uses. ARM 17.30.507(1)(b).

40. The segment of the Flathead River which receives CFAC’s discharges is classified as B-l according to Montana Water Use Classifications. ARM 17.30.608(1). Waters classified B-l are to be maintained suitable for drinking, culinary, and food processing purposes, after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply. ARM 17.30.623(1).

41. During the renewal process leading to the 2014 permit, DEQ did not specifically find that allowing minimal initial dilution of CFAC’s discharges of cyanide to the Flathead River would not threaten or impair existing beneficial uses.
42. Neither through its permit application nor through the additional presentation of evidence at hearing, did CFAC demonstrate that its discharges of cyanide will not threaten or impair existing beneficial uses, such that an acute surface water mixing zone can be granted for cyanide in the Final 2014 MPDES Permit.

43. There is insufficient information in the record to determine whether (if DEQ determines on further analysis that Outfall 006 does constitutes a “point source”) any mixing zone should be granted to Outfall 006, or (if granted) exactly what the the size, configuration, and location of any such mixing zone(s) should be.

44. Because the description of Outfall 006 in the permit is unlawful and does not conform with the reality of the many seeps along the riverbank, and exactly what constitutes Outfall 006 is currently unknown (e.g. the location, average flow, or parameter levels), and because any mixing zone determination must necessarily be based on the nature of the discharge (ARM 17.30.505, .515) it is impossible to make a determination about the applicability of mixing zones at Outfall 006 on the present record.

45. Currently, based on the existing description of Outfall 006 (in the permit) it is not possible to determine whether or not existing beneficial uses to
either the backwater channel or the greater Flathead River (if different) will be affected by any mixing zone granted to Outfall 006.

46. DEQ must, on remand, re-evaluate the applicability of any mixing zones based on the ultimate determination and description of Outfall 006. This includes re-evaluating the chronic surface water mixing zones as set forth in Figures 1 and 2 of the Final 2014 MPDES Permit.

47. The Final 2014 MPDES Permit correctly authorizes discharges from Outfalls 007-013 to surface water, and acknowledges that those discharges to surface water are via hydraulically connected groundwater and will be diffuse in nature.

E. WET Testing and Fish Surveys

48. Both parties have provided evidence and made arguments regarding the significance of the results of CFAC’s WET Testing done in 2014-2016, since the permit was issued. Ex. C-27. This would seem to waive any evidentiary objections with respect to the WET testing and Exhibit C-27.

49. However, neither party has demonstrated how BER can legally base a decision about the validity of a permit on evidence gathered after the permit was issued, and which formed no part of the administrative record on the permit—not CFAC’s application, the public process, nor DEQ’s decision.
50. As the WET testing constitutes *post hoc* evidence, and the parties have not demonstrated how it can form or inform the basis of BER’s decision, the undersigned does not rely on it for the purpose of reaching the ultimate conclusions and order herein.

51. To the extent BER could rely on such *post hoc* evidence, WET testing results do not provide a biological assessment of a waterbody, and a negative WET test does not prove the absence of potential toxicity in the case of discharges containing total cyanide. Therefore, CFAC’s WET test results do not provide sufficient information to justify a specific revision of the permit, absent additional information and analysis by DEQ. Remand provides an appropriate opportunity to present such evidence and include it in the record for later review.

52. Similarly, both parties have provided evidence and made arguments involving unrelated DEQ fish surveys done in the area of CFAC (and presumably elsewhere in the Flathead River) between 2004 and 2011. Ex. 25. Such argument would seem to waive any objection to the evidence.

53. However, neither party has indicated how (if at all) these surveys formed a part of the underlying administrative record on which DEQ made its permitting decision. To the contrary, the undersigned can find no indication the evidence was considered by DEQ *prior* to issuing the permit.
54. As the fish surveys thus constitute *post hoc* evidence, the undersigned does not rely on it for the purpose of reaching the ultimate conclusions and order herein.

55. To the extent BER could rely on such *post hoc* evidence, the very scant data does not provide sufficient information to reach any ultimate conclusion about the past or potential impacts of CFAC’s discharges to fish other aquatic life in the backwater and main channel of the Flathead River.

**F. Compliance Schedule**

56. Compliance schedules may be included in MPDES permits and allow the permittee a period of time to become compliant with the requirements of a permit. Mont. Code Ann. § 75-5-401(2), ARM 17.30.1350.

57. MPDES permits may include compliance schedules that may include requests for additional mixing zones or data collection. ARM 17.30.1350.

58. The 2014 Permit includes a compliance schedule for ammonia, even though CFAC did not request one, and DEQ can include a compliance schedule in a permit even absent an application for one.

59. Because there is insufficient information in the record to determine exactly how exactly Outfall 006 must be rewritten in the permit, there is also insufficient information to determine whether a compliance schedule should be
imposed on CFAC, and if so what the details of that compliance schedule should be.

60. As part of the remand regarding Outfall 006, DEQ must determine whether a compliance schedule is necessary to “provide for compliance” in the permit, pursuant to ARM 17.30.1350 and 17.30.1311(1).

PROPOSED ORDER

Based on the foregoing Findings of Fact and Conclusions of Law stated above, this hearing examiner’s RECOMMENDED ORDER is as follows:

1. That the portion(s) of Permit No. MT0030066 relating to Outfall 006 is/are REVERSED and REMANDED to DEQ with instructions to re-examine and re-write the permit such that it simultaneously “provide[s] for compliance” (ARM 17.30.1311(1))—either immediately or with a compliance schedule—and also requires CFAC to meet the applicable standards of the Water Quality Act and the Clean Water Act.

2. To the extent DEQ in its discretion deems it necessary, it may require CFAC to perform additional studies or provide additional information to accomplish the permit re-write to comport with (1), above, including but not limited to: providing specific additional locations for Outfall 006, providing a proposed compliance schedule, performing a mixing zone study, or performing a biological survey.
3. The remainder of Permit No. MT0030066 not relating to Outfall 006 is AFFIRMED.

DATED this 6th day of September, 2018.

/s/ Sarah Clerget
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CERTIFICATE OF SERVICE

I hereby certify that I caused a true and accurate copy of the foregoing

Hearing Examiner’s Proposed Findings of Fact, Conclusions of Law and Order to

be mailed to:

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BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

IN THE MATTER OF:
COLUMBIA FALLS ALUMINUM COMPANY’S (CFAC) APPEAL OF
DEQ’S MODIFICATIONS OF MONTANA POLLUTANT
DISCHARGE ELIMINATION SYSTEM PERMIT NO. MT0030066,
COLUMBIA FALLS, FLATHEAD COUNTY, MT.

Case No.: BER 2014-06 WQ

DEQ’S EXCEPTIONS TO PROPOSED FINDINGS OF FACT,
CONCLUSIONS OF LAW AND ORDER

The Montana Department of Environmental Quality (“DEQ”), by and through undersigned counsel, files its exceptions to the Hearing Examiner’s Proposed Findings of Fact, Conclusions of Law and Order (“Proposed Order”), filed September 6, 2018.
I. Exceptions to Procedural History

Hearing Examiner Reed determined at the final pretrial conference that CFAC’s proffered experts would be allowed to present testimony, subject to objection, see Proposed Order at 8, Mr. Reed later granted DEQ’s Motion in Limine with respect to the proffered expert testimony and report of James Lloyd. Tr. at 446:10 – 447:13. The foregoing statement should be added to the procedural history.

II. Exceptions to Findings of Fact

The Montana Supreme Court has defined “substantial evidence” as “evidence that a reasonable mind might accept as adequate to support a conclusion; it consists of more than a mere scintilla of evidence but may be somewhat less than a preponderance.” Barrett v. Asarco, Inc., 245 Mont. 196, 200, 799 P.2d 1078, 1080 (1990) (citations omitted). For the reasons cited below, the record demonstrates that the following findings of fact contained within the Proposed Order are not based upon substantial evidence and should be modified as explained below.

Finding of Fact No. 26

This finding of fact misstates the state’s aquatic life standards for total cyanide as 22 mg/L (milligrams per liter) acute and 5.2 mg/L chronic instead of 22


\( \mu g/L \) (micrograms per liter) acute and 5.2 \( \mu g/L \) chronic as provided for at Circular DEQ-7 – Montana Numeric Water Quality Standards 23 (Oct. 2012).

Finding of Fact No. 29

This finding of fact misstates the reported concentration of cyanide as 53 \( \text{mg/L} \) (milligrams per liter) instead of 53 \( \mu g/L \) (micrograms per liter). Tr. 233:2-6.

Finding of Fact No. 30

This finding of fact misstates the reported concentrations of cyanide as 180-420 \( \text{mg/L} \) (milligrams per liter) instead of 180-420 \( \mu g/L \) (micrograms per liter). Tr. 82:16-83:12.

Finding of Fact No. 31

This finding of fact misstates the reported concentration of cyanide as 200 \( \text{mg/L} \) (milligrams per liter) instead of 200 \( \mu g/L \) (micrograms per liter). Tr. 217:8-13.

Finding of Fact No. 60

This finding of fact references the incorrect exhibit from the 1999 MPDES Permit that depicts the surface water mixing zone. Exhibit 2 depicts the surface water mixing zone from the 1999 permit; Exhibit 1 depicts the groundwater mixing zone from the 1999 permit. D-8.
Finding of Fact No. 61

This finding of fact references the incorrect exhibit from the 1999 MPDES Permit that depicts the groundwater mixing zone. Exhibit 1 depicts the groundwater mixing zone from the 1999 permit; Exhibit 2 depicts the surface water mixing zone from the 1999 permit. D-8.

Finding of Fact No. 64

This finding of fact misstates the acute standard for cyanide as 22 mg/L (milligrams per liter) instead of 22 µg/L (micrograms per liter). Tr. 217:8-13.

Finding of Fact No. 118

This finding of fact misstates that DEQ erroneously included Exhibits 1 and 2 from the 1999 permit with the draft permit. As the record demonstrates, these exhibits were included with the 2014 fact sheet, not as attachments to the 2014 draft permit. D-12; D-19 at 13. Furthermore, these exhibits were attached for a specific administrative purpose, were not erroneously included, and were not intended to represent the new groundwater or surface water mixing zones associated with the 2014 Final Permit. DEQ explained its reasoning for including these exhibits in a response to a CFAC comment:

[CFAC] COMMENT #28: Draft Permit Comments - Page 3, Outfall 006 Mixing Zones. The narrative description of the outfall could be interpreted to explicitly exclude the site wide Groundwater Mixing Zone and the Acute Toxicity Surface Water Mixing Zone that were included in
the previous permits. (Figure 3 attached to the Draft Permit shows the same acute toxicity mixing zone that is shown in Figure 3 of the current permit.)

The site-wide ground water mixing zone was designated in the previous permit. See Comment #16. The MDEQ is obligated under Montana law to include the site-wide ground water mixing zone in CFAC’s final MDES permit.

As described above, CFAC demonstrated in 1998 that the acute aquatic toxicity mixing zone complied with all applicable Montana mixing zone laws and rules. The facts presented to support that finding are still valid. In addition, sampling data and current science all overwhelmingly support the conclusion that the current acute aquatic toxicity zone will not impair beneficial uses in the Flathead River. Thus, under ARM 17.30.505 (c), the MDEQ had no rational basis on which to determine to remove the acute aquatic toxicity mixing zone from the CFAC Draft Permit and should restore it to the CFAC final permit.

[DEQ] RESPONSE #28: The mixing zone figures presented in the Fact Sheet from the 1998 mixing zone study (Figure 3 – Ground water and Figure 4 – Surface Water) were referenced as part of the administrative record, and not meant to be interpreted as the proposed mixing zone delineations for this renewal. (See Fact Sheet pages 25, 29, and 31.) Note that the figures were not referenced in the draft permit.

With this response, a new figure has been developed that depicts the ground water mixing zones for the three outfalls granted ground water mixing zones (Outfalls 007, 009, and 013). In addition, DEQ developed two figures to delineate the surface water mixing zones. These figures are included as attachments to and are referenced in the permit.

See the response to Comment #16 and #17.

D-19 at 13. DEQ explained that it referenced Figures 3 and 4 (i.e., Exhibits 1 and 2 from the 1999 permit) within the 2014 Fact Sheet -- where it used the figures to explain the past treatment of the mixing zones and to contrast with the proposed
changes to the mixing zones in the 2014 draft permit. *Id.* (pointing CFAC to pages 25, 29, and 31 of the Fact Sheet). There is substantial evidence in the record that Figures 1 and 2 from the 1999 permit were included with the 2014 fact sheet, not the 2014 draft permit, and that these figures were included for important reference purposes – not to propose mixing zones for the 2014 Final Permit.

**Finding of Fact No. 120**

While it is accurate that neither CFAC nor the public had the opportunity to comment on Figure 2 that was attached to the 2014 Final Permit, the implication that CFAC or the public did not have the opportunity to comment on the Permit’s mixing zones is incorrect. The 2014 draft permit and Fact Sheet indicated which outfalls would have an associated mixing zone and described those mixing zones. D-15 at 3-4; D-12 at 29-31. DEQ merely added Figure 2 to provide a visual representation of the mixing zones in response to comments received. D-19 at 8, 13.

**Finding of Fact No. 125**

This finding of fact misstates the limit for cyanide as 22 mg/L (milligrams per liter) instead of 22 µg/L (micrograms per liter) and also misstates the
referenced seep concentration as 200 mg/L instead of 200 µg/L. Tr. 216:15 – 217:22.

III. Exceptions to Conclusions of Law

A. The Proposed Order Improperly Applies ARM 17.30.1311

The Proposed Order improperly interprets and applies ARM 17.30.1311 by requiring DEQ to write a permit that accommodates Columbia Falls Aluminum Company’s (“CFAC”) expected noncompliance with water quality standards, rather than requiring CFAC’s discharges to meet the applicable requirements of the Montana Water Quality Act and the Federal Clean Water Act. See Proposed Order at 4-6, 42 (Conclusion of Law No. 4), 56 (Conclusion of Law No. 60). The Order erroneously concludes that DEQ has violated ARM 17.30.1311(1) because DEQ “know[s] that CFAC cannot comply.” Proposed Order at 6. Yet there is nothing in state or federal law that requires DEQ to provide a compliance schedule or to find some other means to delay CFAC’s required compliance with water quality standards simply because CFAC cannot comply.

DEQ must, in all instances, write a permit that requires compliance with applicable water quality standards. 33 U.S.C. § 1311(b)(1)(C); Mont. Code Ann. § 75-5-402(1). If a discharge, like CFAC’s predicted discharges of cyanide, “causes, has the reasonable potential to cause, or contributes to an in-stream excursion
above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant.” 40 C.F.R. § 122.44(d)(1)(iii) (emphasis added)¹. While technology-based requirements of both the Clean Water Act and the Montana Water Quality Act take into account the issue of practicability, a permitting authority is under “a specific obligation to require that level of effluent control which is needed to implement existing water quality standards without regard to the limits of practicability.” Defenders of Wildlife v. Browner, 191 F.3d 1159, 1163 (9th Cir. 1999) (citation omitted); Puget Soundkeeper All. v. Pollution Control Hearings Bd., 189 Wash. App. 127, ¶ 20, 356 P.3d 753 (holding that “[a]gencies issuing NPDES permits must impose limits on discharges as necessary to implement water quality standards set by state or federal statutes and regulations, regardless of technical practicability.”). In fact, the Washington appeals court also cited 40 C.F.R. § 122.4, the federal regulation that ARM 17.30.1311 is based upon, for the premise that agencies must impose limits, irrespective of practicability. Id.

As the permitting authority here, DEQ has the same requirement to impose limits. 40 C.F.R. § 122.44(d)(1)(iii); see also ARM 17.30.1301 (stating the purpose

¹ Adopted by reference in State rules at ARM 17.30.1344(2)(b).
of the state’s permitting program is to be “compatible with the national pollutant discharge elimination system as established by [EPA] pursuant to section 402 of the federal Clean Water Act, 33 USC 1251, et seq.”). CFAC’s ability to comply with water quality standards is not a consideration under ARM 17.30.1311(1).

The Proposed Order confuses DEQ’s responsibilities under the rule with those of CFAC. As conditions of the Permit, it is the permit limits themselves that must “provide for compliance with the applicable requirements of the [Montana Water Quality] Act or rules adopted under the Act.” ARM 17.30.1311(1). DEQ must impose water quality based effluent limits for cyanide within CFAC’s Permit – irrespective of whether CFAC may practicably be able to achieve such limits.

DEQ’s responsibility is to write a permit that contains limits to protect the beneficial uses of state waters – that is how DEQ “provides for compliance” under the Montana Water Quality Act and its related rules. It is CFAC’s responsibility to comply with those limits. If DEQ fails to include such limits that is precisely how

**DEQ could violate ARM 17.30.1311.**

Even assuming, arguendo, that the circumstances of this case call for the imposition of a compliance schedule for CFAC’s discharges of cyanide, the basis for such a finding would be ARM 17.30.1350 (i.e., the compliance schedule rule), not ARM 17.30.1311(1). Furthermore, there is nothing in ARM 17.30.1350 that
requires DEQ to impose a compliance schedule, particularly as here, when CFAC never requested one in its public comments on the Permit. See D-17, page 11. See also ARM 17.30.1375 (stating applicant’s duty to raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by the close of the public comment period).

Based upon the facts in the record, both federal and state regulations require DEQ to impose effluent limitations for cyanide, irrespective of CFAC’s ability to achieve such limits. The Proposed Order’s reliance upon ARM 17.30.1311 is misplaced and should be set aside by the Board.

B. The Proposed Order Incorrectly Finds DEQ Violated ARM 17.30.1376

The Proposed Order finds DEQ violated ARM 17.30.1376, because it concludes CFAC and the public did not have an opportunity to comment on Figure 2, an aerial photo depiction of mixing zones attached to the 2014 Final Permit. Proposed Order at 5. ARM 17.30.1376 provides:

If any data, information or arguments submitted during the public comment period, including information or arguments required under ARM 17.30.1375, appear to raise substantial new questions concerning a permit, the department may take one or more of the following actions: (1) prepare a new draft permit, appropriately modified, under ARM 17.30.1370; (2) prepare a revised fact sheet under ARM 17.30.1371, and reopen the comment period under ARM 17.30.1376; or (3) reopen or extend the comment period under ARM 17.30.1370 to giver interested
persons an opportunity to comment on the information or arguments submitted. (Emphasis added).

The rule provides DEQ discretion to provide additional public notice and comment if data, information, or arguments received during the public comment period raise substantial new questions concerning a draft permit. As the record shows, there was no substantial new question raised through public comment and no data, information, or arguments were presented that necessitated additional public notice under ARM 17.30.1376. Furthermore, the addition of Figure 2 did not represent any substantial change from the narrative descriptions of the mixing zones that were contained within the draft permit and Fact Sheet, nor did it change any applicable effluent limits or monitoring locations. Included as an attachment to the Final Permit, Figure 2 is an aerial photo depiction of the chronic surface water mixing zone for Outfall 006, as well as the acute and chronic surface water mixing zones for Outfalls 009 and 013. The figure in question merely provides an illustration of the mixing zones which were narratively described in the 2014 Fact Sheet, see D-12 at 29-31, the 2014 draft permit, see D-15 at 3-4, and the 2014 Final Permit, see D-18 at 3-4. DEQ created an illustration of the mixing zones because of a comment it had received from CFAC. See D-19 at 8, 13 (Response to

\[2\] The chronic surface water mixing zone issued for Outfall 006 is shown in greater detail on Figure 1, also attached to the Final Permit.
Comments Nos. 16 & 28). Furthermore, CFAC itself understood that the groundwater and surface water mixing zones granted in 1999 were not included in the draft permit when it stated: “[t]he narrative description of the outfall [006] could be interpreted to explicitly exclude the site wide Groundwater Mixing Zone and the Acute Toxicity Surface Water Mixing Zone that were included in the previous permits.” D-19 at 13.

Finally, it is a basic premise of the permitting regulations that a final permit may change based upon public comment. In responding to public comments, DEQ must “specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change.” ARM 17.30.1377(1)(a). If a change is made to the final permit that is the logical outgrowth of a public comment, there is no violation of ARM 17.30.1376 or any other public participation regulation or statute. Here, the Final Permit’s mixing zones were certainly in character with the mixing zones established in the draft permit and as further explained in the Fact Sheet. D-12 at 29-31; D-15 at 3-4; D-18 at 3-4. DEQ should not be faulted for visually delineating the boundaries of the mixing zones, particularly when narrative mixing zone information was already contained in the publicly noticed materials. DEQ did not violate ARM 17.30.1376 by adding Figure 2 to the Final Permit.
CONCLUSION

The Board should set aside the legal conclusions that DEQ violated ARM 17.30.1311 and ARM 17.30.1376 in issuing the Final Permit and further modify the Proposed Order as specified herein.

DATED this 28th day of September, 2018.

/s/ Kurt R. Moser
KURT R. MOSER
Department of Environmental Quality
CERTIFICATE OF SERVICE

I hereby certify that this 28th day of September, 2018, I caused to be served a true and correct copy of the foregoing document and any attachments to all parties or their counsel of record as set forth below:

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/s/ Kurt R. Moser
Kurt R. Moser
MT-Department of Environmental Quality
BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

IN THE MATTER OF:
COLUMBIA FALLS ALUMINUM COMPANY’S (CFAC) APPEAL OF
DEQ’S MODIFICATIONS OF
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT NO.
MT0030066, COLUMBIA FALLS,
FLATHEAD COUNTY, MT.

COLUMBIA FALLS ALUMINUM COMPANY’S OBJECTIONS TO CERTAIN
PROPOSED FINDING OF FACT AND
CONCLUSIONS OF LAW

Case Nos. BER 2014-06 WQ

Columbia Falls Aluminum Company (“CFAC”), by and through its counsel of record, submits its objections to the below enumerated Proposed Finding of Facts and Conclusions of Law by Hearing Examiner Sarah Clerget, dated September 6, 2018 (“Proposed Finding of Fact” or “Proposed Conclusion of Law”). CFAC does not object to a remand to DEQ, as set out in the Proposed Order, with one exception. In addition to Outfall 006, Outfalls 007 and 009 must also have a compliance schedule (or other mechanism) if Permit No. MT0030066 no longer accounts for treatment by the pond system and attenuation.

OBJECTIONS

GENERAL OBJECTIONS

Pursuant to Mont. Code Ann. § 2-4-623(4), the Hearing Examiner is required to rule on each proposed finding of fact submitted by the Parties after the hearing in this matter. CFAC therefore objects to the Proposed Order on the grounds that it does not include a ruling on each of CFAC’s proposed Findings of Fact.
SPECIFIC OBJECTIONS

INTRODUCTION

CFAC objects to statements in the Introduction section of the Proposed Order as follows:

On page 5 of the Proposed Order, CFAC objects to the statement that there was
“unlimited and unmonitored discharge” and CFAC’s discharges violate Circular DEQ-7.
Cyanide was monitored at Riv1 (upstream of south ponds), RivM (end of mixing zone) and Riv2
(in backwater) in Flathead River. Also cyanide was monitored semiannually in groundwater
wells across the site. Through special conditions, DEQ required CFAC to investigate the site
hydrology and institute best management practices, installing an engineered cap on a spent
potliner landfill cap at a cost of $700,000. (See Ex. C-11, Att A, p. 1.) The Montana Water
Quality Act legally provides for mixing zones, and exceedances of standards within a mixing
zone are not violations. See Mont. Code Ann. 75-5-103, ARM 17.30.502(6), American
Wildlands v. Browner, et al, 260 F.3d 1192 (10th Cir. 2001) (“Mixing zones are "areas where an
effluent discharge undergoes initial dilution and are extended to cover the secondary mixing in
the ambient water body. A mixing zone is an allocated impact zone where acute and chronic
water quality criteria can be exceeded as long as a number of protections are maintained."
(hereinafter Handbook). "The use of mixing zones is widespread. Indeed, the water quality
regulations specifically allow for their use. 40 C.F.R. 131.13 . . . Montana has provided a
number of safeguards to ensure that mixing zones do not damage the water quality of the entire
water body. Consequently, we find that the EPA did not act arbitrarily or misinterpret the Act
when it approved Montana’s mixing zone policies.”) CFAC objects because page 5 is incorrect.

PROCEDURAL HISTORY

CFAC objects to statements in the Procedural History section of the Proposed Order as
follows:
The second full paragraph on Page 10 of the Procedural History is incorrect. CFAC has not argued that BER member John Dearment was involved in any ex parte communication. It should also be acknowledged in the first full paragraph that DEQ’s proposed findings of fact and conclusions of law were included in the Board’s materials, and subsequently the Board’s attorney instructed the BER to disregard them because she concluded their inclusion was a mistake made by a DEQ/BER employee. CFAC’s Response Prior to November 20, 2017 Scheduled Telephone Conference identified two separate issues: (1) CFAC requested voluntary recusal of John Dearment because he was a witness employed by DEQ during the time period DEQ issued MPDES Permit No. MT0030066 that CFAC appealed, and it would be inappropriate for Mr. Dearment to decide issues concerning the appeal; (2) MDEQ’s proposed Findings of Fact and Conclusions of Law were provided ex parte to the members of the BER prior to the September 29, 2017 BER meeting. CFAC objected to DEQ’s Findings of Fact and Conclusions of Law being provided to the Board. Mr. Dearment voluntarily recused himself at the January 5, 2018 BER meeting.

FINDINGS OF FACT

CFAC objects to the following proposed Findings of Fact:

29. CFAC objects to Proposed Finding of Fact #29 on p. 17. The units are wrong. The maximum concentration is 0.053 mg/L, or 53 µg/L.

30. CFAC objects to Proposed Finding of Fact #30 on p. 17. The units are wrong. The historical concentration is 0.18 – 0.420 mg/L, or 180 – 420 µg/L.

34. CFAC objects to Proposed Finding of Fact #34 on p. 18. The finding is incomplete because it was known and recognized at that time that the groundwater flowed to surface water. So although a ground water permit was issued, the ground water permit allowed for plant discharges mixed with groundwater to discharge to surface water.
35. CFAC objects to Proposed Finding of Fact #35 on p. 18. The finding is incomplete because it should also recognize that the allowed concentrations within the property boundary constituted a ground water mixing zone, even if it was not called a “Mixing Zone.” See Mont. Code Ann. 75-5-103(21) and CFAC’s Brief Regarding Regulatory Mixing Zones, dated 12/12/2016, incorporated herein and attached as Exhibit 1.

41. CFAC objects to Proposed Finding of Fact #41 on page 19. Mixing zones from existing sources were part of the 1984 and 1994 permits. See CFAC’s Brief Regarding Regulatory Mixing Zones, dated 12/12/2016, incorporated herein and attached as Exhibit 1.

51. CFAC objects to Proposed Finding of Fact #51, on page 22. The March 31, 1997 letter is not accurately described because it omits reference to the landfill cap and groundwater monitoring that were required by DEQ to address the seep discharges.

60. CFAC objects to Proposed Finding of Fact #60 on p. 24. The surface water mixing zone is depicted on Ex. C-20-B, not C-20-A. The Riv-M sampling point is at the end of the mixing zone, not downstream of the mixing zone. See C-20-B and Tr. 210:6-20. References to Tr 213:16-21 and Ex. C-20-A should be corrected to Tr. 210:6-20 and Ex. C-20-B, and Ex. C-26 should be omitted because it does not depict the surface water mixing zone.

61. CFAC objects to Proposed Finding of Fact #61 on p. 25. The ground water mixing zone is depicted on Ex. C-20-A, not C-20-B. Reference to Ex. C-20-B should be corrected to Ex. C-20-A, and Ex. C-26 should be omitted because it does not depict the ground water mixing zone.

62. CFAC objects to Proposed Finding of Fact #62 on p. 25 because it is incomplete. DEQ required CFAC to install a synthetic cap.

63. CFAC objects to Proposed Finding of Fact #63 on p. 25 because it is incomplete. The following sentence should be added to # 63: “A synthetic cap was place on the closed landfill to prevent percolation of precipitation through its contents and into the underlying ground water.” Ex. C-12 at 7.
66. CFAC objects to Proposed Finding of Fact #66 on p. 27. The 11-12-98 EA states: [D]ischarge can be effectively controlled by applying effluent limits based on the best available technology and maintaining an effective cap over the closed west landfill. The effluent limitations combined with monitoring requirements would improve ground water quality over time and prevent increases in detectable quantities of CN and F in the surface water quality of the Flathead River.

See Ex. C-13. Thus, at the time DEQ considered the discharges to river to "be controlled" such that standards would be met outside the mixing zone. Also, it clearly references monitoring as effective.

68. CFAC objects to Proposed Finding of Fact #68 on p. 27. It misstates DEQ's Statement of Basis. Monitoring was required by DEQ, it stated in 1998: “Area ground water is monitored in groundwater wells as specified in the monitoring point descriptions below. Surface water monitoring of Outfall 006 occurs within the surface water mixing zone at monitoring point RIV-2 and at the downstream edge of the surface water mixing zone at monitoring point RIV-M.” Ex. C-12 at 3. Discharge was not unlimited, as DEQ recognized that Outfall 006 received treatment as dissolved constituents are attenuated in the aquifer materials. The discharge is diluted by both ground water and surface water entering from upgradient of the respective mixing zones.” It is inaccurate to state unlimited and unmonitored. See objection #67 above. Additionally, cyanide monitoring was a requirement of Permit No. MT0030066, in the 10 groundwater monitoring wells (semiannual monitoring) and at three locations in the Flathead River. The groundwater mixing zone had two wells that were compliance points; and RivM was a compliance point of the surface water mixing zone. See Ex. C-3, C-5, C-9.

69. CFAC objects to Proposed Finding of Fact #69 on p. 27 because it should also acknowledge the groundwater mixing zone compliance points. See Ex. C-3, C-5, C-9.

108. CFAC objects to Proposed Finding of Fact #108 on p. 35. CFAC appealed the 2014 permit because it failed to account for treatment achieved by the pond system and by attenuation by soil and ground water. There is nothing is the Montana regulations that prohibits
pond treatment. The 2014 Permit violated the law for Outfall 7 and 9 because it did not allow for compliance. See ARM 17.30.1311(7).

112. CFAC objects to Proposed Finding of Fact #112 on p. 36. This is not a Montana regulation. DEQ allows instream monitoring, (e.g. municipalities), and therefore #112 is inaccurate.

116. CFAC objects to Proposed Finding of Fact #116 on p. 37. The term “pollution” is misused, and is not a fact because it has a legal definition in Montana. “Pollution” is defined in the Montana Water Quality Act, which provides, (b) The term [pollution] does not include (i) a discharge, seepage, drainage, infiltration, or flow that is authorized under the pollution discharge permit rules adopted by the board under this chapter. Mont. Code Ann. 75-5-103(30).

117. CFAC objects to Proposed Finding of Fact #117 on p. 37. It is incomplete and should explain that DEQ mistakenly applied “dissipate” when there is no such requirement.

CONCLUSIONS OF LAW

CFAC objects to the following proposed Conclusions of Law:

4. CFAC objects to Proposed Conclusion of Law #4 on p. 42 because it is incomplete. It should also include the following two issues: by failing to account for treatment achieved by the pond system and by attenuation through soil and groundwater, the 2014 DEQ permit did not “provide for compliance” for Outfalls 7 and 9 (See ARM 17.30.1311(1)); and, DEQ failed to continue existing mixing zones when there was no evidence of impairment. ARM 17.30.505(1)(c)(“Upon renewal, any previously allowed mixing zone will be designated in the renewed permit, unless there is evidence that the previously allowed mixing zone will impair existing or anticipated uses.”); See also CFAC’s Brief Regarding Regulatory Mixing Zones, p. 11 (“[T]here is no evidence in the record that the DEQ ever made a finding that the previously allowed site-wide ground water mixing zone would impair existing or anticipated uses.”)
7. CFAC objects to Proposed Conclusion of Law #7 on p. 43. The conclusion cites no authority or reason for the proposition. See Mont. Code Ann. 2-4-623. DEQ is required to follow ARM 17-30-505 and 506, which require the DEQ to request information from the applicant to support the requested mixing zone. See CFAC’s Conclusion of Law #9 and CFAC’s 11/25/2015 Brief in Support of Motion for Partial Summary Judgement, incorporated by reference herein and attached as Exhibit 2.

8. CFAC objects to Proposed Conclusion of Law #8 on p. 43. The conclusion is not supported by authority or a reasoned opinion as required under Mont. Code Ann. 2-4-623. DEQ is required to follow ARM 17-30-505 and 506 which requires DEQ to renew previously allowed mixing zones. See CFAC’s Conclusion of Law #9.

17. CFAC objects to Proposed Conclusion of Law #17 on p. 46. “Substance” is incorrect. It should be restated as “Montana’s aquatic life standards for total cyanide are 22 µg/L (acute) and 5.2 µg/L (chronic).”

22. CFAC objects to Proposed Conclusion of Law #22 on p. 47. The cited authority needs to be corrected from “75-5301” to “75-5-301.” See CFAC’s Brief Regarding Regulatory Mixing Zones, dated 12/12/2016, incorporated herein and attached as Exhibit 1.

26. CFAC objects to Proposed Conclusion of Law #26 on p. 48. The conclusion is not supported by authority or a reasoned opinion as required under Mont. Code Ann. 2-4-623.

27. CFAC objects to Proposed Conclusion of Law #27 on p. 48-49. The proposed conclusion misquotes the regulation as required by Mont. Code Ann. 2-4-623.

28. CFAC objects to Proposed Conclusion of Law #28 on p. 49. DEQ must comply with ARM 17.30.505 and 506. See CFAC’s Conclusion of Law #9 and CFAC’s 11/25/2015 Brief in Support of Motion for Partial Summary Judgement, incorporated by reference herein and attached as Exhibit 2.

29. CFAC objects to Proposed Conclusion of Law #29 on p. 49. See CFAC’s Brief Regarding Regulatory Mixing Zones, dated 12/12/2016, incorporated herein and attached as
Exhibit 1. Further, no authority or reason is provided as required by Mont. Code Ann. 2-4-623.

30. CFAC objects to Proposed Conclusion of Law #30 on p. 49. See CFAC’s Brief Regarding Regulatory Mixing Zones, dated 12/12/2016, incorporated herein and attached as Exhibit 1. No authority or reason is provided as required by Mont. Code Ann. 2-4-623.

31. CFAC objects to Proposed Conclusion of Law #31 on p. 49. This is not a Conclusion of Law.

34. Proposed conclusion of law #34 on p. 50 includes an incorrect citation to ARM 17.30.1378. The correct citation is ARM 17.30.505.

35. CFAC objects to Proposed Conclusion of Law #35 on p. 50. See CFAC’s Brief Regarding Regulatory Mixing Zones, dated 12/12/2016, incorporated herein and attached as Exhibit 1. The conclusion also includes an incorrect citation to ARM 17.30.1378. The correct citation is ARM 17.30.505. Further, the proposed conclusion mischaracterizes ARM 17.30.505(1)(c), which does not contain the statement “designated mixing zone.”

36. CFAC objects to Proposed Conclusion of Law #36 on p. 50. See CFAC’s Brief Regarding Regulatory Mixing Zones, dated 12/12/2016, incorporated herein and attached as Exhibit 1. “Expressly designated” is not in the regulation. No authority or reason is provided as required by Mont. Code Ann. 2-4-623.

37. CFAC objects to Proposed Conclusion of Law #37 on p. 50. See CFAC’s Brief Regarding Regulatory Mixing Zones, dated 12/12/2016, incorporated herein and attached as Exhibit 1. “Expressly designated” is not in Montana’s regulations. No authority or reason is provided as required by Mont. Code Ann. 2-4-623.

41. CFAC objects to Proposed Conclusion of Law #41 on p. 51. This is not a conclusion of law.

42. CFAC objects to Proposed Conclusion of Law #42 on p. 51. Evidence was presented at the hearing that discharges did not threaten or impair existing beneficial uses. See testimony of David Stagliano at Tr. 394-421 and Expert Opinion, Ex. C-51.
51. CFAC objects to Proposed Conclusion of Law #51 on p. 54. This conclusion is superfluous because #50 finds that WET testing was not relied on in this Order. If not deleted, CFAC objects because it is not a conclusion of law, and no authority or reason is provided as required by Mont. Code Ann. 2-4-623.

55. CFAC objects to Proposed Conclusion of Law #55 on p. 55. This is superfluous because “post hoc” evidence was not relied on in this Order. If not deleted, CFAC objects because it is not a conclusion of law, and no authority or reason is provided as required by Mont. Code Ann. 2-4-623.

PROPOSED ORDER

CFAC objects to the Proposed Order only to the extent that it does not include a paragraph relating to the failure of the 2014 Permit to account for treatment achieved by the pond system and by attenuation by soil and groundwater. (See #3 of CFAC’s 8/22/2014 Notice of Appeal and Request for Hearing). Without continuing to allow the attenuation and pond treatment previously permitted, Outfalls 007 and 009 are immediately non-compliant. That portion of the 2014 Permit must be REVERSED and REMANDED to DEQ with instructions to re-examine and re-write the permit such that it simultaneously “provide[s] for compliance” in accordance with ARM 17.30.1311(1)) and meets the applicable standards of the Montana Water Quality Act.

RESPECTFULLY SUBMITTED this 28th day of September, 2018.

[Signature]

Catherine A. Laughner
W. John Tietz
Browning, Kaleczyc, Berry & Hoven, P.C.

Attorneys for Appellant Columbia Falls Aluminum Company
CERTIFICATE OF SERVICE

I hereby certify that this 28th day September, 2018, I caused to be served a true and correct copy of the foregoing document and any attachments to all parties or their counsel of record as set forth below:

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EXHIBIT 1
to
COLUMBIA FALLS ALUMINUM COMPANY’S
OBJECTIONS TO CERTAIN PROPOSED FINDING OF FACT AND
CONCLUSIONS OF LAW

Case No. BER 2014-06 WQ
BEFORE THE BOARD OF ENVIRONMENTAL REVIEW  
OF THE STATE OF MONTANA  

IN THE MATTER OF:  
COLUMBIA FALLS ALUMINUM COMPANY’S (CFAC) APPEAL OF  
DEQ’S MODIFICATIONS OF  
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT NO.  
MT0030066, COLUMBIA FALLS,  
FLATHEAD COUNTY, MT.  

Case Nos. BER 2014-06 WQ  
COLUMBIA FALLS ALUMINUM COMPANY’S BRIEF REGARDING  
REGULATORY MIXING ZONES  

Columbia Falls Aluminum Company ("CFAC"), by and through its counsel of record, respectfully submits the following brief in conformance with the Hearing Examiner’s Order dated December 2, 2016. Specifically, the Hearing Examiner requested the parties file supplementary briefs regarding the legal basis for a surface water mixing zone absent a specific reference thereto in the permit. The Hearing Examiner’s Order required the briefs to be filed by December 9, 2016. By mutual agreement of the parties, CFAC moved the Hearing Examiner to extend the filing deadline until Monday, December 12, 2016.

STATEMENT OF FACTS

The Montana Department of Health and Human Services, predecessor agency to the Montana Department of Environmental Quality (hereinafter “DEQ”), issued a Montana Ground Water Pollution Control Permit #0005 (MGWPCS #0005) on September 17, 1984. The permit
contained a limitation that stated: “There shall be no degradation of groundwater beyond the property boundary.” Ex. C-3. Prior to the expiration of MGWPCS #0005 in 1993, CFAC applied for a MPDES permit because the ground water was hydrologically connected to surface water in the Flathead River. Ex. C-49. The permit application and renewal sought a MPDES permit for the ground water being released to the Flathead River, stating that the discharge was “[g]roundwater contaminated by historical spent potlining disposal practices.” *Id.*

The DEQ subsequently issued MPDES Permit No. MT-0030066 to CFAC on May 1, 1994. Ex. D-1. The Statement of Basis for the permit stated, “The permit requires ground water monitoring adjacent to and downgradient of the landfill to verify the effectiveness of the measures taken to reduce the leachate volume and to track the reduction in ground water cyanide concentration from the landfill to the Flathead River.” Ex. C-5. The 1994 MPDES Permit stated: “CFAC is authorized to discharge process water from its aluminum reduction plant, to ground waters discharging to the Flathead River.” Ex. D-1. A special condition in Permit No. MT-0030066 required CFAC to institute best management practices in capping the spent potliner landfill and investigating the site hydrology. *Id.* An engineered cap was placed over the spent potliner landfill to comply with the Special Condition in the MPDES permit. Ex. D-9, p. 6. CFAC also implemented a DEQ-approved work plan for the assessment of the hydrologic conditions associated with the closed landfills. The 1998 Statement of Basis describes this history. Ex. C-12.

In July 1998, CFAC submitted an application to renew MPDES Permit No. MT-0030066. Ex. C-11. The application packet included all of the required forms and data, and included a mixing zone analysis supporting the continuation of both the previously designated site-wide ground water mixing zone and the associated surface water mixing zone. *Id.* In November
1998, the DEQ issued a draft permit and Statement of Basis for MPDES Permit No. MT-0030066. Ex. C-12. In granting the ground water and surface water mixing zones, the DEQ concluded that the site-wide ground water mixing zone discharging through Outfall 006 to the Flathead River would not adversely impact existing or anticipated beneficial uses. *Id.*, pp. 13-16. On February 1, 1999, DEQ issued MPDES Permit No. MT-0030066 continuing the site-wide ground water mixing zone and the associated surface water mixing zone. Ex. C-15.

On August 4, 2003 CFAC submitted an application to renew the MPDES permit. Ex. C-16. DEQ sent CFAC a letter October 28, 2003 noting that its application was complete, and making no mention of any impairment to existing or anticipated uses due to the mixing zones. Ex. C-17. Rather than evaluating and reissuing MPDES Permit No. MT-0030066 at that time, the Permit was administratively continued in accordance with ARM 17.30.1313 for ten years.

In May 2013, DEQ issued a letter informing CFAC that the agency was going to begin working on the renewal of MPDES Permit No. MT-0030066, and requested CFAC provide additional information to supplement its 2003 permit application. Ex. C-18. The letter made no mention of any impairment to existing or anticipated uses due to the mixing zones.

After CFAC provided the requested supplemental information, DEQ issued a draft permit and Fact Sheet in February 2014. Ex. C-20. The Fact Sheet text explained that DEQ was denying the prior site-wide ground water mixing zone and the acute surface water mixing zone for cyanide. *Id.* In the Fact Sheet, DEQ did not make a finding that either the previously granted site-wide ground water mixing zone or the acute surface water mixing zone for cyanide would impair existing or anticipated beneficial uses. *Id.*

In April 2014, CFAC provided comments on the draft permit and Fact Sheet, specifically commenting on the elimination of the site-wide ground water mixing zone and the elimination of
the acute surface water mixing zone for cyanide. Ex. C-21. In July 2014, DEQ responded to CFAC’s comments, but provided no discussion of impairment of existing or anticipated uses by the continuation of the requested mixing zones. Ex. C-22. Permit #MT-0030066 was issued July 25, 2014. Id. The permit does not include a site-wide ground water mixing zone that would cover the discharges from the spent potliner landfill and other sources. CFAC timely appealed Permit No. MT-0030066 on August 22, 2014.

LEGAL BASIS FOR SURFACE WATER MIXING ZONE

I. Establishment of Mixing Zones under Montana Law and Their Application to “Existing Sources”

Prior to 1993, the term “mixing zone” did not exist in Montana statute or regulation. Mixing zones came to exist in Montana law in 1993 when the Montana Legislature adopted amendments to the Montana Water Quality Act. See generally Ch. 595, L. 1993. Adding the definition of “mixing zone” was one of those amendments. (see Sec. 1, Ch. 595, L. 1993, now codified as Mont. Code Ann. § 75-5-103(21)), and to require the Board of Health and Environmental Sciences (hereinafter “Board of Health”) to adopt rules governing the granting of mixing zones (see Sec. 2, Ch. 595, L. 1993, now codified as Mont. Code Ann. § 75-5-301(4)). The 1993 session laws are attached herewith for the Hearing Examiner’s convenience.

The Board of Health subsequently promulgated regulations to implement the direction of the Montana Legislature in August 1994. These new regulations further defined “mixing zones” and provided the process and procedures by which DEQ would evaluate ground water and surface water mixing zones. See generally ARM 17.30.501, et seq. The regulations also affirmed that sources that were discharging to a mixing zone under a permit issued prior to the date the Legislature’s amendments to the Water Quality Act became effective (April 29, 1993) would continue. Specifically, the regulations stated:
For sources discharging under a permit issued by the department prior to April 29, 1993, any mixing zone allowed under the permit will remain in effect until renewal. Upon renewal, any previously allowed mixing zone will be designated in the renewed permit, unless there is evidence that the previously allowed mixing zone will impair existing or anticipated uses.

ARM 17.30.505(1)(c) (emphasis added). Of course, because these pre-April 29, 1993, permits were issued before the term “mixing zone” was established in statute or rule, such permits do not use the term “mixing zone.”

The EPA’s subsequently approved Montana’s mixing zone rules, an act that was challenged by various environmental groups in the case of American Wildlands v. Browner, on the grounds that EPA had acted arbitrarily in approving Montana’s regulations. See Am. Wildlands v. Browner, 260 F.3d 1192 (10th Cir. 2001). In affirming the district court, the Tenth Circuit Court of Appeals found that the use of mixing zones was widespread and that federal water quality regulations specifically allow for their use. Id. 1195. The Court further stated that:

[M]ixing zones are allowable as a practical necessity because it is not always necessary to meet all water quality criteria within the discharge pipe to protect the integrity of the water body as a whole.

Id. Montana’s mixing zone rules, including the continuation of mixing zones designated prior to April 29, 1993, were defended by both EPA and the Montana Department of Environmental Quality.

While the words “mixing zone” were not in earlier permits, the concept of a mixing zone most definitely were included in permits issued prior to April 29, 1993. Otherwise, the subsequently promulgated regulations would not have contained the noted clause affirming the continuation of mixing zones for existing sources. The Board’s responses to public comments during the rule-making process provide insight into the Board’s intentions when it adopted this provision regarding pre-existing sources and their accompanying mixing zones:
Page 2190, Comment number 126:

COMMENT: Commentors 109, 110, 120, and 130 state that mixing zones must be deleted from Rule IV(8)(a).

RESPONSE: Mixing zones are essential to the state’s water quality program, particularly implementation of the nondegradation policy. If mixing zones were not allowed, all activities would either violate standards or cause degradation.

Page 2256, Comment number 15:

COMMENT: Commentor 81 states that existing dischargers be required to comply with the mixing zone requirements, while Commentor 227 asks how this will be done.

RESPONSE: Since the applicability section in SB 401 indicated that the new law would only apply to new or increased sources commencing after April 29, 1993, the new mixing zone requirements will not be retroactively applied to existing permits. Existing discharge permits will be reviewed at the time of their renewal and any new permit issued will have a mixing zone with definable boundaries. A proposed modification to Rule III of the mixing zone rules clarifies this point.

Page 2265, Comment number 52:

COMMENT: Commentor 111 suggests insertion of a statement that recognizes the validity of mixing zones made or recognized by the department prior to the adoption of these rules and that nonsignificant activities are not required to obtain mixing zone designations or approval from the department.

RESPONSE: Under Rule III of the mixing zone rules, a provision has been added that recognizes the continuing validity of mixing zones under existing permits, provided those mixing zones do not impair existing or anticipated uses. The suggested exemption for nonsignificant activities from the requirement to obtain a mixing zone from the department will not be made as some of those activities may require a permit or other form of authorization from the department.

Page 2301, Comment number 214:

COMMENT: Commentor 261 contends that nondegradation Rule II(16)(a) should be deleted because a point source discharging under an existing permit can cause degradation if it significantly increases its discharge.

RESPONSE: The above referenced rule is renumbered as Rule II(15)(a) in the nondegradation rules. The rule allows changes in water quality under an existing permit or approval obtained prior to the enactment of the new law. This is
consistent with legislative intent as clearly expressed in Section 10 of SB 401\(^1\) and discussions before the Senate Natural Resources Committee. Therefore, the rule will remain as proposed.


These comments and responses demonstrate that discharge permits that existed before implementation of the new regulations, while they may not have used the terminology of “mixing zones,” did in fact include that concept. For example, the response to Comment number 15 establishes that SB 401 would only apply to “new or increased sources” after April 29, 1993, and “[e]xisting discharge permits will be reviewed at the time of their renewal and any new permit issued will have a mixing zone with definable boundaries.” 1994 MAR, p. 2256. This indicates that the main focus and purpose of ARM 17.30.505(1)(c) was “existing sources,” not previously-designated “mixing zones.” The response recognizes that previously-existing sources would be grandfathered into the permit during the renewal process, and that is when a particular mixing zone would be designated.

The Board’s response to Comment number 126 is also telling. In response to a request that mixing zones be deleted, the Board noted that mixing zones “are essential to the state’s water quality program....” The Board continued, stating that, absent mixing zones, “[a]ll activities would either violate standards or cause degradation.” \textit{Id.}, p. 2190 (emphasis added). This response is in line with the testimony of CFAC’s witness, Scott Mason, who testified that all permits required compliance with water quality standards, and, therefore, even those permits that were issued before the regulations were promulgated must have allowed an area of exceedance in the river—a de facto mixing zone—regardless of the terminology used in the permit. Hearing Transcript, 212:17 – 213:12. If such an area of exceedance had not been included in that permit,

\(^1\) Section 10 of SB 401 states: Applicability. [This act] applies to all requests to degrade state waters filed with the department after [the effective date of this act].

CFAC'S BRIEF REGARDING REGULATORY MIXING ZONES
the activities permitted “would either violate standards or cause degradation.” The Board’s response establishes that an existing permit, covering an existing source, included a de facto ground water mixing zone and, where the ground water and surface water were closely linked, a surface water mixing zone. The absence of “mixing zone” terminology in permits issued prior to April 1993 is simply because that terminology was not used before the regulations implementing SB 401 were enacted.

This extension of these de facto “mixing zones” covering pre-existing sources to surface water is supported by ARM 17.30.506(2)(h), which states:

Ground water discharges to surface water: In the case of a discharge to ground water which in turn discharges to surface water within a reasonably short time or distance, the mixing zone may extend into the surface water, and the same considerations which apply to setting mixing zones for direct discharges to surface water will apply in determining the allowability and extent of the mixing zone in the surface water.

This regulation recognizes the fact that where ground water and surface water are closely connected, a designated mixing zone extends to the surface water. Therefore, where the source of the discharge is pre-existing April 29, 1993, a permit renewal requires the official designation of both ground water and surface water mixing zones under ARM 17.30.505(1)(c), absent impairment of existing or anticipated uses.

II. Existing Sources and Previously-Designated Mixing Zones at CFAC

The Montana Department of Health and Human Services (DEQ’s predecessor agency) initially issued a permit to discharge to the ground water on September 17, 1984, Montana Ground Water Pollution Control Permit #0005. Ex. C3. DEQ and CFAC recognized that the ground water was hydrologically linked to the surface water in 1993, which initiated the permit renewal process for a MPDES permit for the ground water release to the Flathead River. See 1994 Statement of Basis, Ex. C-5. Notably, the source of the discharge has remained the same in
every permit issued since 1984—i.e., the degraded water covered by the 1984 Montana Ground Water Pollution Control Permit #0005 was from the same source that created the degraded water discharging to the Flathead River in 1994 and addressed by MPDES Permit No. MT-0030066, which was from the same source that created the degraded water addressed by the designated mixing zones in the permit renewal in 1999. DEQ’s Statement of Basis dated November 12, 1998, supports this conclusion and establishes that de facto site-wide ground water and surface water mixing zones were included in all of the discharge permits issued since 1984. See Ex. C-12.

The 1998 Statement of Basis includes several tables examining the applicable regulations and the DEQ’s findings related to each of those regulations as they relate to CFAC’s permit renewal application. Id., p. 11 (“The mixing zone application is reviewed against general considerations and specific requirements contained in the administrative rules governing mixing zones. The Tables 1 through 4 [sic] identify the applicable rule, summarize the rule requirement and state the Department’s finding regarding the mixing zones applied for by CFAC.”). Entries in Table 11 and Table 12 are relevant to this briefing on surface water mixing zones:

Table 11. General Considerations (ARM 17.30.505)

<table>
<thead>
<tr>
<th>Applicable Regulation</th>
<th>Requirement</th>
<th>Department Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARM 17.30.505(1)(b)</td>
<td>Non-significant for new or increased sources</td>
<td>The discharges are not new or increased sources.</td>
</tr>
<tr>
<td>ARM 17.30.505(1)(c)</td>
<td>Mixing zones for existing sources designated in permit renewal if no uses affected.</td>
<td>The discharges are an existing source and the mixing zones are being designated in the renewal of MPDES permit MT-030066.</td>
</tr>
</tbody>
</table>
Table 12. Water Quality Assessment (ARM 17.30.506)

<table>
<thead>
<tr>
<th>Applicable Regulation</th>
<th>Requirement</th>
<th>Department Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARM 17.30.506(2)(h)</td>
<td>Mixing zone may extend to surface water and surface water mixing zone restrictions apply.</td>
<td>Surface water restrictions apply to the surface water portion of the mixing zone.</td>
</tr>
</tbody>
</table>


These table entries show that DEQ itself, in 1998, recognized that the discharges to the ground water and to the surface water at the CFAC facility were “not new or increased sources.” They were from existing sources and fell directly under the exception found in ARM 17.30.505(1)(c). “The discharges are an existing source and the mixing zones are being designated in the renewal of MPDES permit MT 030066.” *Id.*, Table 11, p. 12. Typically an agency’s interpretation of its own rules is afforded great weight unless the interpretation is plainly inconsistent with the spirit of the rule. See *Clark Fork Coalition v. Montana Dept. of Environmental Quality*, 2008 MT 407, ¶ 20, 347 Mont. 197, 197 P.3d 482. Thus, a reviewing court will give deference to the DEQ’s interpretation that it must “determine whether a mixing zone is appropriate for a particular discharge.” Here, the DEQ’s 1998 interpretations and application of the regulations to the discharges recognized that, while not called “mixing zones,” de facto mixing zones from existing sources were part of the 1984 and 1994 permits, and thus fell under the grandfathering regulation of ARM 17.30.505(1)(c).

These de facto mixing zones included the surface water mixing zone currently at issue, as demonstrated by the DEQ’s finding related to ARM 17.30.506(2)(h). The degraded ground water from an existing source, Outfall 006, discharges to surface water in the Flathead River in a reasonably short time. The DEQ’s 1998 Department Finding in relation to ARM 17.30.506(2)(h) states that “[s]urface water restrictions apply to the surface water portion of the mixing zone.”
Id., Table 12 (emphasis added). The DEQ treated the surface water mixing zone and the ground water mixing zone as inter-related mixing zones, both arising from the same existing source and merely designated as mixing zones in the 1999 MPDES permit.

III. DEQ Has Made No Finding that the Previously Granted Mixing Zones Would Impair Existing or Anticipated Uses

Under the mixing zone rules, mixing zones for sources discharging under a permit prior to April 29, 1993, were to be continued in future permits unless DEQ made a specific finding that the previously allowed mixing zones would impair existing or anticipated uses. ARM 17.30.505(1)(c). Here, there is no evidence in the record that the DEQ ever made a finding that the previously allowed site-wide ground water mixing zone would impair existing or anticipated uses. In fact, the DEQ expressly admitted in its discovery responses that it did not make such a finding, stating:

DEQ admits that in issuing the 2014 MPDES Permit and in considering a site-wide ground water mixing zone for cyanide and fluoride, DEQ did not make a finding that the previously allowed site-wide ground water mixing zone threatened or impaired existing or anticipated beneficial uses.

See excerpts of DEQ’s discovery responses attached herewith as Exhibit C-24-S. In addition, prior to issuing the 1999 MPDES permit, DEQ reviewed a water quality assessment which did not identify any threatened or impaired uses. See Stipulated Fact No. 13. The 1999 findings were confirmed by aquatic ecologist David Stagliano, M.S. during the November 2016 BER Hearing, who testified that there is no evidence of impairment. Hering Transcript, 416:13 – 417:14; see also Ex. C-51.

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2 Excerpts of the DEQ’s discovery responses were marked at the hearing during the testimony of Steve Wright as Exhibit C-24-S, but it appears from the hearing transcript that the exhibit was never expressly admitted even though DEQ did not object to the exhibit. This appears to have been a simple oversight during the hearing.
CONCLUSION

Accordingly, the legal basis for a surface water mixing zone absent a specific reference thereto in the permit is found in the language of the statutes, regulations, and the DEQ's own application of them to CFAC's existing sources. The sources of the discharge pre-existed the 1984 ground water permit. The 1994 permit included the discharge of cyanide in ground water to the Flathead River. That discharge necessarily included a de facto surface water mixing zone, because without allowing an exceedance in the river, the 1994 permit would not have met water quality standards and would have been an illegal permit. See MAR 1994, p. 2190 ("If mixing zones were not allowed, all activities would either violate standards or cause degradation."). The DEQ recognized the pre-existing nature of the sources and of the de facto mixing zones in its 1998 Statement of Basis. That application of the regulations was correct and should be repeated because there is no evidence anywhere in the record of any impairment of existing uses resulting from either the ground water or the surface water mixing zones.

DATED this 12th day of December 2016.

Catherine A. Laughner
W. John Tiétz
Browning, Kaleczyc, Berry & Hoven, P.C.

Attorney for Appellant Columbia Falls
Aluminum Company
CERTIFICATE OF SERVICE

I hereby certify that this [25] day December, 2016, I caused to be served a true and correct copy of the foregoing document and any attachments to all parties or their counsel of record as set forth below:

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BROWNING, KALECZYC, BERRY & HOVEN, P.C.
BEFORE THE BOARD OF HEALTH AND ENVIRONMENTAL SCIENCES
OF THE STATE OF MONTANA

In the matter of the amendment of rules 16.20.603, 616-624, and 641, concerning surface water quality standards.

In the matter of the adoption of new rules I through IX and the repeal of rules 16.20.701 through 16.20.705 regarding implementation of the Water Quality Act's nondegradation policy.

In the matter of the amendment of rules 16.20.1003 and 16.20.1010-16.20.1011 regarding ground water quality standards, mixing zones, and water quality nondegradation.

In the matter of the adoption of new rules I-X concerning the use of mixing zones.

TO: All Interested Persons

1. As described more fully in paragraphs 2-5, the board has published notices of proposed adoption, amendment and repeal of rules pertaining to surface water quality standards, rules pertaining to authorization to degrade state waters, ground water quality standards and mixing zones. These rule sets each refer to terminology and concepts in the other rule sets and it is therefore efficient to promulgate final notices of adoption, amendment and repeal simultaneously.

2. On November 24, 1993, the board published notice at page 2737 of the Montana Administrative Register, Issue No. 22, of the proposed amendment of rules 16.20.603, 616 through 624, and 641. On April 14, 1994, the board published a supplemental notice at page 827 of the Montana Administrative Register, Issue No. 7, noticing an additional public hearing on May 20, 1994, and extending the comment period on the proposed amendment of rules 16.20.603, 616 through 624, and 641.

3. On November 24, 1993, the board of health and environmental sciences ("board") published notice at page 2723 of the Montana Administrative Register, Issue No. 22, of the proposed adoption of new rules I through IX and the repeal of 16.20.701 through 16.20.705. On April 14, 1994, the board published a supplemental notice at page 849 of the Montana Administrative Register, Issue No. 7, noticing an additional public hearing on May 20, 1994, and extending the comment period on the proposed adoption of new rules I through IX and repeal of 16.20.701 through 16.20.705.

5. On April 15, 1994, the board published notice at page 835 of the Montana Administrative Register, Issue No. 7, of the proposed adoption of new rules 1-X concerning the use of mixing zones.

6. The rules as amended from the versions published on April 14, 1994, appear as follows (new material is underlined; material to be deleted is interlined):

16.20.603 DEFINITIONS Same as proposed.

16.20.616 A-CLOSED CLASSIFICATION Same as proposed.

16.20.617 A-1 CLASSIFICATION (1) (2) Remain the same.

(3) No person may violate the following specific water quality standards for waters classified A-1:

(a) Remains the same.

(b) Dissolved oxygen concentration must not be reduced below the applicable standards levels given in department circular WQB-7.

(c) (g) Remain the same.

(h) (i) Concentrations of carcinogenic, bioconcentrating, toxic, or harmful parameters which would remain in the water after conventional water treatment may not exceed the applicable standards levels set forth in department circular WQB-7.

(ii) Dischargers issued permits under ARM Title 16, chapter 20, subchapter 9, shall conform with ARM Title 16, chapter 20, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards levels contained in department circular WQB-7 when stream flows equal or exceed the design flows specified in ARM 16.20.631(4).

(iii) If site-specific criteria are developed using the procedures given in the Water Quality Standards Handbook (US EPA, Dec. 1983), and provided that other routes of exposure to toxic parameters by aquatic life are addressed, the criteria limits so developed shall be used as water quality standards for the affected waters and as the basis for permit limits instead of the applicable standards levels in department circular WQB-7.

(iv) Remains the same.

(4) Remains the same.

16.20.618 B-1 CLASSIFICATION (1) Remains the same.

(2) No person may violate the following specific water quality

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quality standards for waters classified B-1:

(a) - (g) Remain the same.

(b) (i) Concentrations of carcinogenic, bioconcentrating, toxic or harmful parameters which would remain in the water after conventional water treatment may not exceed the applicable standards set forth in department circular WQB-7.

(ii) Dischargers issued permits under ARM Title 16, chapter 20, subchapter 9, shall conform with ARM Title 16, chapter 20, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards specified in department circular WQB-7 when stream flows equal or exceed the design flows specified in ARM 16.20.631(4).

(iii) If site-specific criteria are developed using the procedures given in the Water Quality Standards Handbook (US EPA, Dec. 1983), and provided that other routes of exposure to toxic parameters by aquatic life are addressed, the criteria limits so developed shall may be used as water quality standards for the affected waters and as the basis for permit limits instead of the applicable standards in department circular WQB-7.

(iv) Remain the same.

The board hereby adopts and incorporates by reference the following:

(a) Department circular WQB-7, entitled "Montana Numeric Water Quality Standards" (1994 edition), which establishes standards limits for toxic, carcinogenic, bioconcentrating, and harmful parameters in water; and

(b) -(c) Remain the same.

16.20.619 B-2 CLASSIFICATION (1) Remains the same.

(2) No person may violate the following specific water quality standards for waters classified B-2:

(a) Remains the same.

(b) Dissolved oxygen concentration must not be reduced below the applicable standards given in department circular WQB-7.

(c) -(g) Remain the same.

(b) (i) Concentrations of carcinogenic, bioconcentrating, toxic or harmful parameters which would remain in the water after conventional water treatment may not exceed the applicable standards set forth in department circular WQB-7.

(ii) Dischargers issued permits under ARM Title 16, chapter 20, subchapter 9, shall conform with ARM Title 16, chapter 20, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards specified in department circular WQB-7 when stream flows equal or exceed the design flows specified in ARM 16.20.631(4).

(iii) If site-specific criteria are developed using the procedures given in the Water Quality Standards Handbook (US EPA, Dec. 1983), and provided that other routes of exposure to toxic parameters by aquatic life are addressed, the criteria limits so developed shall may be used as water quality stan-
standards for the affected waters and as the basis for permit limits instead of the applicable standards levels in department circular WQB-7.

(iv) Remains the same.

(3) The board hereby adopts and incorporates herein by reference the following:
(a) Department circular WQB-7, entitled "Montana Numeric Water Quality Standards" (1994 edition), which establishes standards limits for toxic, carcinogenic, bioconcentrating, and harmful parameters in water; and
(b)-(c) Remains the same.

16.20.620 B-3 CLASSIFICATION (1) Remains the same.
(2) No person may violate the following specific water quality standards for waters classified B-3:
(a) Remains the same.
(b) Dissolved oxygen concentration must not be reduced below the applicable standards levels specified in department circular WQB-7.
(c)-(g) Remain the same.
(h) Concentrations of carcinogenic, bioconcentrating, toxic, or harmful parameters which would remain in the water after conventional water treatment may not exceed the applicable standards levels set forth in department circular WQB-7.
(i) Dischargers issued permits under ARM Title 16, chapter 20, subchapter 9, shall conform with ARM Title 16, chapter 20, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards levels specified in department circular WQB-7 when stream flows equal or exceed the design flows specified in ARM 16.20.631(4).
(iii) If site-specific criteria are developed using the procedures given in the Water Quality Standards Handbook (US EPA, Dec. 1983), and provided that other routes of exposure to toxic parameters by aquatic life are addressed, the criteria limits so developed shall may be used as water quality standards for the affected waters and as the basis for permit limits instead of the applicable standards levels specified in department circular WQB-7.
(iv) Remains the same.

(3) The board hereby adopts and incorporates by reference the following:
(a) Department circular WQB-7, entitled "Montana Numeric Water Quality Standards" (1994 edition), which establishes standards limits for toxic, carcinogenic, bioconcentrating, and harmful parameters in water; and
(b)-(c) Remains the same.

16.20.621 C-1 CLASSIFICATION (1) Remains the same.
(2) No person may violate the following specific water quality standards for waters classified C-1:
(a) Remains the same.
(b) Dissolved oxygen concentration must not be reduced below the applicable standards levels given in department circulars.
cular WQB-7.

(c) (g) Remain the same.

(h) (i) Concentrations of carcinogenic, bioconcentrating, toxic, or harmful parameters may not exceed levels which render the waters harmful, detrimental or injurious to public health. Concentrations of toxic parameters also may not exceed the applicable standards specified in department circular WQB-7.

(ii) Dischargers issued permits under ARM Title 16, chapter 20, subchapter 9, shall conform with ARM Title 16, chapter 20, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards specified in department circular WQB-7 when stream flows equal or exceed the design flows specified in ARM 16.20.631(4).

(iii) If site-specific criteria are developed using the procedures given in the Water Quality Standards Handbook (US EPA, Dec. 1983), and provided that other routes of exposure to toxic parameters by aquatic life are addressed, the criteria limits so developed shall be used as water quality standards for the affected waters and as the basis for permit limits instead of the applicable standards in department circular WQB-7.

(iv) Remain the same.

(i) The board hereby adopts and incorporates by reference the following:

(a) Department circular WQB-7, entitled "Montana Numeric Water Quality Standards" (1994 edition), which establishes standards limits for toxic, carcinogenic, bioconcentrating, and harmful parameters in water; and

(b) (c) Remain the same.

16.20.622 C-2 CLASSIFICATION (1) Remain the same.

(2) No person may violate the following specific water quality standards for waters classified C-2:

(a) (g) Remain the same.

(h) (i) Concentrations of carcinogenic, bioconcentrating, toxic, or harmful parameters may not exceed levels which render the waters harmful, detrimental or injurious to public health. Concentrations of toxic parameters also may not exceed the applicable standards specified in department circular WQB-7.

(ii) Dischargers issued permits under ARM Title 16, chapter 20, subchapter 9, shall conform with ARM Title 16, chapter 20, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standards specified in department circular WQB-7 when stream flows equal or exceed the design flows specified in ARM 16.20.631(4).

(iii) If site-specific criteria are developed using the procedures given in the Water Quality Standards Handbook (US EPA, Dec. 1983), and provided that other routes of exposure to toxic parameters by aquatic life are addressed, the criteria limits so developed shall be used as water quality stan-

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standards for the affected waters and as the basis for permit limits instead of the applicable standards levels in department circular WQ7-7.

(iv) Remains the same.

(3) The board hereby adopts and incorporates by reference the following:

(a) Department circular WQ7-7, entitled "Montana Numeric Water Quality Standards" (1994 edition), which establishes standard limits for toxic, carcinogenic, biocumulative, and harmful parameters in water; and

(b) - (c) Remains the same.

16.20.623 I CLASSIFICATION

(1) Remains the same.

(2) No person may violate the following specific water quality standards for waters classified I:

(a) - (g) Remains the same.

(h)(i) - (ii) Remains the same.

(iii) Beneficial uses are considered supported when the concentrations of toxic, carcinogenic, or harmful parameters in these waters do not exceed the applicable standards levels specified in department circular WQ7-7 when stream flows equal or exceed the flows specified in ARM 16.20.631(4) or, alternatively, for aquatic life when site-specific criteria are developed using the procedures given in the Water Quality Standards Handbook (US EPA, Dec. 1983), and provided that other routes of exposure to toxic parameters by aquatic life are addressed. The limits so developed shall be used as water quality standards for the affected waters and as the basis for permit limits instead of the applicable standards in department circular WQ7-7.

(iv) Limits for toxic, carcinogenic, or harmful parameters in new discharge permits issued pursuant to the MFDES rules (ARM Title 16, chapter 29, subchapter 9) are the larger of either the applicable standards levels specified in department circular WQ7-7, site-specific standards, or one-half of the mean in-stream concentrations immediately upstream of the discharge point.

(3) The board hereby adopts and incorporates by reference the following:

(a) Department circular WQ7-7, entitled "Montana Numeric Water Quality Standards" (1994 edition), which establishes standard limits for toxic, carcinogenic, biocumulative, and harmful parameters in water; and

(b) - (c) Remains the same.

16.20.624 C-3 CLASSIFICATION

(1) Remains the same.

(2) No person may violate the following specific water quality standards for waters classified C-3:

(a) Remains the same.

(b) Dissolved oxygen concentration must not be reduced below the applicable standards levels specified in department circular WQ7-7.

(c) - (g) Remains the same.

(h)(i) Concentrations of carcinogenic, biocumulative, Montana Administrative Register 15-8/11/94
toxic, or harmful parameters which would remain in the water after conventional water treatment may not exceed the applicable standard levels set forth in department circular WQB-7.

(ii) Dischargers issued permits under ARM Title 16, chapter 20, subchapter 7, the nondegradation rules, and may not cause receiving water concentrations to exceed the applicable standard levels specified in department circular WQB-7 when stream flows equal or exceed the design flows specified in ARM 16.20.631(4).

(iii) If site-specific criteria are developed using the procedures given in the Water Quality Standards Handbook (US EPA, Dec. 1983), and provided that other routes of exposure to toxic parameters by aquatic life are addressed, the criteria limits so developed shall may be used as water quality standards for the affected waters and as the basis for permit limits instead of the applicable standards levels specified in department circular WQB-7.

(iv) Remain the same.

(3) The board hereby adopts and incorporates by reference the following:

(a) Department circular WQB-7, entitled "Montana Numeric Water Quality Standards" (1994 edition), which establishes standards levels for toxic, carcinogenic, bioconcentrating, and harmful parameters in water; and

(b)(c) Remain the same.

16.20.641 RADIOLOGICAL CRITERIA

(1) No person may cause radioactive materials in surface waters to exceed the standard levels specified in department circular WQB-7.

(2) The board hereby adopts and incorporates by reference department circular WQB-7, entitled "Montana Numeric Water Quality Standards" (1994 edition), which establishes limits for toxic, carcinogenic, bioconcentrating, and harmful parameters in water.

Rules 16.20.701 through 705 were repealed as proposed and can be found at pages 16-973 through 16-979 of the Administrative Rules of Montana.

RULE 1 (16.20.706) PURPOSE Same as proposed.

RULE 11 (16.20.707) DEFINITIONS Unless the context clearly states otherwise, the following definitions, in addition to those in 75-5-101, MCA, apply throughout this subchapter (Note: 75-5-103, MCA, includes definitions for "degradation", "existing uses", "high quality waters", and "parameter").

(1)-(2) Same as proposed.

(3) "Existence value" means the value of the benefit that people may derive from the existence of a resource, without
regard to their use or consumption of it.

(1) "Degradation" is defined in 75-5-103, MCA, and also means any increase of a discharge that exceeds the limits established under or determined from a permit or approval issued by the department prior to April 29, 1991.

(4)-(10) Same as proposed.

(9) "Level 2 treatment" means treatment which will remove at least 60% of the nitrogen from the raw state in a waste water treatment system that will provide a higher degree of treatment than conventional systems, including the removal of at least 60% of nitrogen as measured from the raw influent load to the system. The term does not include treatment systems for industrial waste,

(10)-(17) Same as proposed.

(48) "Opportunity cost" means the value of a resource when used in its highest valued alternate use, regardless of its price or value in its current use.

(49)-(50) "Outstanding resource waters" or "ORW" means all state waters that are located in national parks, national wilderness or primitive areas. ORW also means state waters that have been identified as possessing outstanding ecological, recreational or domestic water supply significance and subsequently have been classified as an ORW by the board.

(49)-(12) "Permit" means either an MPDES permit or an MOWPES permit.

(49)-(20) "Reporting values" means the values listed as reporting values in department circular WQ-7, and are the detection levels that must be achieved in reporting ambient or compliance monitoring results to the department unless otherwise specified in a permit, approval or authorization issued by the department.

(22)-(25) Same as proposed but are renumbered (21)-(24).

RULE III (16.20.703) NONDEGRADATION POLICY-APPLICABILITY AND LIMITATION

(1) Same as proposed.

(2) Department review of proposals for new or increased sources will determine the level of protection required for the impacted water as follows:

(a) Same as proposed.

(b) For high quality waters, degradation may be allowed only according to the procedures in [RULE VII]. These rules apply to any activity that may cause degradation of high quality waters, for any parameter, unless the changes in existing water quality resulting from the activity are determined to be nonsignificant under [Rules VII or VIII]. If degradation of high quality waters is allowed, the department will assure that within the United States geological survey hydrologic unit upstream of the proposed activity, there shall be achieved the highest statutory and regulatory requirements for all point and nonpoint sources. This assurance will be achieved through ongoing administration by the department of mandatory programs for control of point and nonpoint discharges.

(c) Same as proposed.

(3) Same as proposed.
RULE IV (16.20.709) INFORMATIONAL REQUIREMENTS FOR NON-DEGRADATION SIGNIFICANCE/AUTHORIZATION REVIEW

(1) Any person proposing an activity which may cause degradation is responsible for compliance with 75-5-303, MCA. Except as provided in (2) below, a person may either:

(a) same as proposed.

(b) submit an application to the department pursuant to (2) (j) below, for the department to make the determination.

(2) Any person proposing an activity or class of activities which may cause degradation may complete a "Application for Determination of Significance". Information required on the application includes, but is not limited to the following:

(a) any proposed activity may cause degradation based on information submitted by the applicant for all activities that are permitted, approved, licensed, or otherwise authorized by the department.

(b) any person proposing an activity or class of activities which may cause degradation and is not an activity included under (2) above may complete a "Application for Determination of Significance". Information required on the application includes, but is not limited to the following:

(a) Same as proposed.

(b) Same as proposed but renumbered (4)-(7).

[Paragraphs (a) and (b) continue with detailed information on what must be included in the application.]

(i) the present value of the benefits provided to society by the output of the proposed activity over its useful life.

(ii) the present value of the direct resource costs of construction and operation of the proposed activity over its useful life, and minus.

(iii) the present value of the external environmental resource costs of the proposed activity over its useful life, including costs pertaining after the proposed activity has ceased, and

(iv) an analysis of the losses or costs to society resulting from the lower water quality.

(b) Factors which should be considered in the analysis in (a) above include, but are not limited to, changes in any of the categories listed below:

(i) the value society places on the output to be produced by the proposed activity;

(ii) uncertainty in each of the factors that make up (a) (i) through (iv);

(c) Factors which also may be considered in the analyses in (a) (iii) and (iv) above include, but are not limited to, changes in any of the categories listed below.

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(i) employment dependent on existing water quality;
(ii) effects on public health and the environment;
(iii) resource utilization and depletion;
(iv) existence values; or
(v) opportunity costs. An applicant must demonstrate that the proposed activity will result in important economic or social development that exceed the costs to society of allowing the proposed change in water quality. Factors to be addressed in the application may include, but are not limited to, the positive and negative effects of the following:

(ii) allowing the proposed change in water quality;
(iii) employment considering the existing level of employment, unemployment, and wage levels in the area [i.e., increasing, maintaining, or avoiding a reduction in employment];
(iv) the fiscal status of the local, county, or state government and local public schools;
(v) the local or state economies [i.e., increased or reduced diversity multiplier effects];
(vi) social or historical values;
(vii) public health;
(viii) housing [i.e., availability and affordability];
(ix) existing public service systems and local educational systems; or
(x) correction of an environmental or public health problem.

(b) Factors included in the demonstration required in (a) above must be quantified whenever this can be done reliably and cost-effectively. Other factors, which cannot be quantified, may be represented by an appropriate unit of measurement. If the department determines that more information is required, the department may require additional information from the applicant or seek such additional information from other sources.

(8)-(12) Same as proposed but renumbered (9)-(13).

RULE V (16.20.719) DEPARTMENT PROCEDURES FOR NONDEGRADATION REVIEW (1)-(2) Same as proposed.

(3) To determine that degradation is necessary because there are no economically, environmentally, and technologically feasible alternatives to the proposed activity that would result in no degradation, the department shall consider the following:

(a) In determining economic feasibility:

(i) any non-degrading or less-degrading alternative water quality protection practices which are less than 125% of the present worth of capital and operating costs of the water quality protection practices proposed by the applicant will be rebuttably considered economically feasible without further assessment by the department;

(ii) for any non-degrading or less-degrading alternative water quality protection practices proposed by the applicant which are equal to or exceed 125% of the present worth of capital and operating costs of the water quality protection practices proposed by the applicant.
the department will determine the economic feasibility of the
alternative water quality protection practices by evaluating
the benefits of the additional resulting water quality and the
amount of the private net benefits with and without the alter-
native water quality protection practices.

(a) The department will determine the economic feasibility
of the alternative water quality protection practices by.
evaluating the cost effects of the proposed alternatives on the
economic viability of the project and on the applicant by using
standard and accepted financial analyses.

(b)-(c) Same as proposed.

(4)(a) To determine that the proposed activity will re-
sult in important economic or social development that exceeds
the benefit to society of maintaining existing high-quality
waters and exceeds the costs to society of allowing degradation
of high-quality waters, the department must find, based on an
analysis of the benefits and costs, including external environ-
mental costs of the proposed activity and of the benefits of
the existing water quality:

(i) that the benefits of the proposed activity are rea-
sonably likely to significantly exceed the sum of all its
costs, including the costs of lowered water quality;

(ii) the risk inherent in finding (i) above is reason-
able, given the uncertainty in benefits and costs;

(b) in making these findings the department shall consid-
er the net present value to society of the proposed activity as
measured by:

(i) the present value of the benefits provided to soci-
ety by the output of the proposed activity over its useful
life; minus

(ii) the present value of the direct resource costs of
construction and operation of the proposed activity over its
useful life; and minus

(iii) the present value of the external environmental
resource costs of the proposed activity over its useful life,
including costs persisting after the proposed activity has
ceased; and

(iv) an analysis of the loss or costs to society result-
ing from the lower water quality;

(c) Factors which should be considered in the analysis in
(a) and (b) above include, but are not limited to, changes in
any of the categories listed below:

(i) the value society places on the output to be pro-
duced by the proposed activity;

(ii) uncertainty in each of the factors that make up (b)
through (iv) above;

(d) Factors which also may be considered in the analysis
in (b)-(c) above include, but are not limited to, changes in
any of the categories listed below:

(i) employment dependent on existing water quality;

(ii) effects on public health and the environment;

(iii) resource utilization and depletion;

(iv) existence values or

(v) opportunity cost.
(e) In making the finding in (4)(a), the department shall weigh those factors that are reasonably quantifiable, and must find that the magnitudes of the unquantifiable factors are not likely to reverse the finding. Must find that the proposed activity will provide important economic or social development which outweighs any cost to society of allowing the proposed change in water quality. In making its determination, the department may consider factors that include, but are not limited to, the following:
(i) effects on the state or local community resulting from increased employment opportunities considering the existing level of employment, unemployment, and wage levels in the area;
(ii) effects on the state or local economies;
(iii) effects on the fiscal status of the local, county or state governments and local public schools;
(iv) effects on the local or state economies (i.e., increased or reduced diversity, multiplier effects);
(v) effects on social or historical values;
(vi) effects on public health;
(vii) effects on housing (i.e., availability and affordability);
(viii) effects on existing public service systems and local educational systems; or
(ix) correction of an environmental or public health problem.

(6) In making the determination required in (a) above, the department must weigh any costs associated with the loss of high quality waters against any social or economic benefits demonstrated by the applicant. The department may also consider as a cost to society any identified and/or quantifiable negative social or economic effects resulting from the proposed activity.

(5)-(8) Same as proposed.

RULE VI 06.20.711. DEPARTMENT PROCEDURES FOR ISSUING PRELIMINARY AND FINAL DECISIONS REGARDING AUTHORIZATIONS TO DEGRADE
(1) Same as proposed.
(2) The preliminary decision must include the following information, if applicable:
(a)-(h) Same as proposed.
(i) a description specific identification of any mixing zone the department proposes to allow.
(3)-(8) Same as proposed.

RULE VII 06.20.712. CRITERIA FOR DETERMINING NONSIGNIFICANT CHANGES IN WATER QUALITY
(1) The following criteria will be used to determine whether certain activities or classes of activities will result in nonsignificant changes in existing water quality due to their low potential to affect human health or the environment. These criteria consider the quantity and strength of the pollutant, the length of time the changes will occur, and the character of the pollutant. Except as provided in (2) below, changes in existing surface or ground water qual-
ity resulting from the activities that meet all the criteria listed below are nonsignificant, and are not required to undergo review under 75-5-303, MCA:

(a) activities that would increase or decrease the mean monthly flow of a surface water by less than 15% or the 7-day 10 year low flow by less than 10%;

(b) discharges containing carcinogenic parameters or parameters with a bioconcentration factor greater than 300 at concentrations less than or equal to the concentrations of those parameters in the receiving water;

(c) discharges containing toxic parameters or nutrients, except as specified in (d) and (e) below, which will not cause changes that equal or exceed the trigger values in department circular WQ-7. Whenever the change exceeds the trigger value, the change is not significant if the resulting concentration outside of a mixing zone designated by the department does not exceed 15% of the lowest applicable standard;

(d) changes in the concentration of nitrogen in ground water which will not impair existing or anticipated beneficial uses, where: water quality protection practices approved by the department, referenced as level 3 treatment in Table I below, have been fully implemented, and where the sum of the resulting concentrations of nitrate, nitrite, and ammonia, all measured as nitrogen, outside of any applicable mixing zone designated by the department, will not exceed the values given in the table below, as long as such changes will not result in increases greater than 0.01 milligrams per liter in the nitrogen concentration in any perennial surface water:

(i) the incremental increase of nitrogen from human waste in ground water may not be more than 2.5 mg/l at the boundary of the applicable mixing zone;

(ii) the sum of the resulting concentrations of nitrate as nitrogen, outside of any applicable mixing zone, will not exceed the values given in Table I; and,

(iii) the change will not result in increases greater than 0.01 milligrams per liter in the nitrogen concentration in any surface water.

See next page for Table I
Table I

<table>
<thead>
<tr>
<th>Existing Nitrogen Concentration in Ground Water</th>
<th>Primary Source of Nitrogen</th>
<th>Nitrogen Concentration After the Proposed Activity</th>
<th>Requirements for Nonsignificant Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;-2.5 mg/l</td>
<td>Human Wastes</td>
<td>&gt;2.5-5.0 mg/l</td>
<td>NONS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;5-10 mg/l</td>
<td>LEVEL-2 TREATMENT</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>&gt;5 mg/l</td>
<td>SIGNIFICANT</td>
</tr>
<tr>
<td>2.5-5 mg/l</td>
<td>Human Wastes</td>
<td>&gt;5 mg/l</td>
<td>LEVEL-2 TREATMENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;5 mg/l</td>
<td>SIGNIFICANT</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>&gt;5 mg/l</td>
<td>LEVEL-2 TREATMENT</td>
</tr>
<tr>
<td>5.0-7.5</td>
<td>Human Wastes</td>
<td>ANY INCREASE</td>
<td>SIGNIFICANT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;7.5 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>ANY INCREASE</td>
<td>SIGNIFICANT</td>
</tr>
<tr>
<td>ANY LEVEL</td>
<td>ANY</td>
<td>ANY INCREASE</td>
<td>SIGNIFICANT</td>
</tr>
</tbody>
</table>

Table I. Criteria for determining nonsignificant changes for nitrogen in ground water. (See next page for new Table I)
<table>
<thead>
<tr>
<th>EXISTING NITROGEN CONCENTRATION IN GROUND WATER AS OF APRIL 22, 1993</th>
<th>PRIMARY SOURCE OF EXISTING NITROGEN</th>
<th>PREDICTED NITROGEN CONCENTRATION AT THE EDGE OF THE MIXING ZONE AFTER THE PROPOSED ACTIVITY</th>
<th>REQUIREMENTS FOR NONSIGNIFICANCE FOR HUMAN WASTE DISPOSAL</th>
<th>REQUIREMENTS FOR NONSIGNIFICANCE FOR DISPOSAL OF OTHER WASTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2.5 mg/L</td>
<td>HUMAN WASTE</td>
<td>&lt; 2.5 mg/L</td>
<td>NONE</td>
<td>NONE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5 -&lt; 5.0 mg/L</td>
<td>LEVEL 2 TREATMENT</td>
<td>SECONDARY TREATMENT AS DEFINED BY THE DEPARTMENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt; 7.5</td>
<td>SIGNIFICANT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OTHER</td>
<td>&lt; 5.0 mg/L</td>
<td>NONE</td>
<td>NONE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 -&lt; 7.5 mg/L</td>
<td>LEVEL 2 TREATMENT</td>
<td>SECONDARY TREATMENT AS DEFINED BY THE DEPARTMENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.5 -&lt; 10</td>
<td>SIGNIFICANT</td>
<td></td>
</tr>
<tr>
<td>2.5 -&lt; 5.0 mg/L</td>
<td>HUMAN WASTE</td>
<td>&lt; 5 mg/L</td>
<td>LEVEL 2 TREATMENT</td>
<td>SECONDARY TREATMENT AS DEFINED BY THE DEPARTMENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 -&lt; 7.5</td>
<td>SIGNIFICANT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OTHER</td>
<td>&lt; 5</td>
<td>NONE</td>
<td>NONE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 -&lt; 7.5</td>
<td>LEVEL 2 TREATMENT</td>
<td>SECONDARY TREATMENT AS DEFINED BY THE DEPARTMENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt; 7.5</td>
<td>SIGNIFICANT</td>
<td></td>
</tr>
<tr>
<td>5.0 -&lt; 7.5</td>
<td>HUMAN WASTE</td>
<td>ANY INCREASE</td>
<td>SIGNIFICANT</td>
<td>SIGNIFICANT</td>
</tr>
<tr>
<td></td>
<td>OTHER</td>
<td>&lt; 7.5</td>
<td>LEVEL 2 TREATMENT</td>
<td>SECONDARY TREATMENT AS DEFINED BY THE DEPARTMENT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.5</td>
<td>SIGNIFICANT</td>
<td></td>
</tr>
<tr>
<td>&gt; 7.5</td>
<td>ANY</td>
<td>ANY INCREASE</td>
<td>SIGNIFICANT</td>
<td>SIGNIFICANT</td>
</tr>
<tr>
<td></td>
<td>ANY LEVEL</td>
<td>ANY INCREASE</td>
<td>NOT ALLOWED VENOLATES STANDARDS</td>
<td>NOT ALLOWED VENOLATES STANDARDS</td>
</tr>
</tbody>
</table>

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RULE VIII (16.20.713) CATEGORIES OF ACTIVITIES THAT CAUSE NONSIGNIFICANT CHANGES IN WATER QUALITY

(1) The following categories or classes of activities have been determined by the department to cause changes in water quality that are nonsignificant due to their low potential for harm to human health or the environment and their conformance with the guidance found in 75-5-301(5)(c), MCA:

(a) activities which are nonpoint sources of pollution on land where reasonable land, soil, and water conservation practices are applied and existing and anticipated beneficial uses will be fully protected;

(b) Same as proposed.

(c) changes in existing water quality resulting from an emergency or remedial response activity that is designed to protect public health or the environment and is approved, authorized, or required by the department;

(i) Same as proposed.

(d)-(e) Same as proposed.

(f) activities which cause increases in the concentration of nitrogen in ground water which do not exceed those listed as nonsignificant in the table in Rule VIII(i)(d) and the changes caused by such activities will not result in a change in the nitrogen concentration in any perennial surface water which exceeds the trigger values listed in department circular MC-7;

(g)-(l) Land application of animal waste, domestic septic, or waste from public sewage treatment systems or other wastes containing nutrients where wastes are land applied in a beneficial manner, application rates are based on agronomic uptake of applied nutrients and other parameters will not cause degradation;

(h)-(n) Same as proposed but renumbered (g)-(m).

(o) discharge of storm water in conformance with a permit issued by the department under the storm water permit program (ARM 16.20.1301 et seq.)

(2) Same as proposed.

RULE IX (16.20.714) IMPLEMENTATION OF WATER QUALITY PROTECTION PRACTICES

Same as proposed.

16.20.1003 GROUND WATER QUALITY STANDARDS

Same as proposed.

16.20.1010 MIXING ZONE

Same as proposed.

16.20.1011 NONDEGRADATION

Same as proposed.

RULE I (16.20.1801) PURPOSE

Same as proposed.

RULE II (16.20.1802) DEFINITIONS

The following definitions, in addition to those in 75-5-103, MCA, and ARM Title 16, chapter 20, subchapters 6 and 7, apply throughout this subchap-
ter:  

(10) Same as proposed.  

(11) "Standard mixing zone" means a mixing zone that meets the requirements of [RULES VIII and IX] and involves less data collection and demonstration than required for a source specific non-standard mixing zone.  

(12) Same as proposed.  

(13) "Zone of influence" means the area under which a well can be expected to remove water.  


RULE III (16.20.1803) GENERAL CONSIDERATIONS FOR MIXING ZONE DESIGNATIONS  

(1) After an assessment of information received from the applicant concerning the biological, chemical, and physical characteristics of the receiving water, as specified in (RULE IV) or as requested by the department, the department will determine the applicability of a mixing zone and, if applicable, its size, configuration, and location. In defining a mixing zone, the department will consider the following principles:  

(a)-(b) Same as proposed.  

(c) For sources discharging under a permit issued by the department prior to April 22, 1993, any mixing zone allowed under the permit will remain in effect until renewal. Upon renewal, any previously allowed mixing zone will be designated in the renewed permit, unless there is evidence that the previously allowed mixing zone will impair existing or anticipated uses.  

(d)-(f) Same as proposed but are renumbered (d)-(f).  

(2) Where the department determines that allowing a mixing zone at a given level for a parameter would threaten or impair existing unreasonable and unreasonable beneficial uses, the department will be modified as necessary to prevent the interference with or threat to the beneficial use. If necessary, these modifications may require achieving applicable numeric water quality criteria at the end-of-pipe for the parameter so that no mixing zone will be necessary or granted.  

RULE IV (16.20.1804) WATER QUALITY ASSESSMENT  

(1) No mixing zone will be granted if it would threaten or impair existing unreasonable and unreasonable beneficial uses. Before any mixing zone is allowed, the applicant must provide information, as requested by the department, to determine whether a mixing zone will be allowed as well as the conditions which should be applied.  

(2) In making its determination, the department will con-
sider the following factors:

(a)-(g) Same as proposed.
(h) Ground water discharges to surface water. In the case of a discharge to ground water which in turn ground-water mixing zones may be modified where the ground-water discharges to surface water within a reasonably short time or distance, the mixing zone may extend into the surface water, and the same considerations which apply to setting mixing zones for direct discharges to surface water will apply in determining the allowability and extent of the mixing zone in the surface water and currently available data indicate that surface water quality standards will be exceeded in the receiving surface water.

(i) Same as proposed.

RULE V (16.20.1805) SPECIFIC RESTRICTIONS FOR SURFACE WATER MIXING ZONES

(1) Mixing zones for surface waters are to comply with the following water quality standards:

(a) Narrative water quality standards, standards for harmful substances, numeric acute and chronic standards for aquatic life, and standards based on human health must not be exceeded beyond the boundaries of the surface water mixing zone;
(b) Same as proposed.
(2) Same as proposed.
(3) A discharge which contains a parameter that is a characteristic of a parameter that has a bioconcentration factor which exceeds 30 will not be granted a surface water mixing zone for that parameter. For these parameters, discharge limitations must be set at or below the naturally occurring concentration of the receiving water at the point of discharge.
(4) Remains the same but is renumbered (3).

RULE VI (16.20.1806) SPECIFIC RESTRICTIONS FOR GROUND WATER MIXING ZONES

(1) Mixing zones for ground water are to be limited and comply with the following water quality standards:

(a) Human health based ground water standards must not be exceeded beyond the boundaries of the mixing zone;
(b) A discharge which contains a parameter that is a characteristic of a parameter that has a bioconcentration factor which exceeds 30 will not be granted a ground-water mixing zone for that parameter. In this zone, discharge limitations must be set at or below the naturally occurring concentration of the receiving water at the point of discharge.
(2) Same as proposed.

RULE VII (16.20.1807) DEPARTMENT PROCEDURES

(1) The department will determine whether a mixing zone is appropriate for a particular discharge during the department's permit, permit renewal, approval, order, or authorization review process pursuant to the rules in this subchapter. The department may determine that:

(a)-(b) Same as proposed.
(c) the source specific nonstandard mixing zone applied for is appropriate; or
(d) Same as proposed.
(2) Same as proposed.
(3) Any nonstandard mixing zone must be approved by the department. A source specific mixing zone may not be used unless approved by the department.
(4) In making a determination of nonsignificance under the rules in ARM Title 20, chapter 16, subchapter 7, a person may use a standard mixing zone without approval from the department or request that the department specifically designate a mixing zone, which may be either a standard or source specific nonstandard mixing zone.
(5)-(6) Same as proposed.

RULE VIII (16.20.1809) STANDARD MIXING ZONES FOR SURFACE WATER
(1)-(2) Same as proposed.
(3) Facilities that meet the terms and conditions in (a) through and (d) below qualify for a standard mixing zone as follows:
(a) Same as proposed.
(b) Facilities that discharge a mean annual flow less than 1 MGD or that discharge to a stream segment with a dilution less than 100:1, where dilution is less than 100:1, discharge limitations will be based on dilution with 25% of the 7Q10.
(c) Facilities that discharge to surface waters through the ground may qualify for a standard surface water mixing zone provided that acute and chronic standards are not exceeded in the surface water mixing zone.
(d) Same as proposed.
(4) The length area of a standard mixing zone for flowing surface water, other than a nearly instantaneous mixing zone, must not exceed one half of the cross-sectional area extend downstream more than the one-half mixing width distance or extend downstream more than 10 times the stream width, whichever is more restrictive. For purposes of making this determination, the stream width as well as the discharge limitations are considered at the 7Q10 low flow. The recommended calculation to be used to determine the one-half mixing width distance is described below.
(a)-(c) Same as proposed.
(5)-(6) Same as proposed.

RULE IX (16.20.1809) STANDARD MIXING ZONES FOR GROUND WATER
(1) The following criteria apply to determine which discharges qualify for a standard ground water mixing zone:
(a)-(b) Same as proposed.
(c) To determine if the discharge qualifies for a standard ground water mixing zone, the person proposing the discharge must estimate the anticipated concentration of pollutants at the downgradient boundary of the mixing zone (aquatic life standards do not apply in ground water). If the estimated concentration meets the nonsignificance criteria at the boundary of the mixing zone, as specified in ARM Title 16, chapter 20, subchapter 7, the discharge qualifies for a standard mixing
zone.

(d) The estimation required in (1)(c) above, must be based on a calculation of the volume of water moving through a standard cross-section of aquifer. The calculated volume of water moving through the aquifer cross-section is hypothetically mixed with the known volume and concentration of the discharge to determine the resulting concentration at the boundary of the mixing zone. The recommended method to determine the resulting concentration at the boundary of a standard ground water mixing zone is described below:

(i) Same as proposed.

(ii) The downgradient boundary of the standard mixing zone extends:

(A) Same as proposed.

(B) For subdivisions with centralized water service, to the exterior boundaries of the contiguous surrounding undeveloped land. If development of that land is prohibited in perpetuity and title evidence of this fact is provided to the department:

(C) Same as proposed but renumbered (D).

(ix) Same as proposed.

**RULE X (16.29.1810) SOURCE SPECIFIC NONSTANDARD MIXING ZONES**

(1) If adequate information regarding stream flow or ground water flow is not available or if a standard mixing zone is not applicable or desired by the applicant, an applicant may request a source specific nonstandard mixing zone.

(2) A source specific nonstandard surface or ground water mixing zone will only be granted after the applicant demonstrates to the department that the requested mixing zone will comply with the requirements of [RULE IV and V] and the provisions of 75-5-303, MCA.

(3) Same as proposed.

(4) For other surface waters, mixing zones must not exceed three fourths of the cross sectional area or 15 times the stream width, whichever is more restrictive. These area and width calculations must be performed using the procedures in RULE VIII.

(5) The applicant may also demonstrate through field studies approved by the department that the requirements of 75-5-301(4), MCA, are satisfied. For source specific mixing zones in other surface water, the applicant shall provide information adequate to demonstrate to the department that the requirements of 75-5-301(4), MCA, are satisfied. In addition, the applicant shall present a discussion of the mixing zone in the context of the restrictions and general considerations specified in [Rule IV], and information addressing the following items, as applicable:

(a)(I) Same as proposed.

(a)(II) For source specific nonstandard mixing zones in ground water the applicant shall provide information adequate to demonstrate to the department that the requirements of 75-5-301(4), MCA, are satisfied. In addition, the applicant shall present a discussion of the mixing zone in the context of
the restrictions and general considerations specified in [Rule IV], and information addressing the following items, as applicable:

(a) Same as proposed.

7. The board received a number of comments on these four sets of rules. All of the comments have been consolidated and reviewed; department response follows:

RESPONSES TO COMMENTS ON THE PROPOSED ADOPTION
OF RULES I THROUGH IX REGARDING THE
NONDEGRADATION POLICY AND THE PROPOSED
AMENDMENT OF THE STATE'S SURFACE WATER QUALITY STANDARDS

The following responses have been prepared for comments submitted pursuant to MAR Notice No. 16-2-440 (Nondegradation rules) and for MAR Notice No. 16-2-441 (Amendments of Surface Water Quality Standards). The first portion of the responses address comments on the amendments of the surface water quality standards, including the adoption of WQB-7. The second portion of the responses are for comments on the proposed adoption of the nondegradation rules.

Each rule or section of a rule that was commented upon has been set forth with the comments and responses listed under that particular rule. The responses address requested changes in the rules, as well as questions on the application or meaning of a rule. To the extent practicable, each commenter has been identified by number in the comments. An index of the commentors has been attached for the reader’s reference.

PUBLIC COMMENTS RECEIVED
NOVEMBER 15, 1993 TO DECEMBER 22, 1993

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PERSONS WHO COMMENTED ORALLY ONLY, AND INDEX TO THOSE COMMENTS

4. Mr. Scott Anderson. This oral comment was a statement of support for the proposed rule. The comment is noted.
7. Mr. Doug Parker. Response covered in the response to written comments Nos. 6, 7, 43, 58, 59, 60, 64, 70.
8. Mr. John Marsden. Response covered in the response to written comments Nos. 1, 6, 7, 46, 58, 60, 77, 122, 134, 175, 181, 181, 208, 233, 262, 266, 301, 312, 314, 343.

CIRCULAR WQB-7: MONTANA NUMERIC WATER QUALITY STANDARDS

1. COMMENT: Commentators 2, 25, 39, 42, 43, 73, 77, 78, 80, 96, 112, 113, and 125 state that the water quality standards of WQB-7 should be established using the criteria that are used by EPA in establishing maximum contaminant levels (MCL's) pursuant to the Safe Drinking Water Act.

RESPONSE: This approach was considered and rejected for the following reasons: (1) The MCL's are derived through a process which first develops the desirable safety level or goal, the Maximum Contaminant Level Goal or the "MCLG". For most carcinogenic substances that level is zero. The MCL standard is then derived through practical considerations such as the ability or inability to achieve the MCLG by treatment and the costs ofsuch treatment. In many cases the safe level cannot be achieved regardless of cost, in other cases the costs are prohibitive. Thus, many of the MCL's are deliberately set at levels that are known to be unsafe. In the case of water quality standards, these standards are set to prevent increases of contaminants in our waters because we know they are harmful and because we know that it is either too expensive or impossible to remove them once they are introduced to state waters; and, (2) Due to the considerations used in the process of deriving MCL's for the treatment of drinking water, EPA will not approve state water quality standards that are based on practical considerations of costs or the technical feasibility of treatment. Rather, the standards must be set to protect and maintain water quality. Therefore, the standards will remain as proposed subject to modifications made in response to comments.

2. COMMENT: Commentators 20 and 103 state that it is unclear how the proposed standards were set. What studies were conducted to validate these standards for Montana?
RESPONSE: For the most part these standards are the water quality criteria developed by the EPA under Section 304(a) of the Federal Clean Water Act or the MCLG's developed by the EPA under the Safe Drinking Water Act. Validating these standards for Montana in a manner that would be scientifically defensible would require many years of research at a prohibitive cost. As an alternative to such validation, a provision in the water quality standards allows a discharger to develop site specific standards using approved procedures. These site specific standards will then become the state standards for that water. See e.g., ARM 16.20.623 (2)(h)(iii). Unfortunately, this present language is not clear and, as a result, modifications to this language are being made in the revised surface water quality standards.

3. COMMENT: Commentor 20 states that we recognize the need to comply with federal standards. We do not believe that the standards need to be overly stringent to reach required compliance levels. We believe this can be done in such a way that the door to future growth and development is not shut.

RESPONSE: The proposed rules, as modified in response to comments, achieve this balance.

4. COMMENT: Commentors 74, 85, 92, and 91 state that WQB-7 should use drinking water MCL's and Gold Book aquatic life standards - not standards based on human health risks.

RESPONSE: The rational for not using the MCL's is given in Response 1. In addition, the current aquatic life standards as developed by EPA are the standards listed in WQB-7. Many of the Gold Book Standards are outdated and, therefore, will not be used as the appropriate level for the protection of human health and the environment.

5. COMMENT: Commentors 30 and 119 state that in WQB-7 there should be an amendment to clarify that, when two criteria are cited, the lower or more protective of the two will be used.

RESPONSE: This change has been made for clarification.

6. COMMENT: Commentors 71, 93, 98, 113, 114, 115, and 126 state that Practical Quantification Levels (PQL's) must be established for all parameters in WQB-7, and detection levels should be the PQL's.

RESPONSE: Practical Quantification Levels (PQL) are not applicable to water quality standards and significance determinations under the nondegradation rules. WQB-7 has been modified to replace "detectable" with "trigger values" for toxic parameters and a required reporting level for all parameters. The trigger value represents a level of change in a parameter in the receiving water, which determines whether or not the activity would result in degradation. It should be applied in a...
predictive manner. If the change in water quality is less than the trigger level then the activity is considered nonsignificant.

The trigger value is based on the Method Detection Limit (MDL) approach and does not consider Practical Quantification Levels (PQL). The MDL is a statistical method of estimating the lowest concentration that can be determined to be statistically different from a blank specimen (zero concentration) with a 99% probability. This is a valid approach within the context of Montana's Nondegradation Policy as expressed in SB 401. The trigger value does not represent a level of analysis for routine sampling. Also see Response 6.

7. COMMENT: Commentor 93 states that the PQL's must be demonstrated to have been exceeded using established statistical methods.

RESPONSE: Practical Quantification Levels (PQL) are not used to determine compliance with water quality standards. PQLs are arbitrarily set at 2 to 500 times the Method Detection Limit (MDL) depending on the media. The required reporting level is based on levels actually achievable at both commercial and government laboratories using accepted methods. Neither WQB-7 or the nondegradation rules are proposing procedures for determining compliance. Compliance is established through the use of statistical techniques as well as other technical review criteria which are established on a programmatic basis. Also see Response 6.

8. COMMENT: Commentor 115 states that metal standards should be based on dissolved concentrations, because using total recoverable concentrations is too conservative, and is in conflict with EPA recommendations.

RESPONSE: While the use of total recoverable concentrations is conservative, their use is appropriate for the following reason. Aquatic organisms are subjected to elevated metal concentrations from sources other than water. These other sources include ingestion of contaminated sediment and organisms with elevated concentrations of metals. EPA's recommendation for the use of dissolved concentrations acknowledges these other sources and states that these sources can be controlled through the use of standards for contaminants in sediment. At the present time, standards for sediments have not been developed. When such standards are developed, the issue of total recoverable versus dissolved concentrations will be revisited. For these reasons, the proposed change to dissolved concentrations will not be made.

9. COMMENT: Commentor 115 states that MCL's are standards for the protection of human health and should be used for ground water nondegradation review. Other values in WQB-7 for human health are based on water and fish ingestion and are not appropriate for the protection of ground water.

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RESPONSE: The issue of MCL's has been discussed in response to comment 1. While it is true that the human health values are based on water and fish ingestion, the effect of recalculating these values to exclude fish ingestion is minor for most parameters (for arsenic the recalculated value is .020 parts per billion (PPB) compared to 0.018 PPB). In addition, most discharges to ground water end up in surface water and, in many cases surface water standards are below the measurable levels. This means that once there is a discharge to ground water, it is not possible to determine at what level the contaminant is when it reaches surface water. For this reason, the rules will not be changed in response to this comment.

10. COMMENT: Commentor 119 states that the lack of a standard for Acenaphthylene (CASRN 208969) represents a decrease in protection for this parameter, as it was listed in the previous standards.

RESPONSE: Acenaphthylene was inadvertently left out of the originally proposed WQB-7. The final version of WQB-7 includes this parameter.

11. COMMENT: Commentor 119 states that the Gold Book aquatic life criteria for Acrolein should be added to WQB-7. The Department should not adopt any standards in WQB-7 that are higher than the standards in the Gold Book without written justification.

RESPONSE: Acrolein was listed in EPA's Gold Book but was not listed as a standard. The Gold Book listing for this parameter listed the "lowest observed effect levels" and a note that there is "sufficient data to develop criteria". The criteria for Acrolein will remain as proposed since it is consistent with EPA criteria.

12. COMMENT: Commentors 115 and 125 state that Montana should not adopt the human health risk based number for arsenic for the following reasons: (1) recent evidence casts doubt on the validity of this number; (2) the proposed level cannot be detected; and (3) the natural background concentration of arsenic exceeds the proposed standard.

RESPONSE: The human health number for arsenic in the proposed rule will not be changed for the following reasons: (1) Although recent evidence may cast some doubt on this number, it is not prudent to change the standard until the issue is resolved; (2) Detection levels have no relationship to standards. That is, standards must be set to protect users, not because the parameter can or cannot be measured at that level; and (3) The effect on public health is not determined by the source of the contaminant, but only by its level. The standards refer to any increases of a contaminant, not to natural levels.

13. COMMENT: Commentor 10 states that color is categorized as
"harmful" without any standards adopted. How will degradation be determined? To effectively implement this in the field concise guidelines are necessary.

RESPONSE: The standards for color are contained in the surface water quality standards and WQB-7 refers to these standards. Nondegradation for color is determined by (1)(f) of Rule VII.

14. COMMENT: Commentor 10 suggests that phosphorus is a ground water problem and unrelated to surface water impacts. The rules should not require that phosphorus be addressed in surface water related activities.

RESPONSE: Phosphorus is not a problem in ground water, but has a major effect on water uses through its fertilizing effect in surface waters. Therefore, the final rules will require that phosphorus be addressed in surface water related activities.

15. COMMENT: Commentor 95 states that the iron limit in WQB-7 is more restrictive than the current permit limits; how will this affect current permit holders? Will there be a transition process?

RESPONSE: The limits in permits are set so that the standards in the receiving water will not be violated. The limit in WQB-7 for iron is the same as the current standards. Therefore, there should be no change or need for a transition period in setting permit limits.

16. COMMENT: Commentors 30, 32, 47, and 119 state that WQB-7 changes the standards for dissolved oxygen. In some instances this appears to be less protective than current standards. As such, these provisions may violate the Water Quality Act or the Federal Clean Water Act (CWA), which do not allow lowering the water classifications except under specific circumstances.

RESPONSE: There is no prohibition against modification of standards. There is a prohibition against downgrading of classifications, if it may impact a protected use. If a standard such as dissolved oxygen is more stringent than necessary to protect the uses under a classification, it can be changed without violating the Montana Water Quality Act or the CWA.

17. COMMENT: Commentor 38 states that dissolved oxygen, pH, and temperature should not be classified as "toxic parameters" but as "habitat parameters."

RESPONSE: Introduction of a new classification such as "Habitat Parameters" is unnecessary and undesirable as these parameters are adequately controlled under the proposed categorizations.

18. COMMENT: Commentor 3 stated that the first line on page 13 of WQB-7 should be changed from "silver, total recoverable" to "silver, dissolved."

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RESPONSE: Although the use of a "total recoverable" analysis may be conservative in some instances, all of the standards are based on this analysis. The rationale for using total recoverable has been discussed in Response 8. For the reasons stated in Response 8, the proposed change will not be made.

19. COMMENT: Commentor 3 states that the Human Health Standard for silver listed in WQ8-7 should be deleted because silver does not have human health concerns.

RESPONSE: EPA's current standards, which replace the Gold Book, are listed in "EPA Region VIII CWA Section 304(a) Criteria Chart Indicating Published Criteria and Updated Human Health Values", dated July 1, 1993. This publication lists human health criteria for silver. To be consistent with federal standards, the criteria for silver will remain as proposed.

20. COMMENT: Commentor 64 asks what is the definition of "harmful"? Who determines what parameters are harmful and at what level?

RESPONSE: Harmful is used to designate those parameters for which secondary drinking water standards were established by EPA and adopted by the State. The term also includes other parameters that are known to cause objectionable taste or odors in water or fish flesh. Levels for these parameters are established to prevent impacts on the use of water for public consumption.

21. COMMENT: Commentor 115 states that it appears that waters classified B-2 have two sets of dissolved oxygen standards in note 15 of WQ8-7.

RESPONSE: This error has been corrected in the final rule. One of the B-2 classifications should have been listed as B-3.

22. COMMENT: Commentor 125 states that "...EPA Group B-2 parameters ("...inadequate or lack of human data." and Group C parameters ("...inadequate or lack of human data.") are listed as carcinogens on the table. The EPA has recently changed the status of the B-2 parameters beryllium and states "Beryllium-no longer considered human carcinogen..." (1993 USEPA Region IV document). Parameters in the B-2 and C categories in Circular 7 should be more closely evaluated before they are defined as carcinogens."

RESPONSE: EPA has been consulted on the status of Beryllium and, due to the conflicting positions within EPA on whether or not this parameter is a human carcinogen, the state standards should list Beryllium as a carcinogen until more information is obtained. The inclusion of possible carcinogens (Group C), probable carcinogens (Group B), as well as known carcinogens (Group A) is consistent with EPA requirements. Therefore, these categories will remain as proposed.

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23. COMMENT: Commentor 125 states that in the equations for acute and chronic toxicity a footnote should be added to the effect that, if water hardness is less than 25 mg/L, the hardness will be made equal to 25 mg/L.

RESPONSE: This change has been made in WQB-7. In addition, an upper limit of 400 mg/L has also been set so that the equation relating hardness to toxicity is limited to the range of data used to develop the relationship.

24. COMMENT: Commentor 38 states that in reviewing WQB-7, they found a number of what appear to be typographical errors, the circular should undergo one more thorough review.

RESPONSE: The values in WQB-7 have been thoroughly reviewed and are correct based on current information.

25. COMMENT: Commentor 49 asks the following: (1) what is the basis to determine what additional parameters to add to WQB-7, beyond those in the Gold Book; and (2) what is the criteria that was used to set the level of the standards?

RESPONSE: In addition to the parameters required by EPA pursuant to section 304(a) of the Federal Clean Water Act (i.e., the state's surface water quality standards), WQB-7 includes parameters for which the EPA has adopted drinking water standards and also includes standards currently listed in the state's surface water quality standards for which there are no EPA criteria. The criteria for setting current levels in WQB-7 were derived from "EPA Region VIII CWA Section 304(a) Criteria Chart Indicating Published Criteria and Updated Human Health Values" (dated July 1, 1993). EPA's drinking water standards, and existing state standards.

26. COMMENT: Commentor 68 states that any changes in WQB-7 must go through the normal rulemaking process.

RESPONSE: Any changes in WQB-7 will be made in accordance with the requirements of § 2-4-307, MCA, which authorizes adoption by reference of certain publications.

27. COMMENT: Commentor 115 states that many of the values in WQB-7 are not consistent with EPA criteria, including Aldrin, Endosulfan, Endrin, Heptachlor, Heptachlor Epoxide, and Gamma-benzachlorocyclohexane.

RESPONSE: The values in WQB-7 for all parameters are consistent with current EPA criteria.

28. COMMENT: Commentor 125 suggests that due to the recent development of Circular WQB-7, there has not been sufficient time to evaluate the implications of these newly imposed standards.

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RESPONSE: Of the 188 parameters in WQB-7, there are state-adopted standards for 135 of these parameters in the current standards. Of the remainder, 30 are required by EPA under section 304(a) of the federal Clean Water Act, and the remaining 23 are based on State drinking water standards.

29. COMMENT: Commentor 125 states that some parameters in Circular WQB-7 are termed harmful (e.g., odor, temperature, and turbidity) but are defined as toxic by proposed Rule 11(18).

RESPONSE: This has been corrected in WQB-7.

30. COMMENT: Commentor 125 states that a minor problem in Circular WQB-7 is an inconsistency between the table, which lists metals as total recoverable and page 1, note 17 of WQB-7.

RESPONSE: Note 17 has been modified to clarify that surface water quality standards are based on total recoverable analyses. In contrast, the trigger values and reporting values for ground water are based on dissolved concentration analyses.

PROPOSED AMENDMENT OF RULES 16.20.601, 616-624, AND 641


31. COMMENT: Commentor 64 asks why the value is 300 for bioconcentration factor in defining "bioconcentrating parameters", what is the rationale or significance of a factor of 300?

RESPONSE: When the bioconcentration factor exceeds 300, the potential impact on human health from consumption of aquatic organisms exceeds that from consumption of water. Thus, there can be serious impacts to human health when the bioconcentration factor exceeds 300, even though the concentration of the parameter in the water is very low.


32. COMMENT: Commentor 94 suggested that the term "naturally occurring" in the surface water quality standards should be amended. The definition, as it now reads, results in adverse impacts to water quality from nonpoint sources and a lack of enforcement over these sources.

RESPONSE: The proposed rule changes are being made to update the state's surface water quality standards, not to address the regulatory control of nonpoint sources. More importantly, the definition of "naturally occurring" is derived from the definition of "natural" contained in § 75-5-306(2), MCA. The definition in the rule will not be changed as it is consistent with existing state law.


31. COMMENT: Commentor 115 states that WQB-7 should be reviewed annually and revised as necessary.

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RESPONSE: Section 75-5-301, MCA, of the Montana Water Quality Act requires the Department to review adopted standards at intervals not to exceed three years and to revise them as necessary. This review includes the standards adopted in WQB-7.

16.20.617 through 622 and 16.20.624 - CLASSIFICATION
34. COMMENT: Commentor 49 states that section (h)(i) and (ii) in 16.20.617 through 622 and 16.20.624 should be clarified due to the difference in terms proposed under those sections. Paragraph (h)(i) seems to indicate that effluent concentrations cannot exceed the MDHES WQB-7 standards. Yet paragraph (h)(ii) seems to indicate that instream concentrations for MPDES permits shall not be exceeded. Is it instream concentrations or effluent concentrations?

RESPONSE: Sections (h)(i) and (ii), read together with (i) of the above referenced classification rules, clearly indicate that (h)(i) refers to the waters, which indicates "instream concentrations", not "effluent concentrations". Therefore, no clarification in the rules is necessary.

16.20.623 - I CLASSIFICATION - PARAMETERS
35. COMMENT: Commentor 95 states that the regulated parameters in ARM 16.20.623 are different than those in the other rules establishing surface water standards. Is this deliberate?

RESPONSE: Yes. ARM 16.20.623 refers to the I classification of waters. The uses, and therefore the standards for waters within this classification, are different from the standards established to protect different uses in the other classifications.

PROPOSED ADOPTION OF NEW RULES AND REPEAL OF EXISTING RULES (NONDEG)
RULE I(1) - PURPOSE
36. COMMENT: Commentor 108 states that the term "limited circumstances" in Rule I is not clear and should be defined.

RESPONSE: The term is clear when read in conjunction with the requirements imposed by § 75-5-303, MCA, and the proposed rules. Section 75-5-303, MCA, allows degradation only upon a demonstration that there is no alternative treatment that would prevent degradation and upon a showing of economic and social importance. Since the rules describe the limited circumstances in which degradation is allowed, no further clarification in the rules is necessary.

RULE II - DEFINITIONS - FIRST PARAGRAPH UNNUMBERED
37. COMMENT: Commentor 95 states that in Rule II "indicates" should replace "states" because the context of a rule usually does not clearly state.

RESPONSE: The intent of using "states" is to clarify that the meanings provided under Rule II are controlling. If a particular rule expressly states that a different meaning is intended
for purposes of that rule, only then will the meaning differ from that given under the definition. The term "states" more clearly expresses the intent of the rule and will remain as proposed.

38. COMMENT: Commentor 95 states that the following terms should be defined in Rule II: surface water mixing zones, ground water mixing zones, intrinsic values, point sources, and nonpoint sources.

RESPONSE: Definitions for "mixing zone" and "point source" are found in the Water Quality Act and, therefore, will not be repeated in the proposed rules. Under Rule II, "nonpoint source" and "existence values" are defined. The term "intrinsic values" has been deleted from the rules and has been replaced with "existence values".

39. COMMENT: Commentor 104 states that degradation must be defined as a change which diminished or inhibits a use, thus, the limit for nitrogen should be the drinking water standard of 10 mg/l or slightly less at the property boundary.

RESPONSE: Degradation is defined in the statute and cannot be changed by rule. The definition, together with the policy, is intended to maintain existing high quality waters, not protect uses. Therefore, changing the definition to allow levels of contaminants to reach the standards, which are designed to protect uses, is inappropriate.

RULE II(3) - DEFINITIONS - DETECTABLE

40. COMMENT: Commentor 27 is DHES' proposal to change the definition of "detectable". The proposed change will clarify that this definition is to be used for determinations of significance, not for the establishment of monitoring requirements.

RESPONSE: It became apparent during the comment period that the use of the word "detectable" causes unnecessary confusion. Therefore, the proposal of DHES to modify this definition is not included in the final rule. "Detectable" has been replaced with "trigger value" to more clearly indicate that these values are to be used only as a "trigger" or "action" levels to determine if a given activity will cause degradation. In addition, many commentors pointed out the need for standards that can actually be detected under natural conditions. When the standards for a parameter are lower than the detection levels, enforcing the standards becomes problematic. In the response to comment 1, it is explained that standards should be set at effect levels, not at detection levels. However, WQB-7 has been modified to include a "reporting level". This is the detection level that must be achieved in reporting ambient or compliance monitoring results to the department. In addition WQB-7 includes a provision that higher detection levels may be used if it has been demonstrated that the higher detection levels will be less than 10% of the median levels in

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the sample.

41. COMMENT: Commentors 73 and 85 state that the levels used for determining "detectable" should be consistently and accurately achieved in normal laboratory practice.

RESPONSE: See Response 1.

42. COMMENT: Commentor 166 supports the department's proposed change to the definition of detectable.

RESPONSE: Comment noted.

43. COMMENT: Commentors 122 and 125 state that in Rule II the definition of "detectable" should be replaced with the definition of "Practical Quantification Level" (PQL). PQL is the lowest concentration of a parameter in water that can be reliably determined within specified limits of precision and accuracy by well-operated laboratories operating conditions using analytical methods described in 40 CFR 136. Commentor 125 further suggests adding a definition of "measurable increases", which measures increases in the values of a parameter using PQLs and 40 CFR 136.

RESPONSE: See Response Nos. 6 and 7.

RULE II(4) - DEFINITIONS - EXISTING WATER QUALITY

44. COMMENT: Commentors 73 and 93 state that the last half of Rule II(4) should be deleted so that the existing water quality would be the quality immediately prior to commencing a proposed activity.

RESPONSE: The nondegradation policy was enacted to protect existing high quality waters beginning in 1971 when the policy was first adopted. The definition of "existing water quality" is consistent with the purpose of the nondegradation policy, which is to maintain and improve the quality of water. Whenever water quality improved after 1971, the nondegradation policy has acted to protect that quality of water. Therefore, the definition of "existing high quality" will remain as proposed, as it protects the highest quality of water achieved since the policy's enactment in 1971.

45. COMMENT: Commentor 38 states that the rules contain no details explaining exactly how existing water quality will be determined. EPA expects the Water Quality Bureau to develop specific guidance in this area.

RESPONSE: Guidance will be developed for implementation of the rules when problems and issues related to implementation of the policy become more concrete. At that time, guidance will be developed to clarify procedures for implementation of the non-degradation policy. This guidance will likely be revised whenever necessary to address issues that arise during implementa-

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tion and to conform to any changes required by law.

RULE II(13) - DEFINITIONS - NEW OR INCREASED SOURCE

46. COMMENT: (1) Commentor 42, 43, 44, 45, 46, 73 and 88 request deletion of all language after "water right" in Rule II(13)(c) because any new water right will be subject to the Water Quality Act regardless. The change should be made to prevent conflicts between DNRC's administration of water rights and DHES' enforcement of the Water Quality Act. (2) A second sentence to exempt return flows from a valid water right should be included in this section. (3) Commentors 42, 43, 44, and 45 recommend that the term "activity" in the definition of "new or increased source" should be deleted and replaced with "discharge".

RESPONSE: (1) Section 13(c) makes it clear that only valid water rights existing prior to the effective date of the nondegradation law are excluded from the nondegradation requirements. The policy applies to any activity, such as the acquisition of a water right, that may degrade high quality waters. Furthermore, there is no authority under the Water Quality Act to exempt water rights acquired after the effective date from the nondegradation policy. Any potential conflicts that may arise between DNRC and DHES concerning their authority to administer programs is not an appropriate basis for the proposed exemption. Therefore, the requested change will not be made.

(2) Section 13(c)'s exclusion of valid water rights existing prior to April 29, 1993, is intended to include return flows of that water right. As this is a logical extension of the rule, no change to the proposed rule is necessary.

(3) SB 401 authorizes the board to adopt rules that will determine when an activity or class of activities is or is not degradation. The term "activity", as used in the proposed rule, is appropriate and will not be changed.

47. COMMENT: Commentors 26, 30 and 120 state that it is inappropriate for the legislation to apply only to new or increased sources, if such activities take place after April 29, 1993. The definition should include all new or increased sources occurring since 1971, the date of the state's original nondegradation policy.

RESPONSE: The nondegradation policy enacted in 1971 was amended by SB 401, which expressly states that it applies to applications received after the amendment's effective date of April 29, 1993. The law is clear that the new requirements and procedures established by SB 401 are to apply only to new or increased sources occurring after the effective date. New or increased sources occurring between July 1, 1971 and April 29, 1993, were subject to the requirements and procedures of the 1971 policy.

48. COMMENT: Commentors 32, 47, and 120 state that Rule II(13)(a) allows a "grand-fathering" of permitted and approved

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facilities, not currently discharging to state waters. As such, the rule does not comply with legislative intent to protect and maintain existing quality of state waters. This provision, by excluding future increases of discharge to state waters from the nondegradation policy, is allowing for substantial degradation of water, potentially up to the state’s water quality standards.

RESPONSE: While Rule II(13)(a) allows changes to water quality as a result of sources discharging under a permit or approval obtained prior to the enactment of the new law, the legislature never intended to subject those specific sources to the requirements of SB 401. This conclusion is based upon Section 10 of SB 401, discussions before the Senate Natural Resources Committee, and the comments of the legislators who appeared before the board in support of the proposed rules. Rule II(13)(a) will remain as proposed because it follows legislative intent in excluding such permitted discharges from the new law.

49. COMMENT: Commentors 44, 45 and 114 state that the definition of "new or increased source" allows retroactive application of the new nondegradation policy to nonpoint sources discharging prior to April 29, 1993, where management practices or mitigation measures have not been implemented. There was no intent that SB 401 apply retroactively, therefore, there is no statutory basis for this provision and it must be removed.

RESPONSE: The intent of Rule II(13)(b) is to clarify that nonpoint sources using practices that prevented impacts to water uses prior to the effective date of the new law were excluded from its requirements. Nonpoint sources have been and continue to be subject to the State’s nondegradation policy and water quality standards. It is not the intent of the rule, however, to require nonpoint sources that were in violation of the Water Quality Act prior to April 29, 1993, to seek authorization to degrade under SB 401. The rule will be changed to clarify the intent to exclude all nonpoint sources discharging prior to April 29, 1993, from the procedures of the new law.

50. COMMENT: Commentor 49 states that the definition of "new or increased source" needs to be expanded to show how parameters not currently included in M0DES permits will be considered for establishing the April 25, 1993 baseline. Will the department assume typical concentrations or require wastewater profiling?

RESPONSE: The details for determining the proper application of the term "new or increased source" will likely be established in implementation guidance to be developed at a later time. In regard to this question, some flexibility will be used in making these kinds of determinations. It is likely that the use of wastewater profiling or the use of typical concentrations on a case-by-case basis will be allowed.

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51. COMMENT: Commentors 73, 78, and 86 state that (a) and (b) of Rule II(13) fail to exclude from the definition of new or increased sources irrigation or other activities that did not require a water discharge permit prior to April 29, 1993. Further, a determination of what constitutes reasonable land, soil, and conservation practices is subjective. Therefore, (a) and (b) are contrary to legislative intent and must be deleted or modified.

RESPONSE: Nonpoint sources that were not required to obtain a discharge permit prior to April 29, 1993, are excluded from the requirements of SB 401 under Rule II(13)(b). Although the rule intended to exclude activities that did not require a permit prior to the enactment of SB 401, modifications will be made to address possible retroactive application as discussed in Response 49.

52. COMMENT: Commentor 78 asks whether Rule II(13)(c) exempts withdrawals of water pursuant to valid water rights with priority dates before April 29, 1993?

RESPONSE: Rule II(13)(c) recognizes the use of valid water rights existing prior to the effective date of the new nondegradation policy. Montana law prohibits the retroactive application of law where such application affects vested rights. Subsection (c), therefore, excludes valid water rights that have been obtained with a priority date prior to April 29, 1993, from the requirements of the new nondegradation policy.

53. COMMENT: Commentor 78 states that the water quality effects of new water rights are covered in § 85-2-311, MCA. These rules should be changed to reflect § 85-2-311, MCA.

RESPONSE: Section 85-2-311, MCA, provides water quality protection for prior appropriators and for holders of water discharge permits. The protection of water provided by § 85-2-311, MCA, is more closely associated with preventing degradation. The nondegradation policy applies to all activities with the potential to degrade high quality waters, regardless of whether or not those activities are subject to other laws or requirements. Because the water quality protection provided by § 85-2-311, MCA, does not address nondegradation, the rules will not be changed to exclude water rights obtained after April 29, 1993, on the basis of that provision.

RULE II(14) - DEFINITIONS - NONPOINT SOURCE

54. COMMENT: Commentor 39 points out that certain agricultural practices can minimize the effect of nonpoint source pollution from irrigation but only at the risk of becoming a point source and subject to nondegradation requirements. To encourage conservation practices that protect water quality, Commentor 39 suggests the following definition: "Management or Conservation practice" means a measure to control or minimize pollution of
ground and surface waters from a nonpoint source. Examples of such measures include, but are not limited to, revegetation of disturbed soils, grazing management to prevent overgrazing, contour farming, strip farming, protection of riparian areas, drainage control, and impoundments which detain surface runoff or irrigation return water for sediment control.

RESPONSE: The suggested definition may encourage practices that protect water quality and will be included in the rules.

55. COMMENT: Commentor 95 asks would the nitrates released from blasting with ANFO at a coal mine be a nonpoint source?

RESPONSE: Whether or not the release of nitrates described in this comment is a point or nonpoint source would be determined on a case-by-case basis. Nitrates released from coal mines are considered industrial wastes pursuant to § 75-5-103(10), MCA, and are subject to regulation under the Water Quality Act, including the nondegradation policy, if they are likely to contaminate state waters.

56. COMMENT: Commentor 95 states that disturbance of rock and soil should be considered nonpoint sources as long as they are not placed into a perennial stream.

RESPONSE: Wastes which are discharged to state waters via a discrete and discernible method of conveyance are considered point sources. If a rock or soil disturbance discharges to state water through a point source conveyance, then a discharge permit is required. In either case, if it results in degradation of state waters, the activity is required to undergo nondegradation review.

RULE II(15) - DEFINITIONS - OUTSTANDING RESOURCE WATERS

57. COMMENT: Commentor 26 states that "Outstanding Resource Waters" (ORW) should be amended to include state parks and wildlife areas as well as national facilities.

RESPONSE: The types of waters designated as ORWs in the proposed definition are identical to the ones included in the definition of "National Resource Waters (NRW)" currently found in ARM 16.20.701(5). The new definition simply maintains the status of waters currently listed as NRWs. The proposed addition of state parks and wildlife areas to the definition of ORWs will not be included in the final rule, as further expansion of waters currently designated NRW is not necessary for implementation of the nondegradation policy. Furthermore, additional public participation should be solicited before designating additional waters to this classification.

58. COMMENT: (1) Commentors 39, 42, 43, 44, 45, 51, 71, 85, 111, 112, 113, 114, and 125 state that the definition of "Outstanding Resource Waters" (ORW) is too broad. (2) Commentor 39 suggests using "federally designated wilderness areas" versus...
"national wilderness or primitive areas" to avoid ambiguities and uncertainty. (3) In addition, this definition, together with Rule III(2)(c), would provide a classification that absolutely prohibits degradation. There is no authorization in Section 75-5-303, MCA, for the board to absolutely prohibit degradation of high quality waters through a classification system.

RESPONSE: (1) As discussed in Response 57, the proposed definition of ORWs simply re-enacts the definition for waters currently designated as National Resource Waters (NRW) under the old nondegradation rules. See ARM 16.20.701(5). Since the proposed rule simply maintains the status quo for these waters currently protected under the old rule, the proposed definition is not overly broad in its application. (2) The term "federally designated wilderness areas" may provide less certainty than the proposed language. For this reason, the suggested change will not be made. See also Response 57. (3) The authority of the board to classify waters according to "their present and future most beneficial use" is found in § 75-5-301, MCA. There is nothing in that rulemaking authority which would prohibit the board from establishing a classification of waters that protects their outstanding ecological, recreational, or public water supply significance. The rule's absolute prohibition against degrading ORWs is designed to protect their most beneficial use, i.e., outstanding ecological, recreational, and public water supply significance.

59. COMMENT: Commentors 39, 112 and 125 believe that allowing the board to designate ORWs would provide an avenue for hampering a proposed development until a proposed ORW classification could be resolved.

RESPONSE: The designation of ORWs will occur through a rulemaking proceeding, which includes public comment and review by the legislative code committee under Title 2, Chapter 4, MCA. The ability of the public to participate by commenting on proposed rules for classifying waters as ORWs is no different than the adoption of any rule by the board. It is unlikely that a proposed project will be unduly delayed by this process. In addition, EPA's Region VIII "Guidance for Nondegradation Implementation" recommends a process for public nomination and participation in the designation of ORWs. The proposed rule follows this guidance.

60. COMMENT: Commentor 42 states that the second sentence of the ORW definition would allow the board to extend the absolute prohibition against degradation to any waters which the board finds to have outstanding ecological, recreational, or domestic water supply significance. This provision is beyond the board's authority and imposes a needless prohibition. Montana's water quality standards are already devised to protect all existing uses of water with a large safety factor. Given the protection provided by the standards, absolute prohibition
against degradation is superfluous.

RESPONSE: The intent of designating certain waters as ORWs and prohibiting their degradation is to provide a further level of protection for waters with outstanding significance than otherwise provided by the water quality standards. The protection provided to ORWs under the policy is not superfluous, because standards are designed to protect uses, not to maintain water quality that is better than the standards. See Response 58 for the authority of the board to provide this additional protection. For these reasons, the final rule will remain as proposed.

61. COMMENT: Commentor 73 states that if ORWs are kept in the rules, existing water storage and irrigation facilities and other areas approved for development should be excluded from the ORW designation.

RESPONSE: Generally, existing water storage and irrigation facilities and other areas approved for development by the department are excluded from the definition of "new or increased source". Therefore, their inclusion in the definition of ORW will have no impact until such time as those facilities request a new or increased discharge.

62. COMMENT: Commentors 68, 73, 74 and 112 state that the designation of ORWs by the board requires legislative approval. At a minimum, these designations require guidelines or criteria before a water is classified an ORW.

RESPONSE: The legislature has authorized the board to adopt rules establishing the classification of all waters according to their most beneficial use pursuant to § 75-5-301, MCA. Further legislative approval is not necessary for the board to classify waters with outstanding ecological, recreational, and public water supply significance as ORWs. See Response 58.

63. COMMENT: Commentor 83 states that these rules should include a procedure for establishing ORW's.

RESPONSE: The procedures for designating ORWs will conform to the requirements under Title 2, Chapter 4, MCA, regarding agency rule making. The inclusion of these procedures in the non-degradation rules is not necessary for implementation of the policy. Therefore, no change in the proposed rules will be made in response to this comment.

64. COMMENT: Commentors 88, 122, and 125 state that the last sentence of the ORW definition should be deleted and, thus, maintain the status quo.

RESPONSE: The proposed rule maintains the status quo because it does not require the addition of any waters to the status of ORW other than those currently designated as such under ARM 15-8/11/94 Montana Administrative Register
Although additional ORWs are not required, the rule does provide for such additions. This provision conforms to the requirements of 40 CFR 131.12(3), which requires states to establish a classification for waters determined to have outstanding ecological or recreational significance. Since the proposed rule is consistent with federal requirements, the requested deletion from the rule will not be made.

COMMENT: Commentor 93 states that outstanding ecological or recreational significance is too vague.

RESPONSE: Until further rulemaking or guidance is developed for the designation of ORWs, these terms will be defined on a case-by-case basis through hearings before the board requesting the ORW classification for specific waters.

COMMENT: Commentators 44, 45, and 113 state that the rule goes beyond the federal requirements under the Clean Water Act (CWA). They suggest that the State should not voluntarily designate ORWs until and unless the CWA is amended to require such designations.

RESPONSE: The federal antidegradation requirements are not found in the CWA, but are established at 40 CFR 131.12. This section requires states to adopt a nondegradation policy consistent with its requirements. If the policy does not meet federal requirements, EPA must disapprove those portions of the policy not in conformance with those requirements and then promulgate federal rules for state implementation. Given this requirement, it is irrelevant that amendments to the CWA regarding ORWs may or may not be adopted. The proposed rule will not be changed because it meets federal requirements and does not go beyond those requirements.

RULE 11(18) - DEFINITIONS - TOXIC PARAMETERS

COMMENT: Commentor 39 states that the proposed definition of "Toxic Parameters" refers to Circular WQB-7, and the water quality standards. Also there are several parameters noted in the surface water standards which have numerical limits that have nothing to do with toxicity, such as coliforms, dissolved oxygen, pH, turbidity, temperature and color. It is suggested that this definition be revised to delete the references to surface and ground water standards.

RESPONSE: The categorization of parameters as "harmful", "toxic", or "carcinogenic" is necessary to comply with the requirement that "greater significance be associated with parameters that bioaccumulate or biomagnify". Changes in the definition of "toxic parameters" have been made to clarify its application. See also Response 29.

COMMENT: Commentor 125 states that, by reference to ARM 16.20.601 and 16.20.1001, the definition of "toxic parameters" results in classification of temperature, pH, dissolved oxygen,
color, coliforms, odor, turbidity, and specific conductance as toxic parameters. This is inconsistent with Circular 7 and probably is not the intent of the Department. This definition should delete everything after the words "... Circular 7."

RESPONSE: This was not the intent of the proposed rule and the final definition of "toxic parameters" will be changed.

RULE II - DEFINITIONS - GENERAL
69. COMMENT: Commentor 120 states that "significant" and "non-significant" degradation should be defined in the rules. This would help to limit the unjustifiable and perhaps illegal discretion the board is trying to secure through its categorical exclusions. The commentor suggests that "significant" degradation must include the granting of a mixing zone.

RESPONSE: Degradation has been defined statutorily to include any change in water quality except those changes determined nonsignificant under rules adopted by the board. The board's rule making authority requires the adoption of criteria for determining what activities or classes of activities are nonsignificant. Simply defining "significant" or "nonsignificant" degradation would conflict with the requirement to adopt criteria. Finally, the proposed definitions would conflict with the statutory definition of degradation, which includes any change in water quality whether significant or not, except for those activities determined nonsignificant by the board. The use of mixing zones will be established under a separate rule making proceeding and does not need to be addressed here.

70. COMMENT: Commentor 125 states that the term "measurable increase" should be added to the definitions as follows: "Measurable Increase" means an increase in the value of a parameter at a 99% level of confidence using PQL's and using analytical methods described in 40 CFR 136.

RESPONSE: The suggested changes to WQR-7 and the replacement of "detectable" with "trigger values" have satisfied this concern.

71. COMMENT: Commentor 126 states that in order to allow for annual stream variations the term "detectable increase" is proposed. "Detectable increase" is a statistically significant increase in the concentration of a parameter at a 90% confidence level, that the mean of the sample set is greater than the mean of the base line samples.

RESPONSE: See Responses 6, 7 and 70.

RULE III(2)[a] - NONDEGRADATION POLICY - EXISTING AND ANTICIPATED USES
72. COMMENT: Commentor 18 states that EPA suggests an additional step in which the state would first confirm that uses designated in the water quality standards rule include all existing
uses. We suggest the process explained in the EPA Region VIII guidance, which begins with confirmation that existing uses are appropriately designated in standards, be included in the proposed rule or addressed in more detailed implementation guidance.

RESPONSE: This process does not need to be included in the proposed rule because the uses designated in the classification standards (except for Class I surface waters) include all possible uses.

73. COMMENT: Commentor 93 states that "anticipated uses" should be changed to "anticipated activities" and then defined.

RESPONSE: Rule III establishes the level of protection the department must apply to protect the quality of state waters pursuant to § 75-5-303(1) and 75-5-303(3)(c), MCA. Those sections require the protection of existing and anticipated uses of state waters. The rule will not be changed as suggested because the statute requires the protection of "uses", not "activities".

RULE III(2)(b) - NONDEGRADATION POLICY - HIGH QUALITY WATERS

74. COMMENT: Commentors 4, 8, 11, 13, 14, 15, 16, 18, 19, 22, 26, 30, 31, 33, 36, 38, 40, 47, and 60 state that Montana's high quality waters are of utmost importance to the state and everything possible should be done to prevent degradation of those valuable resources. To do otherwise would be shortsighted.

RESPONSE: The proposed rules are intended to implement the requirements for the protection of high quality waters legislatively imposed under SB 401. To the extent that the rules conform to those requirements, the degree of protection authorized by the new legislation has been achieved.

75. COMMENT: Commentors 6, 15, 47, and 130 state that the type of activities considered as "nonsignificant" should be limited to those commonly accepted as temporary and inconsequential.

RESPONSE: Section 75-5-301(5)(c) authorizes the board to adopt criteria for determining nonsignificant activities by considering a number of various factors. The duration of the activity causing degradation is only one among several factors to be considered in establishing these criteria. The proposed rules have been developed after consideration of all the factors provided in the rulemaking authority. Therefore, the proposed rules will not be changed to allow only activities that are short term.

76. COMMENT: Commentors 39 and 125 suggest Rule III(2)(b) should be revised to read "any bioconcentrating, carcinogenic, harmful or toxic parameter listed in Circular WQB-7." If a parameter does not fall into one of these categories, is a...
change reasonably considered degradation?

RESPONSE: Section 75.5.103(4), MCA, defines degradation as "a change in water quality that lowers the quality of high-quality water for a parameter". High quality waters are defined as those waters whose existing quality is better than the state's water quality standards. Therefore, a change in water quality that lowers the quality of "high quality waters" can only occur by reference to the parameters in WQB-7 or other state water quality standards.

77. COMMENT: Commentors 39, 42, 44, 45, and 125 state that Rule III(2)(b) should be changed to delete the phrase "there have been achieved". It would be more workable if revised to: "If degradation of high quality waters is allowed, the department will assure compliance with Montana statutory and regulatory requirements for point and nonpoint sources in the USGS Hydrologic Unit upstream of the proposed project."

Another alternative would be to replace the phrase "there have been achieved", with "there shall be achieved". Without this or a similar change a comprehensive audit of the hydrologic unit upstream would be necessary.

RESPONSE: The language "there shall be achieved" is specified in the federal requirements for states' nondegradation policies at 40 CFR 131.12(2). In order to be consistent with the federal requirements, the suggested change from "there have been achieved" to "there shall be achieved" has been made in the final rule.

78. COMMENT: Commentors 73 and 111 state that the requirement in the final sentence of Rule III(2)(b) regarding achievement of the 'the highest statutory and regulatory requirements...." should be deleted because it is beyond the board's rulemaking authority and is technically and economically unfeasible.

RESPONSE: The board's rule making authority for implementing SB 401 is contained in § 75.5-301(5) and 75.5-303(7). These sections authorize the board to adopt rules "...implementing the nondegradation policy". The requirement for achieving the highest statutory and regulatory requirements is required for all states' nondegradation policies pursuant to 40 CFR 131.12(2). This requirement is necessary to implement the state's nondegradation policy because the policy must comply with federal requirements in order to be approved by EPA. See also, Response 80. Therefore, the rule will remain as proposed.

79. COMMENT: Commentors 74, 78, and 88 state that "The department will assure that within the USGS Hydrologic Unit upstream of the proposed activity...." should have the following language added "This assurance will be achieved through the ongoing administration by the department of the existing permits and programs for control of point and nonpoint source discharges."
This subsection does not require an audit of upstream sources as a condition of allowance of degradation by a new or increased source.

RESPONSE: The intent of the proposed rule is to require a review of existing permits and programs to ensure compliance before degradation is allowed in conformance with 40 CFR 131.12(2). EPA rules require some accounting, whether or not it is considered an audit, for loads within the basin in terms of both point and nonpoint sources in order to determine existing quality as well as compliance with regulatory requirements. The proposed language will not be used because it may unnecessarily preclude some future use of a broader based assessment of water quality than currently provided by existing permits and nonpoint source programs.

80. COMMENT: Commentor 112 states that Rule III(2)(b) could cause a nightmare of expenses and delays.

RESPONSE: Rule III(2)(b), together with the definition of "highest statutory and regulatory requirements" allows the department to authorize degradation provided all requirements of the Water Quality Act are being met. For those sources found to be in noncompliance, degradation may be allowed only if compliance schedules, for purposes of MPDES permits, are in place or a plan that assures compliance over nonpoint sources has been developed. While there may be some delay due to this requirement, the implementation of this rule will be guided by a standard of "reasonableness".

RULE III(2)(c) - NONDEGRADATION POLICY - OUTSTANDING RESOURCE WATERS

81. COMMENT: Commentor 38 states that Rule III ensures that the water quality of designated Outstanding Resource Waters (ORWs) will be maintained and protected. This is consistent with the federal requirements. We believe it would be worthwhile to include additional detail explaining how the prohibition would be accomplished in practice.

RESPONSE: The plain prohibition in Rule III against the degradation of ORWs is self explanatory. Therefore, no further procedures are necessary to implement the prohibition. Information submitted by the applicant will be reviewed in accordance with the proposed rules to determine the effect on downstream ORWs and will be denied whenever degradation of an ORW would occur.

82. COMMENT: Commentors 40 and 47 ask that in Rule III (2)(c) a method to allow for petitioning to establish outstanding resource waters be inserted, as it was in previous drafts of the rules.

RESPONSE: The Montana Administrative Procedure Act (MAPA) at § 2-4-315, MCA, provides that any interested person may petition Montana Administrative Register 15-8/11/94
an agency requesting the repeal, amendment, or promulgation of a rule. The ability of a person to petition for a rulemaking is independent of department procedures for implementing the nondegradation policy. Therefore, the requested reference to MAPA will not be included in the proposed rules.

83. COMMENT: Commentors 88 and 114 state that reference to ORW in Rule III(2)(c) be deleted until the concept is further defined in the federal clean water act.

RESPONSE: Rules adopted by EPA set requirements for States' nondegradation policies. Included in this is a requirement for a class of waters that are generally referred to as outstanding resource waters (ORWs). Pursuant to 40 CFR 131.12, no degradation can be allowed in ORWs. While the OWA at this time does not contain requirements for ORWs, the State remains subject to the federal requirements for states' nondegradation policies at 40 CFR 131.12. Therefore, the rules pertaining to ORWs will not be deleted.

RULE III - NONDEGRADATION POLICY - COMPLIANCE

84. COMMENT: Commentors 88 and 114 state that reference to ORW in Rule III(2)(c) be deleted until the concept is further defined in the federal clean water act.

RESPONSE: Time frames and procedures for agency compliance with the Montana Environmental Policy Act (MEPA) are established in DHEP Procedural Rules (ARM 16.2.601 at seq.) and are not repeated here.

RULE III - NONDEGRADATION POLICY - GENERAL LIMITATION

85. COMMENT: Commentors 5, 6, 15, and 130 state that additional polluting activities should not be allowed in any watershed that already exceeds the standards for any one pollutant.

RESPONSE: A prohibition against allowing degradation in a watershed that exceeds the standard for one pollutant in contrary to the purpose of the nondegradation policy. The policy is intended to protect high quality waters on a parameter-by-parameter basis. A watershed may have water quality that is worse than the standards for one parameter, yet be higher than the standards for all other parameters. In this situation, § 75-5-303, MCA, authorizes the department to allow degradation, if the requirements of the policy are met.

86. COMMENT: Commentors 67, 87, 88, 109, 110, 111, and 117 state that all degradation is significant.

RESPONSE: The legislature specifically recognized the concept of nonsignificant changes to water quality, which are not considered degradation in § 75-5-103(4), MCA. In addition, the rulemaking authority of the board requires the adoption of criteria to determine which activities would result in nonsignificant changes. Therefore, the rules will remain as proposed.

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87. COMMENT: Commentor 97 states that there should be no degradation, the cost of preventing degradation should be part of the cost of doing business, otherwise the cost of lowered water quality are paid by the public.

RESPONSE: The legislature enacted SB 401, which expressly authorizes the department to allow degradation provided all the requirements in § 75-5-303, MCA, are met. To adopt rules prohibiting any degradation would conflict with the intent of the legislature as expressed in the Water Quality Act and the statement of intent for SB 401.

88. COMMENT: Commentor 105 states that there should be no degradation allowed until and unless we have comprehensive water conservation policies.

RESPONSE: The development and enactment of a comprehensive water conservation policy is beyond the scope of this rule making. The rulemaking authority for the proposed rules is specifically limited to the implementation of SB 401. Moreover, the effective date of the Act on April 25, 1993, does not allow for a moratorium on the implementation of the policy. Consequently, delay in the adoption of these rules or the implementation of the policy is not warranted.

89. COMMENT: Commentor 69 states that because the department is subject to pressure from industry, the department should not be able to propose rules for determinations of significance.

RESPONSE: Although the department has developed the rules, the board is the entity authorized to adopt the rules. The rules adopted by the board are subject to public comment and the requirement that a concise statement of reasons for and against the adoption of a rule must be provided. This process ensures that the rationale for adopting a rule is available to the public and that all comments received by the agency have been fully considered.

RULE IV(11) - SIGNIFICANCE REVIEW - SELF DETERMINATION

90. COMMENT: Commentors 17, 26, 30, 32, and 40 state that the DHSS should look at the potential for unlawful delegation of authority associated with "self determination" provisions of the proposed rules.

RESPONSE: It is clear that the department has the responsibility for enforcing the nondegradation policy, yet there is no clear statutory requirement that the department make determinations of significance. More importantly, the rules do not delegate the department's authority by allowing an individual determination of significance to preempt a conflicting determination by the department. The rules simply set criteria that allow the department or individual to assess whether or not a proposed change in water quality reaches the level of degradation. Ultimately, it is the responsibility of the individual.
not to cause degradation unless authorized by the department. For these reasons, the rules are not an unlawful delegation and will remain as proposed.

91. COMMENT: Commentor 17 states that the DHES should attempt to develop clear, concise language in proposed Rule IV(l) that will allow the general public to make informed and reasonable significance determinations. The rule could be supplemented by educational materials prepared by DHES. Additionally, the DHES should consider listing activities that either are or are not suitable for self determination.

RESPONSE: The proposed rules, although technical in nature, are consistent with the guidance in § 75-5-301(5)(c), MCA. While the proposed rules may be difficult for an individual to use to make an informed determination, each individual has the option of requesting a determination from the department. Lists of activities that are clearly nonsignificant have been developed in Rule VIII. Implementation guidance may be developed that will assist individual determinations. At this time, however, no further changes to the rules will be made.

92. COMMENT: Commentor 32 states that the self determination portions of the rule weaken the legislation. The department should be required to review an application for nonsignificance for all department permits and approvals. To allow a mining company or a land developer to make the determination without DHES review renders the rule ineffectual and contrary to the intent of the legislature.

RESPONSE: All activities requiring a department permit or approval will be reviewed for significance by the department. As far as the objection to self determinations, the rules do not weaken the legislation, but are consistent with the responsibilities of the department as expressed in SB 401 and the Water Quality Act. See Response 90.

93. COMMENT: Commentor 68 states that a provision for self determination of significance is necessary.

RESPONSE: Comment noted.

94. COMMENT: Commentor 83 states that self determination of significance should not be allowed, particularly in view of the definitions set out in Rule VIII.

RESPONSE: See Response 90.

95. COMMENT: Commentor 98 states that Rule IV(l) requires the initial self-determination to consider all 188 parameters in WQB-7. This is too big a burden. The cost for complete analyses is about $3,000. Must each person know what the levels of each of the 188 parameters are in the proposed discharge?
RESPONSE: Generally, a discharger knows what is likely to be present in their discharge, and the rules do not require an individual to test for all of the parameters in WQ8-7 for determinations of nonsignificance. Rule IV(1) allows a person to make this determination by using the criteria for nonsignificance provided under Rules VII and VIII. If the activity is categorically excluded under Rule VIII, generally there would be no need to test for any parameters. As indicated in Response 91, guidance may be developed for using the criteria in Rule VII.

96. COMMENT: Commentator 106 states that Rule IV(1) needs to clarify the different processes available for determining nonsignificance. This Commentor suggests that the latter portion of that rule should state: "A person may either: (a) determine for themselves using the standards contained in [Rules VII and VIII] that the proposed activity will not cause significant changes in water quality as defined in Rule III, or (b) submit an application to the Department pursuant to (2) below, for the department to make the determination."

RESPONSE: Modification of Rule IV(1) has been made to clarify the rule.

97. COMMENT: Commentator 106 supports the concept of self determinations but suggests that there is a significant difference in procedures for departmental determinations and self evaluations, because there is no departmental or public review of self-determinations. This commentator finds that some type of reporting needs to be required to assure consistency and to hold accountable those making improper evaluations. Without a reporting system, it will be impossible to track cumulative impacts.

RESPONSE: The intent expressed in the nondegradation policy is to remove activities considered nonsignificant from departmental review and regulation. While the board is required to adopt criteria for making these determinations, it is the responsibility of the individual, not the department, to assure that their activities will not degrade state waters. The individual may either make this determination or request departmental review. A reporting system might help the department track cumulative effects, but it adds a burden on limited government resources that is not required under the law. Therefore, the rules will not be changed to require additional reporting.

98. COMMENT: Commentator 50 states that since the inception of the proposed rules by the agency, our association has objected to the procedures proposed by the department, which place the burden of proof on the individual for determining whether a proposed activity is "nonsignificant". In our opinion this is a function of the agency.

RESPONSE: The proposed rules give the individual a choice of either making their own determination or requesting a determin-

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nation from the department. No change to the rules is necessary because the burden for making a self determination is optional.

RULE IV(2)(d) - SIGNIFICANCE REVIEW - WATER QUALITY ANALYSIS

99. COMMENT: Commentor 64 states that in Rule IV(2)(d) the idea of "including natural variations" is good and reasonable, however, it is too vague as stated to be useful guidance. To what degree are natural variations to be quantified, and what is the time frame of most interest - diurnal, daily, weekly, seasonal, annual, inter-annual, etc.?

RESPONSE: The development of implementation guidance, as discussed throughout these responses, may be necessary to flesh out the details of these determinations. Best professional judgment will be used to make these determinations, when in doubt applicants should consult with the department.

100. COMMENT: Commentor 94 states that significance determinations under Rule VII depend on monitoring for various parameters. The rule is deficient because it does not adequately address monitoring requirements such as, required baseline data, collection duration, frequency, locations, required detection levels, statistical methods etc. To simplify the process, it would be better to treat toxics in the same manner as carcinogens.

RESPONSE: The development of implementation guidance, as discussed throughout these responses, may be necessary to flesh out the details of these determinations of nonsignificance. Further, while it might be simpler to treat toxic parameters as carcinogens, it would not be consistent with legislative guidance under the rule making authority. Criteria for determinations of significance must be based upon harm to human health or the environment, pursuant to Section 75-5-301(5)(e), MCA. Therefore, no change in the proposed rule will be made.

101. COMMENT: Commentor 96 states that the wording "any downstream waters" in Rule IV(2)(d) is too open ended and should be better defined so that the applicant will know the department's sampling requirements and assessment of seasonal variations on a previously unsampled stream.

RESPONSE: "Any downstream waters" has been modified in the final rule to clarify the rule's application.

RULE IV(3) - SIGNIFICANCE REVIEW - 60 DAYS

102. COMMENT: Commentor 10 states that if it is determined that MDT will degrade the water (after a 60 day process), a degradation application has to be completed. DHEC has 180 days to authorize or deny the permit. This could present some obvious problems.

RESPONSE: The time frames established for departmental deci-
sions on significance and on a complete application to degrade are based upon a reasonable estimate of the time it would take to review the information and make an informed decision. Given limited agency resources, it would not be prudent to require a shorter period for agency determinations.

103. COMMENT: Commentors 17, 19, 22, 33, 34, 40, and 47 state that the DHES should examine the potential for allowing public comment on DHES significance decisions. The DHES should analyze the adequacy of allowing for this public comment through the public comment process involved with other DHES permit decisions associated with the activity, or through the formal public comment process for the nondegradation rules themselves. It is not the intent that allowing for public comment unreasonably increase the time frame for a DHES significance determination.

RESPONSE: For all permitted activities, the public will have the opportunity to review and comment on all significance determinations made by the department through the normal permitting process. That is, discharge permits must include a statement of basis that will include the basis for agency decisions on significance. For unpermitted activities, there is no existing framework for public comment. The opportunity for public comment on agency determinations of significance for unpermitted activities is through this rulemaking proceeding. Finally, the definition of degradation and the plain language of § 75-5-303, MCA, indicate that activities found to be nonsignificant under rules adopted by the board are not subject to the nondegradation law and the requirements for public review of agency decisions provided in § 75-5-303(4), MCA.

104. COMMENT: Commentor 17 states that the DHES should develop a mechanism to ensure that requests for significance determinations are acted on in a timely manner.

RESPONSE: Within the limits of its resources, the department will process all requests for significance determinations within the time frames established by these rules.

105. COMMENT: Commentors 67 and 83 state that if there is public interest, there should be a public hearing on nonsignificance determinations.

RESPONSE: See Response 103.

106. COMMENT: Commentor 73 states that the time frames in Rules IV(3)(11), V(7), and VI(4)(6) should be trimmed to the maximum extent possible.

RESPONSE: The time frames in the proposed rules reflect a realistic assessment of agency resources. These time frames may be shortened if work load and resources permit. In addition, the time for public comment under Rule VI(4) will depend on the
complexity of the project and public interest.

107. COMMENT: Commentor 89 states that while self determination is reasonable, the department needs to track all such determinations, this can be done by requiring that the department must be notified of each self determination.

RESPONSE: See Response 97.

108. COMMENT: Commentor 95 asks if DHES determines that an activity is nonsignificant is no further review necessary? If so, this should be stated.

RESPONSE: There is no requirement in the rules for further submission of an application or agency review once a determination has been made that an activity is nonsignificant. Therefore, no change in the rules is necessary, as the rules clearly specify that only activities that are likely to degrade state waters need authorization to degrade from the department.

109. COMMENT: Commentor 9 states that the rules should state that uses categorized as nonsignificant are not subject to retroactive agency review.

RESPONSE: The categorical exclusions for nonsignificant activities are listed in Rule VIII and excluded from application of SB 401 under Rule II(13)(d). For pre-existing water rights, those activities or uses are excluded under the definition of "new or increased source" in Rule II(13)(c). No further exclusions or clarifications in the rules are necessary.

RULE IV(4) - SIGNIFICANCE REVIEW - MONITORING

110. COMMENT: Commentor 111 states that Rule IV(4) should be deleted. If there is no degradation, monitoring cannot be required.

RESPONSE: § 75-5-602, MCA, authorizes the department to require monitoring "in order to carry out the objectives of this chapter [i.e., Water Quality Act]." The rule serves to notify the individual of this authority as well as allow the department to determine that an activity is nonsignificant without requiring irrefutable evidence from the applicant. If there is some question on the water quality impacts of an activity found to be nonsignificant, then additional monitoring may be required to carry out the objectives of the nondegradation policy. The rule will remain as proposed for the reasons given above.

RULE IV(4-5) - SIGNIFICANCE/AUTHORIZATION REVIEW

111. COMMENT: Commentor 95 asks whether "significant" should precede "degradation" in (4) and (5) of Rule IV.

RESPONSE: Degradation is defined in the Water Quality Act to mean any change in water quality except for those changes that are nonsignificant. Any change that is not considered nonsignificant is significant.
significant is degradation. There is no authority in the law for
distinguishing various degrees of degradation once the activity
is considered degradation. Therefore, the suggested change will
not be made.

**RULE IV(5) - AUTHORIZATION REVIEW - APPLICATIONS & FEES**

112. **COMMENT:** Commentors 30 and 32 state that the rules should include some fees for application review and compliance moni-
toring on larger development actions.

**RESPONSE:** The proposed rules implement the nondegradation poli-
cy under the authority of § 75-5-301 and 303, MCA. That au-
thority does not include authority to promulgate rules for the
assessment of fees. Rules adopted by the board pursuant to §
75-5-516, MCA, however, do provide for the assessment of fees
for nondegradation review.

113. **COMMENT:** Commentor 117 states that all applications to
degrade should be widely publicized.

**RESPONSE:** The rules include provisions that require public
notice and opportunity to comment on all applications to de-
grade. The rules require the department to issue a preliminary
decision accompanied by a statement of basis explaining the
basis for the decision pursuant to Rule VI(4). No further chan-
ges to the rules are necessary to provide an opportunity for
public involvement.

**RULE IV(6) - AUTHORIZATION REVIEW - NO ALTERNATIVES**

114. **COMMENT:** Commentor 19 states that the lack of economi-
cally, environmentally, or technologically feasible alternative to
allowing degradation should be a last drastic resort employed in
the most dire circumstances where the benefits to mankind so
far outweigh the value of the high quality water.

**RESPONSE:** The nondegradation policy allows the department to
authorize degradation, if the applicant shows by a preponder-
ance of the evidence that the requirements of § 75-5-303, MCA,
are met. The proposed rules implement this requirement. The
suggested change will not be made because it would shift the
burden to a higher standard than that provided by statute.

115. **COMMENT:** Commentors 22 and 67 state that the rules should
require best available pollution control technologies including
source reduction.

**RESPONSE:** The rules require that water quality protection prac-
tices be implemented if degradation is allowed by the depart-
ment. Those practices include pollution control technologies,
which would include source reduction.

**RULE IV(6) - AUTHORIZATION REVIEW - GENERAL**

116. **COMMENT:** Commentor 95 states that implementation guid-
elines should be developed as soon as possible, especially for

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Rule IV(6).

RESPONSE: As discussed throughout these responses, implementation guidance may be developed to assist agency decisions and inform the regulated community of the details of nondegradation review.

RULE IV(6)(i) - AUTHORIZATION REVIEW - GROUND WATER FLOW
117. COMMENT: Commentor 10 suggests the compliance with the requirement of Rule IV(6)(i), regarding an analysis of ground water flow and water bearing characteristics of subsurface materials and the rate and direction of ground water flow, is not feasible due to their limitation of conducting projects within a public right-of-way.

RESPONSE: It is possible that this analysis cannot be provided, if restricted to the boundaries of a particular area owned or controlled by an applicant. When determined necessary, additional information outside the area owned or controlled by the applicant will be required. If it cannot be obtained, the applicant may have to adjust the project or activity to ensure no degradation would occur.

RULE IV(6)(j) - AUTHORIZATION REVIEW - CUMULATIVE EFFECTS
118. COMMENT: Commentor 10 states that it will not be feasible to assess cumulative effects as required by Rule IV(6)(j) without baseline quality information. Gathering the necessary data could take years. The rules do not discuss what will be required to avoid postponing projects.

RESPONSE: In some cases, it may not be feasible to assess cumulative impacts without baseline quality information. It is true that gathering such information could delay projects, but such information is necessary in order to make an informed decision before allowing an applicant to degrade state waters. The suggested language specifying how to avoid delay will not be included in the rules due to circumstances when delay may be inevitable.

119. COMMENT: Commentor 130 states that discharges should not be allowed where the effect of multiple discharges will create a cumulative effect that is detrimental to the potential recreational uses of the resource.

RESPONSE: Both the water quality standards and the nondegradation policy protect existing uses of a particular water body. In addition, the nondegradation policy protects anticipated uses, such as a potential recreational use. The final rules allow a consideration of cumulative impacts during the department’s initial determination of significance. No further change in the rules is necessary to address this concern.

RULE IV(7)(a)(i) - AUTHORIZATION REVIEW - ECONOMIC DEVELOPMENT
120. COMMENT: Commentor 94 states that the only important eco-
nomic or social development is that which is sustainable, this should be reflected in Rule IV(7)(a)(i) by adding "important sustainable economic or social development".

RESPONSE: § 75-5-303, MCA, does not require a showing that the social and economic development also be sustainable. The factors for demonstrating social and economic importance are broad enough to include the concept of sustainability in the analysis. Therefore, no change is necessary.

RULE IV(7)(b) - AUTHORIZATION REVIEW - ECONOMIC AND SOCIAL FACTORS
121. COMMENT: Commentor 26 states that in Rule IV(7)(b) the factors for determining whether or not a proposed activity may result in an important economic or social development should be mandatory, requiring the replacement of the word "may" with "shall".

RESPONSE: The proposed rule provides a non-exclusive list of factors that would be considered by the department in an economic and social analysis. It is the burden of the applicant, however, to provide an analysis that clearly demonstrates the importance of the project. It is to their advantage to supply as comprehensive an analysis as possible. It is not necessary or appropriate to require the applicant to provide an analysis that includes all the factors. Therefore, the suggested change will not be made.

RULE IV(7)(b) [vii - ix] - AUTHORIZATION REVIEW - VALUES
122. COMMENT: Commentor 107 has objected to the procedures used to weigh the factors in this section because those procedures and factors are not consistent with well-established theories and practices of economics. Commentor 107 has proposed changes for clarity and precision that are too extensive to set forth in the comments, but have been included in the final rule and will not be repeated here. In addition, Commentors 39, 42, and 43 state that Rule IV and Rule V refer to "intrinsic values", "opportunity values" and "social or cultural values" as factors to be considered. These are qualitative value judgments. None of the WQB staff have the necessary expertise to make such evaluations, therefore, evaluation of the data would have to be contracted out of the department. They also state that there is not statutory guidance regarding how to evaluate or weigh discernible differences. The applicant should be required to submit only that information which can be quantified, and hence, these items should be deleted along with "resource utilization and depletion".

RESPONSE: The suggested changes in those portions of the rules containing requirements for a determination of economic and social importance have been completely rewritten based on the suggested changes submitted by Commentor 107. This includes changes in terms to be consistent with economic practices. "Intrinsic values" has been replaced with "existence values".
and "opportunity values" has been replaces with "opportunity costs", both of which are defined in the rules. "Social and cultural values" were removed from the list of factors because those values are considered impacts and are not appropriate in a cost-benefit analysis. "Resource utilization and depletion" remains in the final rule as it is considered a cost to society resulting from the project.

The changes also include a method to weigh non-quantifiable factors, i.e., "qualitative value judgments", and a clear statement of the findings that must be made by the department before it may authorize degradation. These changes address many of the comments dealing with this section.

123. COMMENT: Commentors 73, 74, 78, and 114 state that subsections vii through ix in Rules IV(7)(b) and V(4)(b) are subjective and should be deleted.

RESPONSE: See Response 122.

RULE IV(8) - AUTHORIZATION REVIEW - PROTECTED USES

124. COMMENT: Commentor 95 asks whether the applicant determines their own mixing zone in Rule IV(8)(a)?

RESPONSE: The applicant must provide information demonstrating that the change will not result in a violation of standards outside of a mixing zone. The determination of the mixing zone provided by the applicant must conform to the requirements of the mixing zone rules.

125. COMMENT: Commentor 97 states that the applicants should not bear the cost of proving there is no effect on other uses.

RESPONSE: The informational requirements under Rule IV place the burden on the applicant to provide this type of information.

126. COMMENT: Commentors 109, 110, 120, and 130 state that mixing zones must be deleted from Rule IV(8)(a).

RESPONSE: Mixing zones are essential to the state's water quality program, particularly implementation of the nondegradation policy. If mixing zones were not allowed, all activities would either violate standards or cause degradation.

RULE IV(11) - AUTHORIZATION REVIEW - INCOMPLETENESS OF APPLICATION

127. COMMENT: Commentors 33, 34, 94, and 120 state that Rule IV (11) proposes during the completeness review that "in any review subsequent to the first, the department may not make a determination of incompleteness on the basis of a deficiency which could have been noted in the first review." While the intent here may be innocent, its application could be devastating to protecting water quality in an age of budget cuts and staff shortages. This language should be deleted.

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RESPONSE: Although the primary purpose of the rules is to protect high quality waters, the purpose of this particular rule is to ensure a timely review by the department by requiring that requests for supplemental information will not unduly delay the application process. Fees for nondegradation review should alleviate staff cut-backs. For these reasons, the requested change will not be made.

RULE IV - SIGNIFICANCE/AUTHORIZATION REVIEW - GENERAL
128. COMMENT: Commentor 35 states that the board is urged to amend Rule IV to ensure that the applicant has the financial ability and resources to carry out the water quality protection practices. Bonding should be considered.

RESPONSE: Rule IV(9) addresses the viability of the applicant. It is clearly not the intent to authorize degradation unless an applicant has the resources necessary to comply with the provisions of the authorization. There is currently no authority under the Water Quality Act to require bonding. Therefore, no change to the rule will be made.

129. COMMENT: Commentor 49 states that we would like it established for the record that no fees will be assessed for determinations of significance.

RESPONSE: The department's authority to require fees for reviewing applications to degrade does not include the authority to assess fees for determinations of significance. As this limitation is clearly in the law, there is no need to address it in the rules.

130. COMMENT: Commentor 80 states that too much of the cost of this process is being placed on the applicants. The citizens have a stake in clean water and should pay part of the costs.

RESPONSE: § 75-5-301(3) places the burden upon the applicant to demonstrate "by a preponderance of the evidence" that certain conditions will be met. The requested change would conflict with this statutory requirement and, therefore, will not be made.

131. COMMENT: Commentors 75 and 106 state that fees should be charged for determinations of significance.

RESPONSE: See Response 129.

RULE V(3)(a)(i-ii) - DEPARTMENT REVIEW - ECONOMIC DETERMINATION
132. COMMENT: Commentor 94 states that in Rule V(3)(a), regarding determinations of economic feasibility, (i) and (ii) appear to cancel each other out. If an alternative leaves room for profit, no matter how small, the alternative should be considered economically feasible.
RESPONSE: Subsection (i) does not conflict with (ii), but rather provides a presumption of economic feasibility whenever an alternative meets the conditions provided in that subsection. If an alternative cannot be presumed to be economically feasible under (i), then (ii) allows the department to consider other factors in determining the feasibility of an alternative. A rule that would deem an alternative economically feasible up to the point where the return in profits would be marginal does not allow the flexibility of the proposed rules. Therefore, the suggested change will not be made.

133. COMMENT: Commentor 93 states that the word "significant" should be inserted before "less degrading alternatives..." in Rule V(3)(a)(i)and(ii).

RESPONSE: It is unclear how the term "significant" is relevant to an evaluation of alternative water quality protection practices. Therefore, the suggested change will not be made.

RULE V(3)(b) - DEPARTMENT REVIEW - ENVIRONMENTAL DETERMINATION
134. COMMENT: Commentors 42 and 43 believe that Rule V(3)(b) is too subjective and unnecessary since the standards already protect public health. Commentor 42 suggests that economic feasibility requires comparisons of environmental impacts of the various alternatives to other environmental media and proposes the following change: "In order to determine the environmental feasibility of an alternative, the department will consider whether such alternative practices are available, and will compare the overall environmental impacts of the various alternatives and the commitment of resources necessary to achieve the alternatives and consistent with the protection of the environment and public health."

RESPONSE: The proposed rule is broad enough to include a comparison of environmental impacts of the various alternatives on other environmental media. The proposed change would require this analysis and would limit the subjectivity of the rule. Therefore, the suggested change clarifying this requirement will be made.

RULE V(4)(a) - DEPARTMENT REVIEW - ECONOMIC & SOCIAL FACTORS
135. COMMENT: Commentor 21 states that the rules should address the use of best engineering practices and standards so that the most economical and socially acceptable method of treatment will be obtained.

RESPONSE: Rule V(3)(c) requires an assessment of alternatives demonstrating technological feasibility based on accepted engineering principles. This assessment is part of the demonstration an applicant must make, which includes other factors such as economic and environmental feasibility. This approach should result in obtaining treatment methods that are both economically and socially acceptable and no further change in the rules is necessary to accomplish this objective.

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136. COMMENT: Commentor 94 states that in Rule V(4)(a)(i) "sustainable" should be inserted before "economic" and factors to address "sustainable" should be considered.

RESPONSE: See Response 120.

137. COMMENT: Commentor 102 asks the department to please keep in mind that any degradation is irreversible and affects more people negatively than the few it will benefit. Cumulative effects should be taken into account.

RESPONSE: Rule V addresses the concern that the department's decision must take into account the loss to society associated with a loss of water quality. Cumulative effects is addressed in Rule VII(2).

138. COMMENT: Commentor 93 states that the analysis called for in Rule V(4)(a)(ii) should be restricted to a finite period of time in which losses and costs to society can be reasonably estimated.

RESPONSE: The proposed rule allows the applicant to submit an analysis that evaluates the losses and costs to society resulting from the proposed project. The intent of the rule is to allow the applicant to prove his project is important on a reasonable analysis of factors provided in the rule. The suggested restriction will not be made because restricting the analysis to a definite period of time may make it more difficult for an applicant to prove the social and economic importance of the proposal.

RULE V(4)(b)(vii) & (viii) - DEPARTMENT REVIEW - ECONOMIC & SOCIAL FACTORS

139. COMMENT: Commentor 125 objects to the inclusion of "intrinsic values" and "opportunity values" in an analysis of economic feasibility. We are unaware of any federal or state laws or regulations that require consideration of these parameters. There is no methodology proposed to quantify these parameters and any evaluations of them would likely be very contentious and could deadlock the administrative process. Commentor 107 (DNRC) objects to the procedures for weighing the criteria in this section and has proposed changes that are too extensive to include in the comments.

RESPONSE: The rule as proposed has been changed to clarify procedures for weighing the criteria and to include only those factors that are appropriately considered as costs or benefits. See Response 122.

RULE V(7) - DEPARTMENT REVIEW - 180 DAYS

140. COMMENT: Commentor 49 states that the time frame for degradation reviews should be coordinated with the time frame for NPDES permit applications or renewals.

RESPONSE: To the extent practical, the agency will coordinate.
MPDES permit and nondegradation reviews.

141. COMMENT: Commentor 74 states that even though an EIS is required, any additional time allowed for the EIS and preliminary decision should be restricted to 180 days.

RESPONSE: It is reasonable and often necessary to allow an extension of time beyond the 180 days when an environmental impact statement is required. The suggested restriction will not be included in the final rule as the restriction may preclude compliance "to the fullest extent possible" with the terms of NEPA.

142. COMMENT: Commentor 95 states that these rules must include timeframes for EIS development to facilitate interagency cooperation - the timeframes could be extended with the agreement of the applicant.

RESPONSE: Rule V(7) provides for an extension of time when an environmental impact statement is prepared. No further change in the rule is necessary to allow an extension. In addition, the timeframes for EIS development are established in ARM 16.2.63(6.42) and will not be repeated in these rules.

RULE V - DEPARTMENT REVIEW - GENERAL

143. COMMENT: Commentor 28 (DHRS) proposes to change the language in Rule V(4)(a) to make it consistent with the requirement for a social and economic analysis in Rule IV(7).

RESPONSE: Due to the modifications made to this section in response to Comment 122, the department's proposed change will not be included in the final rule as those changes are inconsistent with the final rule.

RULE VI(2)(b) - DECISION PROCEDURES - OUTSTANDING RESOURCE WATERS

144. COMMENT: Commentor 49 states that Rule VI(2)(b) should delete the reference to ORW's because degradation of ORW's is prohibited.

RESPONSE: Rule III establishes the level of protection provided for state waters. Under Rule III, no degradation is allowed in ORW's. Therefore, the department must consider whether or not an ORW is subject to potential degradation when making decisions regarding authorizations to degrade. For this reason, the proposed modification will not be made.

RULE VI(2)(f) - DECISION PROCEDURES - AMOUNT OF DEGRADATION

145. COMMENT: Commentor 84 states that accurate projections of water quality deterioration cannot be made using present methods.

RESPONSE: Predictions of changes in water quality can be made using present methods. The accuracy of these predictions de-
pends upon the validity of assumptions used to calculate the predictions and the quality of site-specific data. In some settings the accuracy of predicted changes in water quality will be good, at other sites it will be poor.

146. COMMENT: Commentor 93 states that the amount of allowed degradation in Rule VI(2)(f) should be defined in terms of concentration or load or both.

RESPONSE: The determination as to concentrations of loads will be based on best professional judgment as to what is necessary to prevent degradation.

RULE VI(2)(g) - DECISION PROCEDURES - WATER QUALITY PRACTICES

147. COMMENT: Commentor 93 states that department approved water quality practices need to be compiled by the department prior to finalizing these rules.

RESPONSE: Water quality protection practices are statutorily defined and include treatment requirements that have been adopted by the board. The definition is broad enough, however, to include practices that are not established by rule, but may be required on a case-by-case basis pursuant to Section 75-5-303(3)(d), MCA. Rule VI(2)(g) implements the requirements of Section 75-5-303(4)(b) by requiring the department to specify the required water quality protection practices in its preliminary decision. There is no requirement in the law that such practices must be compiled prior to adopting these rules or prior to implementing the policy.

RULE VI(2)(h) - DECISION PROCEDURES - MONITORING REQUIREMENTS

148. COMMENT: Commentor 105 states monitoring of water quality is vital and suggests that this can be accomplished through partnerships between the government, educational institutions, nonprofit groups, business organizations or industries, and the general citizenry.

RESPONSE: Although monitoring is an integral part of the Water Quality Act, the comment requests implementation of a monitoring program that is beyond the scope of these rules.

RULE IV(4) - DECISION PROCEDURES - PUBLIC NOTICE

149. COMMENT: Commentor 45 states that Rule IV(4) should be deleted because it requires monitoring by a particular source at the discretion of the department. Because monitoring costs may be very significant in many instances, the commentor suggests that the department itself conduct monitoring. Under this rule, the potential for abuse by the department exists and, additionally, it imposes significant real costs on individuals.

RESPONSE: See Response 110.
150. COMMENT: Commentor 49 states that all down-gradient drinking water suppliers should be notified of any preliminary decisions to allow degradation.

RESPONSE: The rules require public notice of all preliminary decisions in accordance with ARM 16.20.1334. Therefore, no change in the rules is necessary to address this concern.

151. COMMENT: Commentor 93 states that the words "at least" in Rule VI(4) should be deleted.

RESPONSE: The requirement for a minimum comment period of 30 days is statutorily imposed pursuant to § 75-5-303(4), MCA. Therefore, the rule will not be changed to conflict with this requirement.

RULE VII(1) - NONSIGNIFICANT DETERMINATIONS - CRITERIA

152. COMMENT: Commentor 38 states that it is not clear to EPA that all of the conditions in (1) of Rule VII must be met in order for an activity to be found nonsignificant. The record should clarify the scope and intent of this provision.

RESPONSE: Rule VII(1) states in the last sentence that "except as provided in (2) below, changes in existing surface or ground water quality resulting from the activities that meet all the criteria listed below are nonsignificant, and are not required to undergo review under 75-5-303, MCA." No further clarification of this requirement is necessary.

153. COMMENT: Commentor 50 proposes that (a) and (b) in Rule VII(1) should be moved to Rule VIII to clarify that uses categorized as nonsignificant are not subject to retroactive agency review.

RESPONSE: Subsections (a) and (b) under Rule VII(1) are two of the criteria that activities must meet in order to be nonsignificant. They are not categories of activities and, therefore, do not belong in Rule VIII, which applies only to categories of nonsignificant activities.

154. COMMENT: Commentor 64 asks whether the criteria in (a), (b), and (c) in Rule VII(1) apply only to surface water?

RESPONSE: The criteria of Rule VII(1) apply to both surface and ground water except when the rules expressly state otherwise. The proposed rules do not limit (a) through (c) to either ground water or surface water. In response to Comment 159, however, (a) of Rule VII(1) will be changed to limit its application to surface water.

155. COMMENT: Commentor 64 requests clarification of the language in (b), (c), and (g) in Rule VII(1) as follows: If there is any practical distinction in the wording "less than or equal to" in (b), "detectable changes" in (c), and "measurable chang-
es" in (g), it should be stated. The commenter suggests that the only changes that one can be aware of and, therefore, act upon are those that are measurable.

RESPONSE: The terms were chosen to distinguish between concentrations of parameters considered nonsignificant based on the character of the pollutant and the potential for harm to human health and the environment, pursuant to § 75-5-301(5)(c), MCA. In order to determine whether a proposed activity is nonsignificant, there is a critical difference in the terms. If increases in carcinogens were allowed to occur to the point that their concentration were "detectable" or "measurable", water quality standards would be violated. Violations of standards for these parameters should not be considered nonsignificant according to the criteria in § 75-5-301(5), MCA. For the above reasons, the suggested change will not be made.

RULE VII(1)(a) - NONSIGNIFICANT DETERMINATIONS - MEAN FLOW

156. COMMENT: Commentors 26, 30, 31, 32, and 40 state that the consideration of mean annual flow in Rule VII(1)(a) is not protective. "Mean annual flow" should be replaced with "low flow" criteria.

RESPONSE: See Response 160.

157. COMMENT: Commentors 42 and 43 state that Rule VII(1)(a) should be changed as follows: "Activities that would increase or decrease the mean annual flow by less than 15% as measured at the nearest downstream stream flow gauging station."

RESPONSE: To provide any meaningful information regarding the impact of a flow change, the flow would have to be determined at the point where the change in water quality will occur. The flow at the nearest downstream flow gauging station is very likely to be meaningless. Therefore, the suggested change will not be made.

158. COMMENT: Commentors 44, 45, and 51 state that in Rule VII(1)(a) it is important that the nondegradation policy not potentially undermine established rights to quantities of water recognized by the Montana Constitution and Montana law. Further, SB 401 provides that nonsignificance criteria are to be established based on the quality and strength of a pollutant. Flow has nothing to do with the discharge of a pollutant. Therefore, this provision should be removed as it adds nothing to whether an activity discharges a pollutant to a water body.

RESPONSE: Established rights recognized by the Montana Constitution and State law are excluded from application of the rules pursuant to Rule II(13)(c). Further, this provision is consistent with legislative guidance for establishing nonsignificant criteria as it recognizes the fact that changes in flow can, and do, impact water quality. Section 75-5-301(5)(c) addresses, among other things, the potential for harm to human health.
and the environment, not just discharge of pollutants. Therefore, the final rule will address changes in flow.

159. COMMENT: Commentor 49 states that in Rule VII(1)(a) we assume you are referring to surface waters. How is ground water addressed?

RESPONSE: The rule is intended to refer only to surface waters. The final rule will be changed to clarify this intent.

160. COMMENT: Commentors 72 and 89 state that the 15% change in mean annual flow in Rule VII(1)(a) should be changed to mean daily flow.

RESPONSE: The final rule has been changed to require an assessment of the mean monthly flow rather than the suggested mean daily flow. A change to mean daily flow will not be made due to the difficulty of obtaining data.

161. COMMENT: Commentors 73 and 114 state that the point at which mean flow will be determined should be defined in Rule VII(1)(a).

RESPONSE: The point where the flow determination must be made is the point where the increase or decrease will occur. No further clarification in the rules is necessary.

162. COMMENT: Commentor 74 states that "as measured at the nearest downstream flow gauging station, if available." should be added to Rule VII(1)(a).

RESPONSE: See Response 157.

163. COMMENT: Commentor 83 states that activities which change the monthly mean flow by more than 15% or the 7-day low flow by 10% are significant.

RESPONSE: The suggested change is appropriate because it is more protective of water quality and is feasible to implement. Therefore, the final rule will be modified accordingly.

164. COMMENT: Commentor 88 states that the reference to flow in Rule VII(1)(a) should be deleted.

RESPONSE: See Response 158.

165. COMMENT: Commentor 95 states that it appears these rules consider quantity of flow as a quality parameter. If quantity of flow remains in the rules, then guidelines as to how much and for how long must be developed.

RESPONSE: Such guidelines are more appropriately included in implementation guidance rather than rules implementing the nondegradation policy. Therefore, no change, other than these
made in response to Comment 163, will be made.

166. COMMENT: Commentor 106 recommends that "mean annual flow" be changed to "mean monthly" or "mean daily" flow in order to establish a threshold for change and account for natural variation in stream flows. In addition, based solely on a 15% change in surface water flow, it is likely that hundreds of new water right applications per year may be subject to nondegradation review, unless a categorical exclusion is provided in Rule VIII.

RESPONSE: The final rule has been changed from "mean annual" to "mean monthly" flow in response to similar comments. Although hundreds of new water rights applications may require nondegradation review under the proposed rules, the statute does not provide an exemption for any activity with a potential to cause degradation. Therefore, the rules will not include a categorical exemption for new water rights.

RULE VII(1)(b) - NONSIGNIFICANT DETERMINATIONS - PARAMETERS

167. COMMENT: Commentors 34 and 95 state that Rule VII(1)(b) needs rewording. Does the rule mean to say, "Discharges containing carcinogenic parameters or parameters with bioconcentration factors greater than 300 at concentrations...?"

RESPONSE: Changes have been made in the final rule to provide the clarification requested by the commentors.

168. COMMENT: Commentors 42 and 43 state that in Rule VII(1)(b): Add to end of subsection: "... or the detection level for the parameter as provided in the definition of "detectable" (Rule II(3))."

RESPONSE: The proposed language would allow violations of water quality standards to occur and would be inconsistent with the guidance in § 75-5-301(5)(c), MCA. Therefore, the suggested change will not be made. In addition, the definition for "detectable" has been replaced in the final rule with "trigger values."

169. COMMENT: Commentor 49 asks whether in Rule VII(1)(b) this requirement is with or without a mixing zone? What level will be used when the parameter is less than detection limits? Are the standards in WQB-7 to be used as in-stream standards or, as in this section, effluent limitations?

RESPONSE: Rule VII(1)(b) does not allow mixing zones because a mixing zone would not be consistent with the requirement that the concentration of the pollutant be "less than or equal to" the concentration in the receiving water. Procedures for addressing situations where instream concentrations are less than detection limits are addressed in WQB-7 by the inclusion of "reporting levels". Finally, the standards in WQB-7 are to be used as instream water quality standards, but may be used as
effluent limitations in certain situations.

170. COMMENT: Commentor 49 states that the proposed nondegradation rules indicate that the discharge of any substance with a bioconcentration factor less than 300 at a concentration not exceeding the background is considered nonsignificant. It is unclear what the impact is, if the discharge concentration for these parameters exceed the background concentration. What standard is then applied?

RESPONSE: If a substance is not a carcinogen and if its bioconcentration factor is less than 300, Rule VII(1)(b) does not limit its discharge. To be considered nonsignificant, however, the discharge must meet all of the other provisions of Rule VII(1).

171. COMMENT: Commentor asks whether carcinogenic parameters with bioconcentration factors less than 300 are considered toxic for the purpose of Rule VII(1)(b)?

RESPONSE: No. All carcinogens are treated as carcinogens. However, toxins with bioconcentration factors greater than 300 are treated like carcinogens under Rule VII(1)(b).

172. COMMENT: Commentor 95 asks whether natural carcinogens should be treated differently than other carcinogens (e.g., allowance for mixing zones). Any disturbance, such as road construction, could cause a temporary increase in the dissolution of natural carcinogens, such as arsenic. This rule should also cross reference § 75-5-308, MCA.

RESPONSE: Activities that are allowed short term exceedences of the water quality standards under § 75-5-308, MCA, are included in Rule VII as a category of activities meeting the criteria of Rule VII. The proposed change will not be made, as it would be inappropriate to include a category of activities in the rule establishing criteria for nonsignificance. See also Response 12.

RULE VII(1)(c) - NONSIGNIFICANT DETERMINATIONS - MIXING ZONES

173. COMMENT: Commentors 4, 5, 6, 8, 15, 19, 22, 33, 40, and 56 state that activities which require mixing zones should not be considered as "nonsignificant".

RESPONSE: The inclusion of certain activities that require mixing zones under the proposed rules is consistent with the criteria for determining nonsignificant activities pursuant to § 75-5-301(5)(c). Therefore, the inclusion of mixing zones will remain in the final rules.

174. COMMENT: Commentor 41 suggests that, due to limited resources, the determination of mixing zones should be left to the professionals submitting applications. Final approval of the mixing zones would rest with the department.
RESPONSE: Mixing zones will be established according to rules adopted by the board pursuant to § 75-5-301(4), MCA.

175. COMMENT: Commentor 95 asks what the rationale is for not allowing mixing zones for carcinogenic and bioconcentrating parameters?

RESPONSE: See Response 169.

176. COMMENT: Commentor 120 states that all reference to mixing zones in Rules VII and VIII must be deleted. In addition, provisions in the rules allowing the department or individuals to make determinations of nonsignificant activities without public review violate Article II, Section 8, of the 1972 Montana Constitution, regarding the public's right to participate in agency decisions.

RESPONSE: The use of mixing zones in the rules has been addressed in prior responses (e.g., Response 173). In regard to the public's right to participate in agency determinations of nonsignificance, this right has been secured through the public comment period for the rules establishing nonsignificant criteria. No further public participation or review is required by law or the Montana Constitution.

RULE VII(1)(c) - NONSIGNIFICANT DETERMINATIONS - TOXIC PARAMETERS

177. COMMENT: Commentor 32 states that Rule VII(1)(c), as it relates to dissolved oxygen, should be modified to show that detectable decreases will cause degradation.

RESPONSE: The final rule has been modified to clarify that certain "changes" rather than "increases" will cause degradation.

178. COMMENT: Commentor 125 states that the term "detectable increases" should be replaced by the term "measurable increase" for consistency and clarity.

RESPONSE: "Detectable" has been replaced with "trigger values" to clarify the rules.

RULE VII(1)(d) - NONSIGNIFICANT DETERMINATIONS - NITROGEN

179. COMMENT: Commentors 4, 5, 6, and 15 state that discharges of nitrates into state waters should not be allowed unless nitrate concentrations are never allowed to exceed 1.0 mg/l or, alternatively, another level established by a panel of nutrient experts. Generally, these commentors suggest that 2.5 mg/l is too high and supports development.

RESPONSE: In many instances the nitrate level in ground water can exceed 1.0 mg/l and still be nonsignificant according to the guidance in § 75-5-301(5)(c), MCA. The proposed rules reflect those instances and will not be changed as suggested. In addition, the proposal to have a panel of experts establish...
levels of nitrates conflicts with the rulemaking authority of the board. Under that authority, the board has been legislatively delegated the responsibility of establishing nonsignificant criteria through the adoption of rules.

180. COMMENT: Commentors 30, 31, and 95 state that treatment of nitrogen containing compounds in Rules VII and VIII incorrectly imply that the only concern is related to public health. In fact, nitrogen is a nutrient which is responsible for degradation, including violations of standards, in many of Montana's surface waters. The rules, as written, do not adequately address this fact and, therefore, are not protective of water as required by the Water Quality Act.

RESPONSE: Rule VII and Rule VIII protect surface waters by prohibiting an increase above the "trigger value" in nitrate concentrations in those waters. This requirement precludes violations of water quality standards for high quality waters and allows minimal change in surface water nutrient concentrations. Therefore, no change to the proposed rules is necessary.

181. COMMENT: Commentors 42 and 43 propose new language for Rule VII(1)(d). Changes in the concentration of nitrogen in ground water which will not impair existing or anticipated beneficial uses, where water quality protection practices approved by the department have been fully implemented, and where the sum of the resulting concentration of nitrate, nitrite, and ammonia, all measured as nitrogen, outside of any applicable mixing zone designated by the department, will not exceed 2.50 mg/l as long as such changes will not result in a detectable change in the nitrogen concentration in any perennial surface water;

Rationale: This change provides complete protection for existing uses.

RESPONSE: The proposed changes to Rule VII(1)(d) would disallow any consideration of degradation caused by nitrate, nitrite and ammonia in ground water. This is clearly not consistent with legislative intent and the nondegradation policy. For this reason, the proposed change will not be made.

182. COMMENT: Commentor 43 states that criteria under Rules VII and VIII, where it applies to nitrogen concentrations in surface water, should be modified to allow for inorganic nitrogen levels of 1.0 mg/l in surface waters be classified as nonsignificant.

RESPONSE: In many surface waters a level of 1.0 mg/l of inorganic nitrogen could violate surface water quality standards. The department and EPA have used 1.0 mg/l as an indication of impaired surface waters in the State's report on water quality under Section 305(b) of the Clean Water Act. Clearly such
levels cannot be allowed to occur and be considered nonsignificant.

183. COMMENT: Commentors 43 and 45 state that Rule VII(1)(d) should be changed to provide equitable treatment for sources of nitrogen other than domestic wastewater treatment systems.

RESPONSE: Rule VII(1)(d) is not limited in application to domestic wastewater treatment systems but applies to all new or increased sources. Therefore, no change in the rules is necessary to address this concern.

184. COMMENT: Commentors 50, 52, 59, and 68 state that these rules treat the discharge of nitrate too(stringently. There is no reason for a standard nearly 5 times more stringent than the MCL. Following the agency’s rationale to its logical conclusion, the only solution is to stop development.

RESPONSE: The levels for nitrate established under the rules is consistent with the guidance in § 75-5-301(5)(c). Nitrate can, particularly with domestic wastewater systems, be an indicator of other parameters which may be of even greater concern such as viruses, bacteria and other pathogens. Establishing significance levels for nitrates below the standard is consistent with a policy designed to maintain high quality waters, especially when establishing criteria that will exclude certain sources from the requirements of § 75-5-303, MCA. Changes to Rule VII(1)(d) have been made in order to distinguish concentrations of existing nitrate levels resulting from sewage as opposed to other sources. Where background concentrations of nitrates do not result from sewage disposal, then the concern over viruses and other pathogens is lacking. For this reason, Rule VII(1)(d) now provides for varying levels of nitrates considered nonsignificant depending upon the source of existing nitrates. In addition, 2.5 mg/l has been replaced with a scale of allowable changes in nitrates depending upon the existing level of nitrates as well as the source of nitrates.

185. COMMENT: Commentor 64 asks why in Rule VII(1)(d) is the criteria used 2.5 mg/l when the MCL is 10.0 mg/l?

RESPONSE: The level of 2.5 mg/l for nitrates in ground water was established according to the guidance in § 75-5-301(5)(c) for determining nonsignificance. The standard for surface water is 1.0 mg/l. The drinking water standard of 10.0 mg/l was established for another purpose, i.e., to protect the public from drinking water that is contaminated. The nondegradation law was meant to protect losses of existing high water quality that is better than the standards established under the Public Water Supply Act. The originally proposed level of 2.5 mg/l of nitrates has been modified, however, for the reasons given in Response 184.

186. COMMENT: Commentor 72 states the 2.5 mg/l in Rule Montana Administrative Register 15-8/11/94
VII(1)(d) is set too high and is not protective of existing high quality waters.

RESPONSE: See Response 184 and 185.

187. COMMENT: Commentors 66, 73, and 79 state that the nonsignificant level for nitrate should be 10 mg/l rather than 2.5 mg/l.

RESPONSE: See Response 184 and 185.

188. COMMENT: Commentor 75 states that the "acceptable" level for nitrates in ground water is unknown. Nitrate may be useful as an indication of the presence of other harmful substances.

RESPONSE: See Response 184. Nitrate derived from human wastes, such as septic tank effluent, does indicate the possibility that other undesirable constituents, such as viruses, may be present. The level for nitrate increases, as modified in the final rule, represents the acceptable level for purposes of being considered a nonsignificant change in water quality.

189. COMMENT: Commentor 75 states that nitrate increases in surface water caused by increased concentrations in ground water are significant.

RESPONSE: Changes less than the "trigger value" in the nitrogen concentration of surface waters are generally nonsignificant. In unusual cases, the provisions of Rule VII(2) would allow the department to determine that an activity causing changes less than the "trigger value" would be significant.

190. COMMENT: Commentor 76 states that nonsignificance criteria for nitrate should be dropped and standards set by a scientific panel.

RESPONSE: See Response 179.

191. COMMENT: Commentor 77 states that "reasonably" should be added in front of "anticipated" in Rule VII(1)(d).

RESPONSE: The language in the rule is consistent with the statutory requirement under § 75-5-301(2)(c) of the policy to protect existing and anticipated uses. Because the protection of uses was not modified by the term "reasonably" under the statute, the proposed change will not be made as it may limit the scope of the statutory requirement.

192. COMMENT: Commentor 77 states that "approved by the department" should be deleted in Rule VII(1)(d) because requiring prior approval of these practices will place additional burdens on the department and further delay the process.

RESPONSE: Rule VII(1)(d) allows certain increase in the level
of nitrate in ground water provided certain conditions are met. Approval of water quality protection practices by the department assures that the activity will not cause nitrate concentrations above the level established in the rule. Therefore, the proposed change will not be made.

193. COMMENT: Commentor 77 states that since ammonia is more toxic it should be specifically limited at Gold Book levels in Rule VII(1)(d).

RESPONSE: Toxicity of ammonia in ground water is not a concern as people will not consume waters with harmful levels of ammonia. It is a concern in surface water, and is included as a toxic parameter and limited by WQB-7. Therefore, the requested change will not be made.

194. COMMENT: Commentor 77 states that the allowable level for nitrate in non-sewage effluent should be higher than in sewage effluent because such effluent does not contain viruses and other harmful contaminants.

RESPONSE: See Response 184.

195. COMMENT: Commentor 77 states that the nitrate nitrogen limits for mining effluent should be the MCL.

RESPONSE: Use of the water quality standard as a level for determining nonsignificant changes is not consistent with the purpose of the policy to maintain quality better than the standards. Therefore, the proposed change will not be made.

196. COMMENT: Commentors 81 and 84 state that changes up to 5 mg/l nitrate in ground water should not be considered significant.

RESPONSE: See Response 184.

197. COMMENT: Commentor 84 states that the reasons of the department for finding a nitrogen level of 3 mg/l insignificant in its letter to John Diddel also apply to support a level of 5 mg/l.

RESPONSE: The rationale for making the specific determination of nonsignificance mentioned in this comment was based on the guidance provided by § 75-5-101(5)(c) in the Water Quality Act. This approach was an interim measure to implement the policy prior to adoption of the rules. The rationale under the interim measure for making a site specific determination does not generally apply to allow a level of 3.0 mg/l or 5.0 mg/l in every instance. See also, Response 184.

198. COMMENT: Commentor 84 states that the department should set the level at 5 mg/l while they try to find reasonable solutions to the problem of ground water contamination.

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RESPONSE: The rules for nonsignificant determinations must be consistent with the guidance in the rulemaking authority of the board. As stated in Response 184-185, the criteria in the final rule are consistent with this guidance. Setting an arbitrary level at 5.0 mg/l is less likely to be consistent with the legislative guidance to protect human health and the environment. Therefore, the proposed change will not be made.

199. COMMENT: Commentator 95 asks what the basis is for the 2.5 mg/l limit for nitrate?

RESPONSE: The proposed level of nitrogen concentrations in ground water, as modified in the final rule, is based upon best professional judgment using the guidance in § 75-5-301(5)(c), MCA. It is also based upon information gathered during the informal comment period prior to publication of the proposed rules. See Response 184.

200. COMMENT: Commentator 96 suggests that a "maximum target" level of 5.0 mg/l nitrate should be used as the basis for evaluating proposed increases of nitrate to ground water. In addition, an "action level" of 5.0 or 7.0 mg/l, determined by actual measured levels, be established as a point where an investigation by the department will be initiated to determine the cause and to take appropriate action against the source.

RESPONSE: The adoption of "action levels" or "maximum target" levels is not authorized by the rule-making authority of the board. In addition, it would be inappropriate to establish levels for nitrate which will likely impact uses. For the above reasons, the suggested change will not be made.

201. COMMENT: Commentator 96 asks whether "detectable change" in Rule VII(1)(d) is to be determined using the Bouman and Schafer model or will changes be determined by monitoring? A "trigger" of 2.5 mg/l is too low, if the conservative modeling techniques are used.

RESPONSE: The rules do not specify a single method or model an applicant must use when determining "detectable change". If an applicant can show they have a model or method which is better than the one generally used by the department, that model or method may be used in lieu of the department's. On the other hand, basing a change on monitoring allows changes to occur while the monitoring takes place. The purpose of the policy is to prevent a change in water quality. Therefore, some type of modeling must be used.

202. COMMENT: Commentator 125 states that the term "detectable change" should be replaced by the term "measurable increase" for consistency and clarity.

RESPONSE: See Response 40 and 41.

RULE VII(1)(e) - NONSIGNIFICANT DETERMINATIONS - PHOSPHORUS
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Phosphorus is removed from soil solution in two ways. First, some fine soil particles can absorb phosphorus. The amount of phosphorus absorbed by soils is limited by the soil texture and the type of soil particles present. The absorptive capacity can be determined through the proper tests. Second, phosphorus can also be removed from soil solution through the process of precipitation. Although the amount of precipitation is determined by the chemical characteristics of the soil solution, the process for making this determination is very complex and not well understood. The available data indicates, however, that if the absorptive capacity of the soil exceeds 50 years, it is likely that phosphorus will be effectively removed due to precipitation. The 50 year requirement may be modified when better data is available.

RESPONSE: Rule VII(1)(d) applies to groundwater. Therefore, the mixing zone specified under that rule refers to a ground water mixing zone. The mixing zone is not an extension of a treatment system.

RULE VII(1)(f) - NONSIGNIFICANT DETERMINATIONS - WATER QUALITY CHANGES

RESPONSE: Rule VII(1)(f) applies only to parameters which have a low potential for harm to human health and the environment and is, therefore, consistent with the guidance in § 75-5-301(5)(c), MCA. The rule will remain as proposed.

RESPONSE: The rule clearly applies to parameters which have a low potential for harm to human health and the environment and limits increases for these parameters to 50% of the standards. Moreover, there is no de minimis standard in the rule making authority for establishing nonsignificance criteria. The rule is consistent with the guidance in § 75-5-301, MCA, and requires no further clarification.

COMMENT: Commentor 125 states that this section provides a
good framework for changes in "harmful parameters", but is inconsistent with definition (10) of Rule II and Circular WQB-7. A modification of the definition and Circular WQB-7, as well as wording to clarify the limits of change for pH will make the rules consistent and clearer.

RESPONSE: This has been clarified by modifications to WQB-7 and changes in the definition of "toxic parameters". No change is necessary for pH as it will be treated as a harmful parameter.

RULE VII(1)(g) - NONSIGNIFICANT DETERMINATIONS - NARRATIVE STANDARDS

208. COMMENT: Commentors 42 and 43 propose new language for Rule VII(1)(g): Changes in the quality for any parameter for which there are only narrative water quality standards if the changes will not have a measurable adverse effect on any existing or anticipated uses or cause measurable adverse changes in aquatic life or ecological integrity.

RESPONSE: Narrative standards are meant to protect both aquatic life and ecological integrity of a stream. Since the ecological integrity of a stream covers more than a change in species, it will remain in the final rule.

RULE VII(2) - NONSIGNIFICANT DETERMINATIONS - MONITORING

209. COMMENT: Commentors 33 and 34 state that in Rule VII(2) "monitoring" should be added.

RESPONSE: The ability to require monitoring is found in the part of Rule VII(2)(g) which states, "any other information deemed relevant..." Therefore, no change is necessary to address this comment.

RULE VII(2)(a) - NONSIGNIFICANT DETERMINATIONS - CUMULATIVE IMPACTS

210. COMMENT: Commentors 19, 26, 30, 32, 40, 41, 56, and 105 state that very close scrutiny must be applied to activities classified as nonsignificant to ensure the cumulative impacts of those activities do not cause unacceptable changes in Montana's high quality waters.

RESPONSE: The rules, as currently written, address cumulative impacts to some extent by establishing an upper level beyond which all increases are generally found to be significant and by addressing cumulative impacts in Rule VII(2). Methods of assessing cumulative impacts are more appropriately addressed in implementation guidance.

211. COMMENT: Commentors 44, 45, 50, 88, 112, and 113 suggest that allowing the department to re-evaluate determinations of significance under Rule VII(2) will result in uncertainty by giving excessive discretion to the department. In addition, the criteria regarding cumulative impacts or synergistic affect was in a draft bill of SB 401 and was removed. The department
should not be allowed to add cumulative impacts or synergistic effects as an end run on the intent of SB 401.

RESPONSE: It is unlikely that a set of criteria for nonsignificance can be developed that would sufficiently fulfill the goal of preventing degradation in every instance. Given that implementation of the policy under the rules has yet to be tested, it is important that the department have discretion to make a determination of significance independent of the criteria in Rule VII(1). In addition, the committee minutes on SB 401 do not indicate that a draft bill was ever introduced that addressed cumulative impacts or synergistic effects. The department's position throughout the passage of SB 401 was that preventing cumulative impacts, or the incremental degradation of water, was the very essence of the nondegradation policy. Therefore, no specific wording addressing cumulative impacts was necessary in the proposed legislation. This does not, however, preclude the inclusion of cumulative impacts or synergistic effects in the rules implementing the policy. For the above reasons, the rule will remain as proposed.

212. COMMENT: Commentator 75 states that cumulative impacts of many small "insignificant activities" may be significant and suggests setting "caps" for the total loads allowed in surface or ground water basins.

RESPONSE: The proposal for the adoption of "caps" for total loads to address cumulative impacts on nonsignificant determinations is beyond the statutory authority for adopting rules implementing the policy. The rules do establish some limits by setting levels above which an activity will be considered degradation.

213. COMMENT: Commentator 89 states that short term activities which occur repetitively are significant, this should be covered and limited to less than once every 10 years.

RESPONSE: Rule VII(2)(a) and (g) allow the department to make case-by-case evaluations that would preclude short term repetitive activities from being found nonsignificant. Establishing a time limit by rule would not be practical considering the varying types of short term activities that may occur. Therefore, the proposed change will not be made.

RULE VII(2)(b) - NONSIGNIFICANT DETERMINATIONS - SUBSTANTIVE INFORMATION

214. COMMENT: Commentator 49 asks in Rule VII(2)(c) what is considered "substantive information"?

RESPONSE: As used in the rule the term "substantive information" refers to information that is essential to the issue of determining the significance of a proposed change in water quality.

215. COMMENT: Commentator 111 states that Rule VII(2)(c) should
be narrowed and public comment should be directed to one of the criteria found in (1) of the rule.

RESPONSE: The purpose of Rule VII(2) is to allow a determination of significance independent of the criteria in (1). Limiting public comment to (1) would, therefore, serve no purpose and the proposed change will not be made.

**RULE VII(2)(d) - NONSIGNIFICANT DETERMINATIONS - FLOW CHANGES**

216. COMMENT: Commentor 73 states that Rule VII(2)(d) contradicts (1)(a), language should be added to remove the contradiction.

RESPONSE: Rule VII(2)(d) allows a consideration of changes in flow when the department makes a determination of significance independent of the criteria in (1). Any conflicts between the criteria in Rule VII(1) and the rationale for the agency's decision under (2) is irrelevant for the purposes of allowing a determination unrestricted by the criteria in (1).

**RULE VII(2)(g) - NONSIGNIFICANT DETERMINATIONS - RELEVANT INFORMATION**

217. COMMENT: Commentor 95 states that Rule VII(2)(g) is a catch-all which negates the previous criteria and recreates the guessing game as to what and how the nondegradation policy will be applied.

RESPONSE: See Response 211.

**RULE VII(1) - NONSIGNIFICANT DETERMINATIONS - MONTANA CODE GUIDANCE**

218. COMMENT: Commentor 26 states that Rule VII(3) should be deleted. The department should have no undefined and ambiguous procedure for classifying an activity as nonsignificant. This provision is ripe for abuse.

RESPONSE: There will be instances where an activity might not meet all of the criteria in Rule VII(1) and still be nonsignificant according to the guidance of § 75-5-301(5)(c), MCA. As evidence of this, there are several categories of activities in Rule VIII which may not meet all the criteria in Rule VII(1), but should be considered nonsignificant under the guidance in the Act.

219. COMMENT: Commentor 27 (DHES) proposes an addition to Rule VII(3), which will allow public comment on agency decisions under subpart (3).

RESPONSE: This proposal is in response to earlier comments received by the department, and the final rule incorporates the proposed change.

220. COMMENT: Commentor 32 states that Rule VII(3) does not make sense or provide any clarification to the law and, there-

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fore, should be deleted.

RESPONSE: See Response 218.

RULE VII - NONSIGNIFICANT DETERMINATIONS - GENERAL

221. COMMENT: Commentors 19 and 22 state that polluting activities that cause violations of water quality standards should not be classified as nonsignificant.

RESPONSE: Polluting activities, i.e., activities that cause violations of water quality standards, are not considered nonsignificant under Rule VII. Therefore, no change to the proposed rules is necessary.

222. COMMENT: Commentor 27 (DHES) proposes an amendment to Rule VII(1)(c) to clarify that this section applies to "nutrients", which include both nitrogen and phosphorus.

RESPONSE: This proposed change has been included in the final rules.

223. COMMENT: Commentor 27 (DHES) found that significance cannot be based upon limits of detection or quantitation for many parameters, because technology is not available to provide the protection to water quality required by the Clean Water Act and Water Quality Act. To establish nonsignificance using these limits would create an anomalous situation in which violations of water quality standards for carcinogens and other parameters would be considered nonsignificant under the nondegradation policy.

RESPONSE: Significance criteria have been established pursuant to the guidance in the Water Quality Act. It is not logical that, in most cases, long-term violations of standards for parameters such as carcinogens should be found to be nonsignificant. Changes have been made to WQB-7 that provide "trigger values" for determining nonsignificance.

224. COMMENT: Commentor 88 states that the department's proposed amendment to Rule VII(3) should be rejected, as this is covered in (2)(c).

RESPONSE: The department's proposed amendment of Rule VII(3) provides an opportunity for public comment prior to a final agency decision that an activity is nonsignificant based on § 76-5-301, MCA. Under (2), there is no requirement for public comment prior to an agency determination that an activity will cause degradation, because once that determination is made, further public review is required. For these reasons, the department's proposed amendment will be included in the final rule.

225. COMMENT: Commentor 95 states that Rule VII should include a timeframe for issuance of the notice of decision. Alterna-

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the term "upon issuing" could be defined in Rule II.

RESPONSE: A maximum period of sixty days for issuing a decision regarding nonsignificance is specified in Rule IV(3). Therefore, no change to address this concern is necessary.

**RULE VIII(1) - NONSIGNIFICANT ACTIVITIES - EXEMPTIONS**

**COMMENT:** Commentor 1 states that installations contributing domestic sewage in the amount of 350 gpd or developments of less than 40 acres should be exempt from the rules so long as downgradient monitoring is provided.

RESPONSE: All activities that have the potential to degrade are covered by the nondegradation policy. Exemptions for small installations contributing sewage has not been provided in the Water Quality Act, and therefore, cannot be provided by rule.

For these reasons, the proposal will not be included in the final rule.

**COMMENT:** Commentor 25 states that if reduction of nitrate discharges is a priority, then categorical exemptions of agricultural production under Rule VIII is highly inconsistent. The most stringent requirements apparently apply to sources that account for a small portion of nitrate discharges to state waters. The rules unreasonably require a small percentage of dischargers that contribute to nitrate increases in state waters to bear the entire economic burden of attaining the regulatory goal for reduced nitrate.

RESPONSE: There may be some inconsistency in the rules' application to point sources and nonpoint sources of nitrate. This inconsistency is attributable to the differences in the statutory basis for regulating point versus nonpoint sources under both the Montana Water Quality Act (MWA) and the federal Clean Water Act (CWA). Primarily, there are no regulatory controls, such as permit requirements, that apply to nonpoint sources and § 75-5-306, MCA, considers impacts caused by reasonable land, soil, and water conservation practices to be the natural condition of the stream. For these reasons, the categorical exemptions of certain nonpoint sources in Rule VIII are consistent with the requirements of the MWA and will remain in the final rule.

**COMMENT:** Commentor 26 states that the proposed rules do not comply with the Water Quality Act's current nondegradation policy. The proposed rules, with their "nonsignificant" categorical exemptions ignore the promises DHRS made to the Montana Legislature, as well as the statutory and constitutional requirements regarding degradation. The legislative intent, as stated in the Statement of Intent for SB 401, must be considered when adopting these rules.

RESPONSE: The proposed rules, as modified in response to comments, are consistent with the law, specifically § 75-5-
301(5)(c), MCA, as well as the statement of intent for SB 401. Therefore, the categorical listing of nonsignificant activities will remain in the final rule.

229. COMMENT: Commentor 26 states that the DHES must add a provision to Rule VIII, which would allow any potential source of degradation, be classified as significant regardless of any categorical exclusion upon petition of potentially interested persons.

RESPONSE: Rule VII(3) provides that a change in water quality resulting from an activity or class of activities may be determined to be significant by the department. This rule addresses the concern of the commentor that an activity may be found significant regardless of a categorical exclusion. Since the department is responsible for administering the WQA, it is not appropriate to mandate a determination of significance based upon a petition requesting this determination. For these reasons, the proposed change will not be made.

230. COMMENT: Commentor 27 (DHES) proposes the addition of category (n) in Rule VIII(1), which will allow solid waste management systems, motor vehicle wrecking facilities, and county motor vehicle graveyards, which are in compliance with ARM Title 16, chapter 14, to be nonsignificant.

RESPONSE: Since these systems are designed to be non-discharging, any discharge which could cause degradation would be a violation of their permit or license. At that point, these facilities would no longer meet the criteria for a categorical exclusion and would also be subject to an enforcement action for violations of the permit. For these reasons, the proposed amendment will be included in the final rule.

231. COMMENT: Commentor 27 is a proposal by the department to add category (o) in Rule VIII(1), which will allow hazardous waste management facilities, which are in compliance with ARM Title 16, chapter 44, to be nonsignificant.

RESPONSE: See Response 230.

232. COMMENT: Commentor 41 states that if a change of land use from agricultural to residential use results in no net degradation, this change should be considered nonsignificant.

RESPONSE: If a change in land use would not constitute a new or increased source, it would not be subject to the nondegradation requirements. No change in the rules is necessary to address this comment. The following information, however, indicates that in many cases a change in land use would result in a new or increased source. Probable nitrate losses to ground water resulting from agricultural operations may be only 10% of the actual amount of applied nitrogen. See, Bauder, Sinclair, and Land, "Physio-
graphic and Land Use Characteristics Associated with Nitrate-Nitrogen in Montana Groundwater. 22 J. Environ. Qual. 255 (1993). In addition, data from AgriChemicals (Belgrade, Montana) indicate that only in the case of intensive cropping, such as sugar beet or corn operations, will more than 200 pounds of applied nitrogen be applied per acre. Thus, if 10% of the nitrogen is lost to the ground water from intensive cropping, there would be an annual input of about 20 pounds of nitrogen per acre. Conversely a household on one acre will contribute about 30 pounds of nitrogen to the disposal system. Depending on the removal efficiency of the disposal system, development at a rate of 1 unit per acre may or may not be an increased source of nitrate. See also Response 283.

233. COMMENT: Commentors 42, 43, 48, and 78 propose a new subsection for Rule VIII(1): Discharges of storm water from areas covered by a permit issued under the Department's Storm Water Permit Program (ARM 16.29.401).

RESPONSE: The general storm water permit program is a first attempt to permit nonpoint sources by requiring certain best management practices. Facilities with general storm water permits must comply with a Storm Water Pollution Prevention Plan designed to prevent storm water runoff. Therefore, the proposed addition of storm water discharges in compliance with the requirements of a general storm water permit will be included in the final rule.

234. COMMENT: Commentor 45 suggests the addition of "customary and historical maintenance and repair of existing irrigation facilities meeting requirements of § 75-7-103(5)(b), MCA," as nonsignificant under Rule VIII. The rationale is to support an existing program of the Conservation Districts.

RESPONSE: The intent of the proposed exclusion is to exempt from the nondegradation policy customary practices currently excluded from the definition of "project" under the Natural Stream and Land Preservation Act of 1975. Although "customary and historic practices" may be nonsignificant, there may be instances where such practices result in degradation. Without further information, the final rules will not include this commentor's proposal.

235. COMMENT: Commentors 48, 54, 55, and 60 state that state approved landfills should be excluded from the nondegradation rules. To establish additional landfill regulations is an unnecessary layer of regulatory control and economically prohibitive. Rule VIII(1)(n) Solid Waste Landfills that are subject to the standards of 40 CFR Part 258 and the department's regulations pertaining to solid waste management.

RESPONSE: See Response 230.

236. COMMENT: Commentor 65 states that one major concern of the
coal industry. The potential for conflicting regulatory procedures and additional burdens on the industry when regulatory controls under one agency are already in place to protect the environment. Specifically, the extensive controls under Title 82, MCA, Chapter 4, MCA, and implementing rules found at ARM 26.4.631, et. seq., meet the criteria found in § 75-5-301(5), MCA. We therefore request that Rule VIII (l)m be amended as follows: (m) Coal and uranium mining performed in accordance with ARM 26.4.631, et. seq., and coal and uranium . . .

RESPONSE: The regulatory controls for coal and uranium mining do not ensure that high quality waters will not be degraded during mining operations. Since it is unknown whether every mining operation will result in nonsignificant changes in water quality, the suggested change will not be made. See also Response 238.

237. COMMENT: Commentors 68, 80, and 88 state that a provision for categorical exemptions is necessary.

RESPONSE: The proposed rules provide for categories of activities that are nonsignificant. Therefore, no change in the final rule to address this comment is necessary.

238. COMMENT: Commentor 71 states that the solid and hazardous waste treatment facilities designed as zero discharge facilities should not be categorically excluded, because many mines are also designed as zero discharge operations.

RESPONSE: The critical difference between excluding facilities that are required by law to meet zero discharge and mining operations is the lack of any requirement to meet zero discharge under the laws applicable to mines. Since some mines are not designed for zero discharge, a categorical exclusion is inappropriate. For this reason, the proposed change will not be made in the final rule.

239. COMMENT: Commentor 88 suggests that the following category should be added to Rule VIII (l): "Operations permitted pursuant to [the Montana Water Quality Act] and Section 401 of the federal clean water act."

RESPONSE: The nondegradation policy applies to all new or increased discharges to state waters and, therefore, applies to any application for a new or increased discharge under a permit issued by the department. Absent a nondegradation policy, such permits could be issued that would allow degradation up to the standard. The proposed exclusion circumvents the plain requirement of the policy, i.e., the department must ensure that no degradation will occur without authorization. For these reasons, the proposed change will not be included in the final rule.

240. COMMENT: Commentor 113 supports categorical exclusions and
questions whether the department can adequately process requests for significance determinations under Rule VII.

RESPONSE: These determinations will undoubtedly result in a significantly increased workload for the department. If necessary, additional staff will be requested or possibly reassigned in order to administer the policy.

241. COMMENT: Commentor 120 states that there should be no categorical exclusions. These would constitute an abdication of the department's responsibilities. In addition, the commentor proposes a purpose section to Rule I which states:

"[e] carrying out a programmatic environmental impact statement through which the department, with board oversight and approval, would review the water protection practices of other agencies in order to:

(i) determine which water protection practices of other agencies will result in "nonsignificant" degradation, and

(ii) develop recommendations on how to bring those polluting activities regulated by other agencies into compliance with Montana's nondegradation policy."

RESPONSE: See Response 228 regarding categorical exclusions. The requirements of MEPA apply only to actions undertaken by an agency. The department's rules implementing MEPA define "action" as "...a project, program, or activity directly undertaken by the agency...." ARM 16.2.625. Programmatic review is only required when the "...agency is contemplating a series of agency initiated actions, programs, or policies." The suggested programmatic review is beyond the intent of MEPA in that it requires the department to review the actions of other agencies. In addition, this proposed amendment is beyond the rulemaking authority for implementing the nondegradation policy. For these reasons, the proposed amendment will not be included in the final rule.

242. COMMENT: Commentor 120 states that any activities which violate water quality standards in a mixing zone are significant and must not be categorically declared nonsignificant.

RESPONSE: See Response 86, 126, 173.

243. COMMENT: Commentors 121, 122, 123, and 124 state that waste management systems should be included under Rule VIII.

RESPONSE: See Response 230.

244. COMMENT: Commentor 120 states that proposed amendments (i), (k), (m) and (o) must be deleted as there was no public notice or comment period.

RESPONSE: There is no requirement in the law that a rule must be adopted precisely as it was proposed. The rationale is to
allow an agency to make a desirable change, either in response to public comment or on its own volition, and not be required to engage in endless public comment. The only requirement under MAPA is to provide a description of the difference between the proposed and adopted rule, along with a statement of reasons for the change. In order to provide further public comment on related rules prior to the final adoption of the nondegradation rules, public comment has been extended. Therefore, the concerns of this commenter have been addressed.

RULE VIII(2)(a) - NONSIGNIFICANT ACTIVITIES - NONPOINT SOURCES

245. COMMENT: Commentor 10 states that Rule VIII discusses beneficial use and pollution on land where reasonable land, soil, and water conservation practices are applied... Will agencies have to respond to this with formal programs and/or formal consultation?

RESPONSE: Reasonable land, soil and water conservation practices are included in the surface water quality standards. This definition essentially requires the application of best management practices and further requires that present and reasonably anticipated uses must be protected. In practice the department will become involved when it discovers that uses are not being protected. The law does not require, however, the development of programs by other agencies or formal consultation with DNES.

246. COMMENT: Commentors 26, 30, 32, 40, 47, 83, and 89 state that the DNES should consider requiring that, "best management practices", rather than "reasonable land, soil, and water conservation practices" be utilized.

RESPONSE: Requiring best management practices provides only partial protection, as it would not require the protection of present and anticipated uses. In addition, the term "reasonable land, soil, and water conservation practices" is derived from the Water Quality Act. Therefore, the proposed change will not be made.

247. COMMENT: Commentor 39 states that mitigation measures to treat nonpoint sources often result in a point source discharge. The rules should be modified to encourage these treatment measures for nonpoint sources by providing for their inclusion under the nonsignificance criteria. A definition of Management or Conservation Practice" should be included in the rules.

RESPONSE: See Response 54.

248. COMMENT: Commentor 51 states that nonpoint sources are by no means held accountable for their actions. With respect to timber harvest activities, the nondegradation rules require that forest land managers apply an appropriate set of land, soil, and water conservation practices which will ensure that
beneficial uses are fully protected. This is the most effective way to deal with the hundreds of thousands of nonpoint activities throughout the state.

RESPONSE: Comment noted.

249. COMMENT: Commentor 72 states that livestock use should not be categorically excluded from the policy unless based on best management practices developed and approved by the state.

RESPONSE: The water impacts resulting from livestock use is covered by the requirement of "reasonable land, soil and water conservation practices" under § 75-5-306, MCA. As defined by rule, this requirement assures protection of uses, which best management practices may not protect. Therefore, the change to best management practices will not be made.

250. COMMENT: Commentor 73 states that the language "on land where reasonable land, soil and water conservation practices have been applied" should be deleted in Rule VIII(1)(a), as this calls for a subjective interpretation.

RESPONSE: See Response 51.

251. COMMENT: Commentor 83 states that Rule VIII(1)(a) should be modified to replace all language after "reasonable" with "department approved best management practices."

RESPONSE: See Response 245, 246, and 249.

252. COMMENT: Commentor 88 states that Rule VIII(1)(a) should be amended to read "new or increased sources which are nonpoint sources of pollution where reasonable land, soil and water conservation practices are applied and existing and anticipated beneficial uses will be fully protected." This change would ensure prospective application of the law by imposing mandatory requirements only on "new" sources.

RESPONSE: The proposed rules apply only to new or increased sources. Excluded from the definition or any increased sources are activities or categories of activities under Rule VII and Rule VIII. This exclusion precludes the application of the policy to certain nonpoint sources meeting the conditions of (1)(a). Since the suggested modification is not necessary to prevent retroactive application and may be confusing, the suggested change will not be made.

253. COMMENT: Commentor 94 states that Rule VIII(1)(a) should be deleted because best management practices do not protect beneficial uses.

RESPONSE: See Response 245, 246, and 249.

254. COMMENT: Commentor 95 states that under Rule VII(1)(a), if
mean annual changes in flow are to be considered, then every new dam, sediment pond, stock pond, many new mines, and spreader dike irrigation systems will be significant. The rule should also define the level of data required for this determination.

RESPONSE: Changes to Rule VII(1)(a) have been made in response to Comments 160 and 163, which may address some of the concerns of this commentor. It is not anticipated that the activities listed above will automatically result in degradation due to a consideration of changes in stream flow. Finally, the level of data required for this determination will be based upon best professional judgment.

255. COMMENT: Commentor 112 states that Rule VIII(1)(a) should remain as it is.

RESPONSE: Comment noted.

256. COMMENT: Commentor 114 states that "reasonable land, soil, and water conservation practices" should be clarified. If best management practices are used and impacts result, there should be opportunity to change the practices without triggering non-degradation.

RESPONSE: This term is defined in the surface water quality standards. In practice, if impacts result the department would have numerous enforcement options including requiring a change in the practices.

257. COMMENT: Commentor 118 suggests that "reasonable land, soil, and water conservation practices" be better defined and asks whether current best management practices for fertilizer application are considered "reasonable land, soil, and water conservation practices? The rules should also provide an exclusion for certain nonpoint source agricultural operations as required by Section 13 of HB 757.

RESPONSE: The surface water quality standards defines the term "reasonable land, soil, and water conservation practices", therefore, no further clarification is necessary for the purpose of these rules. Rule VIII(1)(b) provides a categorical exclusion for the use of agricultural chemicals in accordance with a chemical ground water management plan in order to be consistent with the provisions of § 80-15-219, MCA. This section requires the state's water quality standards to include within the definition of "reasonable land, soil, and water conservation practice" the application of agricultural chemicals according to an agricultural chemical ground water management plan, for both point and nonpoint sources, and to exclude those sources from the ground water permit requirements. In addition, the use of agricultural chemicals, including pesticides, fertilizers, insecticides and herbicides, in accordance with label directions is considered a reasonable practice.
department, in co-operation with the USDA Soil Conservation Service, will continue to evaluate fertilizer practices to determine if such practices should be modified to further protect water quality.

RUL E VII[(1)(b) - NONSIGNIFICANT ACTIVITIES - AGRICHEMICAL
258. COMMENT: Commentor 82 states that the categorical exclusion for agricultural practices in Rule VII(1)(b) should be deleted. These practices are one of the major factors degrading water quality.

RESPONSE: See Response 257.

259. COMMENT: Commentor 91 asks whether Rule VII(1)(a) and (b) allows use of agricultural chemicals without review under these rules? Does this include the application of aquatic herbicides?

RESPONSE: The use of agricultural chemicals without review is provided under Rule VII(1)(b) provided the conditions in that rule are met. The application of aquatic herbicides is covered by Rule VII(1)(c) and (e).

260. COMMENT: Commentor 96 states that the agricultural activities exempted in Rule VII(1)(b) may cause more impact than rural residential development.

RESPONSE: See Response 257.

261. COMMENT: Commentor 118 asks whether Rule VII(1)(a) and (1)(b) apply to products used for mosquito control?

RESPONSE: This activity is covered under Rule VII(c) and (e). See also Response 257.

RUL E VII[(1)(c) - NONSIGNIFICANT ACTIVITIES - EMERGENCIES
262. COMMENT: Commentors 42 and 43 propose new language for Rule VII(1)(c): Changes in existing water quality resulting from an emergency or remedial activity or water treatment or management that is designed to protect public health or the environment and is approved, authorized, or required by the department;

This language recognizes that changes resulting from treatment or water management that is desirable for the protection of public health or the environment properly should be deemed nonsignificant.

RESPONSE: Generally, treatment requirements are part of the MPDES permit requirements. Nondegradation review will apply whenever the department issues a permit. Therefore, a categorical exclusion based on water treatment or management is inappropriate and the suggested change will not be included in the final rule.

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263. COMMENT: Commentator 49 asks whether in Rule VIII(1)(c) does "remedial activity" include mandatory repairs to treatment plants?
RESPONSE: No, however these are not likely to be "new or increased sources.

264. COMMENT: Commentator 125 states that the words "or water treatment or management" should be added after the words "remedial activity."
RESPONSE: See Response 262.

RULE VIII(1)(d) - NONSIGNIFICANT ACTIVITIES - WELLS
265. COMMENT: Commentator 27 (DRES) proposes changes to Rule VIII(1)(d) and (k) to provide clarification of the types of oil and gas drilling activities that are covered under (k) and to correct citations under both (d) and (k).
RESPONSE: The proposed changes made for clarification and to correct citations have been adopted in the final rules.

266. COMMENT: Commentators 42 and 43 propose new language for Rule VIII(1)(d), as follows: "Use of drilling fluids, sealants, additives, disinfectants and rehabilitation chemical in water well or monitoring well or test hole drilling, development, or abandonment, or in exploratory drilling approved by the Department of State Lands under the Metal Mine Reclamation Act, if used according to department-approved water quality protection practices."
Similar language was also proposed for inclusion in (k) of this rule.
RESPONSE: The purpose of hard rock exploration holes is to obtain rock samples, not produce water. The Department of State Lands' (DSL) regulations covering hardrock exploration drilling do not specify the type of materials that may be used during drilling, other than a prohibition against the use of "hazardous materials." In addition, DSL regulations do not require complete plugging of abandoned exploration test holes. On the other hand, materials used during water well or monitoring well drilling are used in a manner that does not significantly change ground water quality. The net result of such drilling is a well that produces drinking water or water used for monitoring changes in water quality. Due to the different impacts to water quality resulting from well drilling as opposed to exploratory drilling, the proposed amendment is not justified.

267. COMMENT: Commentator 66 states that the criteria in Rule VIII(1)(d) should allow total allowable nitrates in groundwater (including background nitrates) to the level of 10 mg/l and to delete Rule VIII(1)(d) in its entirety.

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RESPONSE: In regard to nitrate limits, see Response 184 and 185. In regard to justification for leaving Rule VIII(1)(d) as proposed, see Response 266.

266. COMMENT: Commentor 96 states that many deep wells in western Montana are contaminated with bacteria. Since bacteria require oxygen to live, it appears that this contamination results from poor well construction.

RESPONSE: Some bacteria cannot live in the presence of oxygen and many bacteria cannot carry on their life cycles in the presence of oxygen. The presence of bacteria in ground water is not necessarily related to well construction.

269. COMMENT: Commentor 125 states that this section needs expansion to include test drilling for a variety of purposes that are not related to water wells or monitoring wells.

RESPONSE: Changes in water quality caused by other types of drilling is already included in Rule VIII(k) and (m). See Response 266.

RULE VIII(1)(e) - NONSIGNIFICANT ACTIVITIES - SHORT TERM
270. COMMENT: Commentor 10 states that nearly all highway projects will fail under Rule VIII(1)(e). Extensions to the 60 day time period have to be included in the rules.

RESPONSE: The 60 day limit may not be practical in certain instances and the rule will be amended to delete reference to a specific time.

RULE VIII(1)(f) - NONSIGNIFICANT ACTIVITIES - SEWAGE SYSTEMS
271. COMMENT: Commentor 7 asks whether individual wastewater systems utilizing designs approved and mandated by the Water Quality Bureau are adequate to protect ground water?

RESPONSE: Generally such systems will prevent violations of standards. Most of these systems, however, are not adequate to prevent degradation of water quality. See Response 290.

272. COMMENT: Commentor 9 suggests that "nitrate risk zones" be established in lieu of the restrictive 2.5 mg/l standard in Rule VII and require the involvement of local health officials and county sanitarians in order to put the burden of proving there is a water problem on the professionals instead of requiring the property owner to show there is not a problem.

RESPONSE: The suggested change does not explain what a nitrate risk zone is or how it would be implemented. In addition, it is the department, not local health officials, which is authorized by law to administer and enforce the provisions of the Water Quality Act. Finally, it is the duty of each individual to comply with the provisions of that Act. For these reasons, the suggested changes will not be included in the final rule.
273. COMMENT: Commentors 12, 14, 24, 26, 27, 30, 31, 32, 34, 37, 40, 41, 47, 52, 62, and 63 state that a critical issue in this matter is the general inefficiency of septic systems and the risks to human health and the environment associated with their use. Extensive attachments, information, and comments were enclosed to provide the board with information on this issue. In general, these commentors propose that septic systems are ineffective in removal of many kinds of pollutants including viruses and solvents. While the rules evaluate the significance of septic systems based upon nitrogen, a nutrient, there are other pollutants which are more of a risk to human health and the environment. Therefore, the provision on lenient significance criteria for septic systems, based primarily upon nitrogen, does not honestly address the criteria and the guidance established in the Water Quality Act or SB 491.

RESPONSE: See Response 179, 183 through 190.

274. COMMENT: Commentor 37 states that through November of this year, 790 sewage treatment systems have been installed in Flathead County. In reviewing past and present ground water nitrogen data for water systems there is an obvious overall increasing trend (table enclosed). These water systems are not located in areas of high agricultural practice. Most of the increases in nitrate concentration could be attributed to on-site sewage treatment systems. We can expect the concentrations of nitrate to continue to increase if stricter controls are not established.

RESPONSE: Comment noted.

275. COMMENT: Commentor 41 states that the strict standard of 2.5 mg/l will require a complex model for analysis of each subdivision as the simplistic models, such as the Bauman-Schaffer mass balance, will over-predict nitrate contributions. This requirement will increase the costs for developers.

RESPONSE: See Response 201.

276. COMMENT: Commentor 41 suggests that the drinking water standard of 10 mg/l compared with the 2.5 mg/l limit in Rule VII raises a question as to the factor of safety that should be required. We are now at 10 mg/l for a MCL, and 2.5 mg/l will soon become a new standard under these rules. There should be a scientific basis for the selection of numbers in the rules.

RESPONSE: See Response 199.

277. COMMENT: Commentor 50 proposes a two fold solution: (1) establish as a nitrate discharge standard for domestic sewage treatment systems the 10.0 mg/l drinking water standard; (2) authorize the department of health to designate “nitrate risk zones”. This concept would obviously require the agency to solicit the input from local sanitarians and water districts.
professionals to locate those areas of our state which are in
risk of nitrate pollution. A property owner within these risk
zones would then know that mitigation procedure A or mitigation
procedure B would be required. It places the burden of proof
upon the water professionals, to isolate problem areas and work
with local sanitarians and developers within those areas to
protect ground water. The commentor proposes the following
definition: "Nitrate risk zones" means a district created by
DHSS at the request of local government to identify where ni-
trate levels for domestic sewage treatment systems where re-
sulting nitrate concentrations, outside of any applicable mixing
zones, will not exceed 10.0 mg/l. Districts shall be es-
tablished by DHSS considering the following criteria: (i) den-
gity of septic systems, (ii) number of wells in shallow aquif-
ers, (iii) soil type.

RESPONSE: For purposes of implementing the nondegradation poli-
cy, allowing increases in nitrates to the level of the standard
directly contravenes the purpose of the policy, i.e., the pro-
tection of high quality waters. In addition, there is no au-
thority under the Water Quality Act or under the rulemaking
authority of the board that would allow the department to es-
tablish nitrate risk zones in a community. The nondegradation
policy is to prevent degradation, not to assess problem areas
and prescribe mitigation for polluted areas. For these rea-
sons, the proposed change will not be included in the final
rule.

278. COMMENT: Commentor 50 proposes changes for Rule VIII(f)
and (g): (f) Domestic sewage treatment systems which discharge
to ground water and which are designed, constructed and operat-
ed in accordance with the applicable standards, and where re-
sulting concentration, outside of any applicable mixing zone
designated by the department, will not exceed 2.50 mg/l nitrogen-
compounds measured as nitrogen, as long as the changes caused by such systems will not result in a detectable change
in the nitrogen concentration in any perennial surface water
are located outside of designated "nitrate risk zones".

(g) Domestic sewage systems in areas in which the existing
nitrogen concentration is over 2.50 mg/l, will not exceed
5.00 mg/l nitrogen compounds measured as nitrogen. Nitrate
risk zones which apply best management practices and/or ad-
vanced treatment system to reduce pollutants.

RESPONSE: See Response 277, 184 and 185.

279. COMMENT: Commentors 72 and 89 state that domestic sewage
systems should not be allowed to degrade ground water to 2.5
mg/l and 5 mg/l in Rule VIII.

RESPONSE: See Response 184 and 185.

280. COMMENT: Commentors 78 and 81 state there must be a Rule
VIII. All septic systems will require a mixing zone. It is not
practical for the department to go through the review process for all of them.

RESPONSE: Comment noted.

281. COMMENT: Commentor 84 states that if the department wishes to outlaw or severely restrict the use of septic tanks, they should identify and approve alternatives, provide cost and effectiveness statistics, and go to the legislature and let them decide.

RESPONSE: The proposed rules do not prohibit the use of septic systems, but will impose limits on the concentration of nitrates from those systems.

282. COMMENT: Commentor 84 states that the state has adopted the Bauman Schafer model.

RESPONSE: This is not correct. Until a better model is proven acceptable, the department will continue using this method. Applicants are free to use more precise and less conservative methods as long as they can justify their use.

283. COMMENT: Commentor 96 states that these rules could increase the cost of housing and eliminate a number of homesites in eastern Montana, if the acceptable level of nitrate is 2.5 mg/l and if the conservative Bauman and Schafer model is used.

RESPONSE: Rule VII(1)(d) has been modified to allow consideration of background nitrogen levels. See Response 164. The rational for considering background levels is in response to comments including the following information.

Data has been obtained on present nitrate-nitrogen concentrations in the ground water of various counties in Montana by sampling 3,400 wells, which were randomly selected. See, Bauder, Sinclair, and Lund, "Physiographic and Land Use Characteristics Associated with Nitrate-Nitrogen in Montana Groundwater", 22 J. Environ. Qual. 255 (1993). In 15 of the counties the average nitrate concentration exceeded 1 mg/l; in 21 of those counties, nitrate concentrations exceeded 2.5 mg/l. Of the total 3,400 wells tested, nearly 6% of the wells had nitrate concentrations exceeding the drinking water standard of 10 mg/l. The elevated nitrate concentrations did not seem to be associated with residential development.

In addition, calculations performed by DHEC staff for a typical household with a standard disposal system and drainfield oriented perpendicular to the direction of ground water flow, the nitrate-nitrogen value at the edge of the mixing zone would be 5.9 mg/l. This calculation is based on current assumptions of mixing, a background value of 1 mg/l nitrate-nitrogen, an aquifer of clean sand (i.e., K=1000 gal/day/sqft), and a gradient of .001. The above calculations are also based on a nitrate-nitrogen concentration of 60 mg/l nitrate-nitrogen for a standard drainfield along with a 17% reduction in the

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The value of 60 mg/l is relatively well established. The 17% reduction is not well established but appears slightly conservative.

Using the same assumptions except for the aquifer, evaluated as clean gravelly sand (i.e., K=10,000 gal/day/sq ft), the value at the edge of the mixing zone would be 1.5 mg/l nitrate-nitrogen. Using the same assumptions except for the aquifer, evaluated as a silty sand aquifer (i.e., K=100 gal/day/sq ft), the value at the edge of the mixing zone would be 26.7 mg/l nitrate-nitrogen.

Using the same assumptions given above except for the background nitrate-nitrogen value, now evaluated as being 2.5 mg/l, the corresponding values for nitrate-nitrogen at the edge of the mixing zone are the following: 6.8 (clean sand); 2.5 (clean gravelly sand); and 28.7 (silty sand). Based on this analysis and the information on existing nitrate concentrations in Montana ground water, it was evident that application of the originally proposed non-significance criteria would determine that many, if not most, standard disposal systems would cause degradation or result in values of nitrate above 2.5 mg/l at the edge of a mixing zone.

The costs for various systems and their estimated nitrate removal efficiencies are:

1. Standard in-ground septic tank drainfield on-site systems: $1500 - $2500; 10% removal.
2. Shallow place cap and fill systems: $2000 - $3000; 10% to 20% removal.
3. Low pressure systems: $3000 - $4000; 10% removal.
4. Bottomless sand filters: $5000 - $8000; about 50% removal.
5. Typical trench discharge sand filters: $6000 - $10,000; 50% to 70% removal.
6. Mound system or fill systems: $5000 - $10,000; 50% to 70% removal.
7. Soil discharge aeration chamber systems: $6000 - $8,000; 50% to 80% removal.

Costs for on-site sewage system are site specific. Therefore, costs will vary depending on site conditions, access, availability of material and contractor discretion, expertise, or bidding practices.

Other costs associated with on-site sewage systems include costs incurred when improper siting, density, design, construction, or maintenance results in a health hazard. States and local governments expend hundreds of thousands of dollars per year in man hours rectifying problems caused by inadequate systems. In certain areas in the state, such as at Frenchtown, homeowners and lending agencies have lost either the use of the property or the value of the property due to inadequate sewage treatment.

There are also instances where health hazards caused by inadequate on-site sewage systems required the construction and use of public treatment works in certain areas of the State.

In Montana, the cost associated with constructing these facilities ranges from $10,000 to $30,000 per lot.

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284. COMMENT: Commentor 96 asks how will the department handle cases where there are conflicting results from ground water monitoring; where there are varying levels of nitrate in the ground water?

RESPONSE: Spatial and temporal variations of nitrate in ground water can be natural or caused by the activities of man. In the event of conflicting results from ground water monitoring, additional samples are often necessary. Determining what action is appropriate will depend upon the range of discrepancy between monitoring results and the best professional judgement of department staff.

285. COMMENT: Commentor 104 states that as engineers we are required to use the Bauman-Schafer model. We should be able to use other models and the results should be viewed as guides. A higher limit and a realistic model are necessary.

RESPONSE: The use of a particular model is not required. See Response 201 and 282. See Response 184 and 185 regarding changes in the nonsignificance criteria.

286. COMMENT: Commentor 119 states that septic systems must not be considered nonsignificant. Flathead Lake is apparently being impacted now from such discharges and much of the ground water in the Missoula Valley is becoming unfit to drink due to septic systems. Nitrates are not just toxic in themselves, they also serve as an indicator of other contaminants, such as viruses. This commentor proposes a level at 1 or .1 ppm.

RESPONSE: See Response 184 and 185.

RULE VIII(1)(g) - NONSIGNIFICANT ACTIVITIES - SEWAGE SYSTEMS

287. COMMENT: Commentor 7 asks whether properly constructed individual wastewater systems remove 50% of the nitrogen load of raw sewage as required in part (g).

RESPONSE: Response 283 lists the estimated nitrogen removals for several types of systems. Some of these systems exceed 50% removal.

288. COMMENT: Commentor 7 asks how applicable mixing zones will be determined for individual wastewater system?

RESPONSE: Mixing zones will be determined using the mixing zone regulations adopted by the board.

289. COMMENT: Commentor 7 asks which alternatives are available for homes where the nitrogen level in ground water is greater than 2.5 mg/l.

RESPONSE: See Response 283 for alternative treatment systems. See Response 184 and 185 for changes in nitrate levels.

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COMMENT: Commentor 7 states that current design standards for individual wastewater systems are adequate to protect state waters and systems constructed in compliance with those standards should be considered to be nonsignificant.

RESPONSE: Current design criteria for individual wastewater systems will likely result in significant changes in water quality and may also cause a violation of standards in certain instances. Therefore, the proposal to consider individual wastewater systems nonsignificant, if constructed according to current design criteria, will not be included in the final rule.

COMMENT: Commentor 50 proposes changes for Rule VIII(1)(g): (g) Domestic sewage treatment systems in areas in which the existing nitrogen concentration is over 2.50 mg/l will not exceed 5.00 mg/l ... perennial-surface-water "nitrate risk zones" which apply best management practices and/or advanced treatment systems to reduce pollutants.

RESPONSE: See Response 277.

COMMENT: Commentor 83 states that the proposed non-significance levels of 2.5 and 5 mg/l are too high to provide an adequate safety margin.

RESPONSE: See Response 184 and 185.

COMMENT: Commentor 96 states that in regard to Rule VIII(1)(g), there is documented evidence that nitrate concentrations of effluent below septic tank systems are less than the 50 mg/l currently being used in the Bauman and Schafer model to approximate nitrogen loading. It might be better to address nitrogen loading of ground water in terms of an overall average.

RESPONSE: The nitrate concentrations delivered to ground water from standard septic systems are not well documented. The department will use the best available data in its evaluations. At the present time, 50 mg/l for total nitrogen appears to be reasonable. If an applicant can document that other levels are appropriate, those levels will be used.

COMMENT: Commentor 96 states that the depth of mixing in ground water is not always 10 feet and because a mixing zone cannot be defined in confined or leaky confined aquifers or bedrock or recharge or discharge zones - the actual mixing zone should be determined by the investigator (or applicant?) with final decision left to the department.

RESPONSE: Mixing zones will be determined according to rules adopted by the board.

COMMENT: Commentor 96 states that because of the mixing
zone depth, downgradient wells which are considerably deeper than the mixing depth should not be allowed to object.

RESPONSE: There is no provision in the law that provides an opportunity or right for downgradient well users to object.

296. COMMENT: Commentor 96 states that the model used by the department to predict impacts to ground water incorrectly assumes a worst case nitrate concentration in the effluent and in the natural precipitation.

RESPONSE: The model used by department staff is based upon conservative assumptions. The applicant can always provide justification for the use of different assumptions. If those assumptions are defensible, they will be used instead of the normal model.

297. COMMENT: Commentor 96 asks how the department will deal with seasonal changes in groundwater levels and concentrations?

RESPONSE: Seasonal changes will be addressed based on available data and best professional judgement.

298. COMMENT: Commentor 96 states that the department has overlooked the need for proper maintenance of septic systems in these rules.

RESPONSE: The proposal to address proper maintenance of septic systems in these rules is beyond the scope of this rulemaking. Therefore, the proposed change will not be made.

299. COMMENT: Commentor 96 states that the department should make it easier to get approval for alternatives to the conventional septic systems.

RESPONSE: This comment does not directly relate to the proposed rules and, therefore, cannot be addressed. There are plans, however, for the department to examine and perhaps recommend alternative systems.

RULE VIII(1)(h) - NONSIGNIFICANT ACTIVITIES - LAND APPLICATION

300. COMMENT: Commentors 30 and 47 state that land application of large amounts of wastes should require a department approved plan to be categorically excluded from department nondegradation review.

RESPONSE: To be excluded as nonsignificant, land application of wastes containing nutrients must be applied in a beneficial manner and meet certain conditions. Application rates must be based upon agronomic uptake of applied nutrients and other parameters cannot cause degradation. These restrictions are enough to meet the criteria in § 75-5-301(5)(c) to categorically exclude the activity without departmental review or approval.

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301. COMMENT: Commentors 42, 43, and 125 propose new language for Rule VIII (1)(h): "Land application of process wastes including, but not limited to, animal waste, domestic septage, or waste from public sewage treatment systems, or other wastes containing nutrients, where wastes are land applied in a beneficial manner, and application rates are based on the amounts of applied nutrients and other parameters which a complete agronomic uptake of applied nutrients and other parameters will not cause degradation."

RESPONSE: The term "other wastes" include process wastes. Therefore, its proposed inclusion in the rule is not necessary. Since complete agronomic uptake may never occur, the proposal to delete that portion of the rule requiring "complete" agronomic uptake has been included in the final rule. The other changes are unnecessary and will not be made.

302. COMMENT: Commentor 45 states that the language in Rule VIII (1)(h) should be changed from "complete agronomic uptake" to "annual maximum agronomic uptake". Complete uptake may be impossible to comply with.

RESPONSE: See Response 301.

303. COMMENT: Commentors 73 and 88 state that incidental leakage in Rule VIII (1)(h) should not be classified categorically as nonsignificant. If the effect is short term it is covered under (1)(e). If the effect is long term, it should be considered significant. The board should not provide exclusions for lack of rigor in design, construction, or operation of these systems. Commentor 47 states that (i), (j) and (k) in Rule VIII should be deleted because they are based on standards that do not meet the intent of SB 401, which is to prevent degradation.

RESPONSE: See Response 301.
RESPONSE: Incidental leakage from waste water systems designed in accordance with standards adopted pursuant to the state's Public Water Supply Act are considered nonsignificant because that amount of leakage is within the allowable limits of the best available technology applicable to those systems. Those activities excluded under (i) and (j) are considered nonsignificant based on the fact that there is no better technology for these systems and the amount of leakage is nonsignificant. For activities excluded under (k), see Response 310.

307. COMMENT: Commentor 89 states that the term "incidental" needs to be defined in Rule VIII(1)(i).

RESPONSE: The amount of incidental leakage allowed under current design standards will vary depending on the type of waste water system. Since the amount of leakage is not universally applicable to all systems, a definition describing the amount is not feasible.

308. COMMENT: Commentor 95 asks whether incidental leakage of cyanide is included in Rule VIII(1)(i).

RESPONSE: No. Rule VIII(1)(i) includes only those activities that are subject to the requirements of ARM 16.20.401-405. Those rules require department review and approval prior to the siting, construction, or modification of any public water supply and waste water systems.

RULE VIII(1)(i) - NONSIGNIFICANT ACTIVITIES - WATER TESTS
309. COMMENT: Commentor 93 states that the reference to discharges in Rule VIII(1)(j) needs to be followed by the word "water" also "wastewater from hardrock exploratory drilling and geotechnical drilling" needs to be added to this section.

RESPONSE: "Water" has been added to the final rule for clarification. The addition of "wastewater from hardrock exploratory drilling and geotechnical drilling" is not appropriate for the reasons stated in Response 266.

RULE VIII(1)(k) - NONSIGNIFICANT ACTIVITIES - OIL & GAS
310. COMMENT: Commentor 108 states that oil and gas activities are not insignificant sources of water pollution. This categorical exclusion should be deleted.

RESPONSE: Activities carried out in accordance with ARM Title 36 chapter 22 will not cause significant effects on water quality and, therefore, meet the guidance under § 75-5-301(5)(c), MCA. For this reason, the final rule will include these activities as nonsignificant.

RULE VIII(1)(l) - NONSIGNIFICANT ACTIVITIES - SHORT-TERM
311. COMMENT: Commentor 108 states that many everyday activities, such as fording streams with vehicles and stock watering along streambanks, cause significant degradation. These are
long term, cumulative, and significant.

RESPONSE: The categories of activities included as nonsignificant under Rule VIII were included after an assessment of their effect on water quality. Based upon best professional judgment, these activities were included only upon a determination that they met the guidance under § 75-5-301(5)(c), MCA. For this reason, the final rule will include certain everyday activities as nonsignificant.

RULE IX - IMPLEMENTATION - GENERAL
312. COMMENT: Commentors 42 and 43 state that the intended function of Rule IX is not clear. It should be clarified or deleted.

RESPONSE: Rule IX is necessary in those instances were there are no established water quality protection practices for a proposed activity.

313. COMMENT: Commentor 78 asks whether Rule IX recaptures activities that are exempt under Rule VIII?

RESPONSE: No. Rule 11(13)(d) excludes from the definition of "new or increased source" activities that are categorically excluded under Rule VIII. See also Response 312.

GENERAL - NONDEG - IN ORDER OF APPEARANCE
314. COMMENT: Commentors 2, 21, 25, 26, 30, 39, 40, 42, 43, 64, and 71 state that the minimum detection limit (MDL) is inappropriate for use in the rules because it is set at a level for which technology is unavailable for reliable monitoring.

RESPONSE: See Response 1 through 12.

315. COMMENT: Commentor 17 states that the DHES should strive for the adoption of mixing zone rules as soon as possible.

RESPONSE: Comment noted.

316. COMMENT: Commentor 20 states that care must be taken to be sure the rules do not vary from the original intent of the legislature in passing SB 401.

RESPONSE: Comment noted.

317. COMMENT: Commentor 20 asks what kind of assessment has been done to determine the economic impact of these rules on Montana. Commentor 129 states that extreme care should be taken to assure the standards set are financially feasible.

RESPONSE: None. The proposed rules are being adopted in response to the legislative enactment of SB 401. This law requires the adoption of rules implementing its provisions. It is not appropriate for the agency to withhold the adoption of

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rules based upon economic considerations when those rules implement legislative intent.

318. COMMENT: Commentor 23 recommends incorporating language from the Statement of Intent in SB 401. This language may provide additional guidance, which would ensure that the agency and the public understand how the economic and social criteria are to be analyzed according to the intent of the policy.

RESPONSE: The Statement of Intent (Statement) was considered during the drafting of these proposed rules in order to implement the legislative intent to maintain existing high quality waters. Specific language from the Statement regarding the adoption of economic and social criteria provides little guidance on how the actual analysis should be conducted. For the reasons given above, specific language from the Statement will not be included in the final rule.

319. COMMENT: Commentor 23 states that the subcommittee recommends that the DHES analyze the entire nondegradation review process to ensure adequate opportunity for public involvement at each decision point.

RESPONSE: § 75-5-303, MCA, requires public involvement prior to a final decision by the department to allow degradation. Beyond this requirement, the rules include opportunity for public comment wherever it was considered practical or good policy. Public involvement in the rulemaking proceeding also guides agency decision making regarding agency procedures and criteria to implement the policy.

320. COMMENT: Commentor 26 states that DHES’s proposed rules do not comply with Montana’s Constitution.

RESPONSE: The proposed rules are being adopted in response to the enactment of SB 401. The constitutionality of a legislative enactment is prima facie presumed. Fallon County v. State, 231 Mont. 443, 753 P.2d 338 (1988). Moreover, the constitutional validity of SB 401 was considered during the debate regarding its passage. Since the proposed rules do nothing more than implement the law, the proposed rules are constitutionally valid.

321. COMMENT: Commentors 26, 30, 33, 34, 40, 47, 60, 72, 73, 75, 78, 83, 106, 115, 120 and 129 state that the proposed rules do not comply with the legislative mandate to ensure implementation of the nondegradation policy, because parts of the proposed rules are contingent upon a proper characterization and definition of mixing zones. Therefore, any part of the rules that rely on mixing zones should not be promulgated until mixing zone regulations have been adopted.

RESPONSE: Mixing zone rules have been developed and filed with the Secretary of State for adoption by the board. If possible, Montana Administrative Register 15-8/11/94
those rules will be adopted concurrently with the nondegradation rules. If this is not possible, the nondegradation rules could be adopted and implemented prior to the adoption of the mixing zone rules. In that event, the department would establish mixing zones according to the guidance in § 75-5-301(4), MCA.

322. COMMENT: Commentors 27 and 77 encourage early adoption of these rules, recognizing they will need modification as more experience in implementation of the nondegradation policy is achieved. The statute has been in effect since April 29, 1993, and continued implementation without promulgated rules exposes the department and the regulated community to uncertainty and risks.

RESPONSE: Comment noted.

323. COMMENT: Commentor 27 (DHES) suggests that the board must look to the guidance in the Water Quality Act to ensure the rules' compliance with legislative intent. This is of particular concern in terms of the establishment of criteria for the determination of nonsignificance and categories of nonsignificant activities.

RESPONSE: Comment noted.

324. COMMENT: Commentor 30 states that the rules should have a provision which makes it clear that a department determination of significance will over-rule a self determination of nonsignificance.

RESPONSE: § 75-5-211 and 75-5-303, MCA, vest the department with the administration and enforcement of the Water Quality Act's nondegradation requirements. A prohibition against degrading without authorization from the department is also contained in § 75-5-605(1)(d), MCA. This authority clearly establishes that, if the department determines that an activity will cause degradation, then appropriate action may be taken to enforce the provisions of the policy. No change in the rules is necessary to clarify this authority.

325. COMMENT: Commentors 30, 40, and 83 state that the rules should contain a clear statement that degradation violates the Water Quality Act. Penalties for such violations should appear in the rules.

RESPONSE: Under § 24-4-305(2), MCA, agency rules cannot unnecessarily repeat statutory language. Since § 75-5-605(1)(d), MCA, states that it is unlawful to cause degradation without authorization, there is no need to repeat that language in the rules. Penalties for violations are beyond the scope of this rulemaking and will not be included in the rules.

126. COMMENT: Commentor 30 states that the Water Quality Act

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and the nondegradation policy are intended to protect aquatic life and communities. The department is developing biotic criteria. Rule VII(2) should be modified to state that these criteria will be used to determine that degradation is significant.

RESPONSE: These biotic criteria may at some point be adopted as standards. Presently, it appears that any detectable biological change would be a violation of standards. The nondegradation rules prevent any measurable changes in water quality and therefore, will be more stringent than adopting biological "triggers" for the purpose of determining nonsignificance.

327. COMMENT: Commentors 33, 34, and 40 state that SB 401 requires a five year review of nondegradation exemptions. The October 20, 1993 draft rules addressed this in Rule X. Rule X should be reinstated in these proposed rules.

RESPONSE: § 2-4-305(2), MCA, prohibits the promulgation of rules that unnecessarily repeat statutory language. § 75-5-303(6), MCA, expressly states that authorizations to degrade shall be reviewed every 5 years. For this reason, Rule X was not included in the final rules.

328. COMMENT: Commentors 38, and 44 state that the intent of SB 401 was to implement a workable nondegradation policy for Montana. While the legislation is strict, and will protect water quality, the proposed rules have gone beyond the intent of SB 401 and should be modified. These rules should not be adopted until their entire ramifications are understood.

RESPONSE: The proposed rules conform to the guidance in § 75-5-301 and 75-5-303, MCA, and will remain as proposed except for changes made as discussed herein. Delaying the adoption of the rules until their ramifications are known is not a solution to the immediate need for implementation of the policy.

329. COMMENT: Commentor 46 states that the rules should not address water rights because adequate protection is afforded in 85-2-111, MCA. (g) the water quality of a prior appropriator will not be adversely affected; (h) the proposed use will be substantially in accordance with the classification of water set for the source of supply pursuant to 75-5-301(1), MCA; and (i) the ability of a discharge permit holder to satisfy effluent limitations of a permit issued in accordance with Title 75, chapter 5, part 4, will not be adversely affected.

RESPONSE: See Response 51.

330. COMMENT: Commentor 49 asks what protocol is to be applied to substances that are monitored for and found to be at least than detection limits? This commentor suggests that the protocol should be established to allow any substance with a reported concentration less than detection limits be deemed not pres-
ent or zero.

RESPONSE: Any levels less than the required "reporting" levels in WQB-7 will be considered as zero, provided there is no conflicting evidence. Since the reporting levels address this commentor's concern, no change is necessary in the proposed rules.

331. COMMENT: Commentor 50 states that if maintaining no change in water quality is the only framework under which implementation of the policy can be accomplished, there is no point in considering any of the comments.

RESPONSE: The proposed rules do allow nonsignificant changes in water quality, as well as provide procedures for obtaining an authorization to degrade.

332. COMMENT: Commentor 50 states that rational people support the concept that whenever, in the establishment of public policy, you have scientific evidence which established that as a result of an action people's health will suffer, that is an objective criteria. There are always changes which will occur; these changes may or may not be harmful to human health.

RESPONSE: See Response 333.

333. COMMENT: Commentor 50 states that the agency concludes that no chemical change to the water is the standard. This commentor suggests that a standard is reasonable if it does not compromise public health. Therefore, the rules should be based on standards that protect human health rather than a "no change" standard.

RESPONSE: The nondegradation policy was enacted to protect quality better than the standard by maintaining that high quality. The difference between the policy and the water quality standards is that the standards protect public health and the environment, while the nondegradation policy protects and maintains existing water quality. Therefore, rules implementing the policy must be based on the maintenance of quality rather than the protection of health.

334. COMMENT: Commentor 50 states that the legislature was clear that it expected the agency to develop reasonable standards and expressed concern about social and economic factors. The legislature expected significant changes would be monitored by the agency. What they got, is that every proposed water use in the state of Montana is subject to agency review, with the applicant forced to prove they do not have a problem. I do not believe this is what the legislature intended.

RESPONSE: Activities that meet the nonsignificance criteria are not necessarily under department review, unless the individual requests a nonsignificance determination from the department or
the activity is otherwise permitted by the department.

335. COMMENT: Commentor 52 states that the original intent of individuals proposing the nondegradation legislation was to make subdivision developments accountable for degradation of surface waters in a manner similar to that being required for the mining industry. Since the issue of ground water degradation is now part of the policy, the allowable limits for nitrate in ground water should be based on modelling bacterial/viral transport versus nitrate.

RESPONSE: The committee notes show that the legislature was aware that SB 401 applied to both surface and ground water. Using nitrate as an indicator for bacterial/viral transport, however, is not appropriate. In situations where nitrate levels are the result of naturally occurring nitrate or applied nitrates from agricultural operations, there is no concern over bacterial/viral transport.

336. COMMENT: Commentor 52 states that work must progress towards promoting state of the art rather than acceptance of the status quo in the appropriate technologies. We desperately need to abandon the outmoded emphasis which utilize only system-by-system impact analyses. An approach which first takes into account cumulative effects and then considers the particular impacts, regardless of any specific focus or parameter, may soon be seen as being an absolute requirement.

RESPONSE: Cumulative effects on water quality are addressed through monitoring and wellhead protection programs. While the proposed rules do not specify procedures for tracking cumulative impacts, those effects will be addressed when required.

337. COMMENT: Commentor 57 states that the proposed rules approach to increased population must be brought closer to reality.

RESPONSE: Comment noted.

338. COMMENT: Commentor 58 submitted a verbatim transcript of the summarized paragraph in minutes of the House Taxation Committee on February 4, 1993, on the department's proposed fee bill.

RESPONSE: This comment is not germane to the proposed rule.

339. COMMENT: Commentor 59 states that the rules must have all references to retroactive agency review deleted.

RESPONSE: Rule 1(13) defines new or increased sources as those activities occurring on or after the effective date of the nondegradation statute. No further change is necessary to prevent retroactive application of the rule.

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340. COMMENT: Commentor 60 states that many of the comments submitted by the Lewis & Clark Water Quality Protection District were not addressed in the final draft and most of the questions asked remain unanswered. This is disappointing given the time spent in reviewing the proposed rules.

RESPONSE: During the informal review process all comments were considered and the proposed rule reflects the result of this consideration. The law does not require a formal agency response to informal rule proposals. More importantly, the volume of these comments and limited agency resources precluded the development of formal responses.

341. COMMENT: Commentor 67 states that mixing zones should not be exempt from the degradation policy.

RESPONSE: See Response 173.

342. COMMENT: Commentors 67, 69, 70, and 129 state that strict limits, perhaps in scope and duration, should be placed on the size of the mixing zones.

RESPONSE: The proposed rules implement the nondegradation policy, not the mixing zone requirements. Comments on the mixing zone rules will be considered during the adoption of those rules.

343. COMMENT: Commentor 67 states that the mixing zones limits should be available for public review prior to nondegradation approval.

RESPONSE: See Response 342. Public review of mixing zone limits will be available during the rulemaking proceeding for mixing zone requirements. In addition, a supplemental notice for the nondegradation rules will allow public comment on mixing zones concurrently with the nondegradation rules.

344. COMMENT: Commentor 68 states that the proposed rules reflect the intent of the legislature.

RESPONSE: Comment noted.

345. COMMENT: Commentor 68 states that standards should be measurable and achievable.

RESPONSE: See Response 1 through 12.

346. COMMENT: Commentor 69 states that citizens must have access to information in all phases of the permitting process.

RESPONSE: See Response 103.

347. COMMENT: Commentor 69 states that prohibiting subsurface mixing zones should be considered.
RESPONSE: Prohibiting subsurface mixing zones is not practical. Therefore, the final rules will allow such mixing zones.

348. COMMENT: Commentator 70 states that the concept of mixing zones should be retained in the nondegradation rules.

RESPONSE: The final rules allow mixing zones.

349. COMMENT: Commentator 71 states that the department should not propose changes to the rules during the hearing without opportunity for public comment.

RESPONSE: See Response 244.

350. COMMENT: Commentator 71 states that the board should reconsider the entire concept of categorical exclusions.

RESPONSE: § 75-5-101(5)(c), MCA, authorizes the adoption of criteria for "... determining whether a proposed activity or class of activities will result in nonsignificant changes in water quality..." This provision allows the adoption of categories of activities that are nonsignificant. Those categories will remain in the final rule as implementation of the policy without such categories is not feasible.

351. COMMENT: Commentator 71 states that the proposed rules interpret the nondegradation too broadly in that they equate any change in the environment to pollution.

RESPONSE: The proposed rules allow nonsignificant changes in water quality, as well as provide procedures for authorizations to degrade. For this reason, the proposed rules fairly meet the intent of the nondegradation statute and will not be changed to conflict with that intent.

352. COMMENT: Commentator 73 states that the rules should be amended to provide a more reasonable approach to economic development in the State. Without amendment, the rules will seriously discourage and impede economic growth.

RESPONSE: The proposed rules have been modified in response to public comment. Whether or not the economic impact of the rules is lessened as a result of those modifications is unknown. More importantly, it is not appropriate for the agency to consider the economic impact of rules when those rules are a direct response to a legislative enactment.

353. COMMENT: Commentator 75 states that these rules will not irrepairably harm the agriculture and timber industries and will not ruin the hardrock and real estate development industries. The rules will make them pay for the environmental costs of their actions— as they should.

RESPONSE: Comment noted.
364. COMMENT: Commentor 75 states that the real-estate industry claims that these rules will potentially harm housing availability, yet they are responsible for impacts on the environment. The industry has promoted the benefits of clean water without accepting responsibility for degrading the resources.

RESPONSE: Comment noted.

365. COMMENT: Commentors 75, 76, and 89 state that if a discharge needs a mixing zone, it is significant.

RESPONSE: See Response 173.

366. COMMENT: Commentor 75 states that mixing zones are not appropriate for substances that bioaccumulate or biomagnify.

RESPONSE: The proposed rules do not allow mixing zones for these substances. Therefore, no change in the rules is necessary to address this comment.

367. COMMENT: Commentor 75 states that Montana does not have plenty of clean water to throw away. We must have a strong and enforceable nondegradation policy.

RESPONSE: Comment noted.

368. COMMENT: Commentors 76 and 77 state that anti-degradation means no loss of beneficial uses. Please, reconsider your proposed changes to ensure the protection of uses.

RESPONSE: The proposed rules include an overriding requirement in Rule III(2)(a) that assures the protection of existing and anticipated uses. Therefore, no change to the rules is necessary to protect beneficial uses.

369. COMMENT: Commentor 77 states that nitrate limits for domestic sewage should be controlled by amending rules for permitting domestic sewage systems.

RESPONSE: The nondegradation requirements are separate from the permitting requirements for domestic sewage systems. The proposed rules must implement the policy consistent with the requirements of the statute and according to the guidance in the rulemaking authority. Neither the nondegradation statute nor the rulemaking authority provide for rules regulating the permitting requirements of domestic sewage systems.

370. COMMENT: Commentors 77 and 78 state that the rules need to balance the need for protecting the environment with the need to maintain and promote a mining industry in Montana.

RESPONSE: This comment is not specific enough to provide a response. The proposed rules are reasonably necessary to implement the policy and are consistent with its requirements.
361. COMMENT: Commentors 78, 80, 88, 93, 94, 96, 112, 113, and 115 state that adoption of the proposed rules should be delayed until the board's meeting in March in order to properly consider the comments and to allow review of the effects of the mixing zone rules, which should be ready at that time.

RESPONSE: Adoption of the proposed rules is being delayed until all responses to comments have been addressed. The mixing zone rules will be adopted at the same time as the nondegradation rules if possible.

362. COMMENT: Commentor 79 states that these rules amount to confiscation of private property by reducing the value of property for alternate uses.

RESPONSE: It is presumed that legislative enactments are constitutional. See e.g., Response 320. Therefore, it must be presumed that the nondegradation statute and its implementing regulations do not take away or destroy the use of private property in violation of the constitution.

363. COMMENT: Commentors 79 and 80 state that these rules are an expression of the anti-business government policy.

RESPONSE: This comment is not specific enough to formulate a response. As far as the general criticism of the proposed rules, the proposed rules fairly meet the intent of and are consistent with the nondegradation statute enacted by the legislature.

364. COMMENT: Commentor 80 states that some of these rules will preclude the possibility of responsible development.

RESPONSE: The rules implement the nondegradation policy. The policy is meant to protect the state's water and thereby promote responsible development.

365. COMMENT: Commentors 83 and 94 state that these rules, by allowing further pollution, put the Bull Trout in further jeopardy.

RESPONSE: The nondegradation statute and Rule III(2)(a) protect existing and anticipated uses by requiring the quality of water necessary to protect those uses. For this reason, the proposed rules will not endanger the Bull Trout.

366. COMMENT: Commentor 84 states that these rules will add to the problem of affordable housing.

RESPONSE: Comment noted.

367. COMMENT: Commentor 84 states that the department needs to be consistent and not change its position on significance.
RESPONSE: Comment noted. The final rules will include the nonsignificant criteria as modified in response to comments.

368. COMMENT: Commentor 84 states that we do not have enough basic data about existing conditions in ground water to adopt new rules.

RESPONSE: The board is required by law to adopt rules implementing the nondegradation policy. Obtaining data on existing ground water conditions is not reason to delay the promulgation of rules required for the protection of those waters. For this reason, delay in adopting the rules is inappropriate.

369. COMMENT: Commentor 84 states that instead of adopting rules that would prohibit septic tanks and drainfields, the state should identify and provide specific alternatives, provide the public with detailed cost and effectiveness statistics, and present a proposal to the Legislature to outlaw or restrict septic tanks and drainfields.

RESPONSE: Implementation of the policy concerns the protection of water, not the identification of alternatives or an analysis of costs for alternative systems. In addition, although the policy and its implementing rules may limit or restrict the use of these systems, they do not impose an absolute ban on their use.

370. COMMENT: Commentor 84 suggests a rule for determining nonsignificance that would prohibit discharges to ground water within 1000 feet of a major stream, unless the discharge waters are of equal or better quality than the receiving stream. The rationale for this rule is that the proposed rules require methods of detecting water quality that are not feasible. Commentor 79 suggests that there should be no distance requirement.

RESPONSE: Limitations in the nonsignificance rules are based upon the criteria in § 75-5-101(5)(c), MCA, which require a consideration of the effects on water quality. A rule that is not based on the effects on water quality is inappropriate, especially when it relies on an arbitrary distance from water. Therefore, the suggested change will not be included in the final rule.

371. COMMENT: Commentor 84 and 85 state that the new rules do not have acceptable methods for determining compliance and that professional people in the field cannot furnish the required data.

RESPONSE: See Response 40.

372. COMMENT: Commentor 85 states that the objectives of SB 401 have not been achieved by these rules. They should be revised.
RESPONSE: This comment is not specific enough to formulate a response.

373. COMMENT: Commentor 86 states that the requirements for reviews of authorizations every 5 years should be in these rules.
RESPONSE: See Response 327.

374. COMMENT: Commentor 89 states that the only provision for public participation is in the proposed amendment to Rule VII(3). There should be more opportunity for citizen participation on activities that have the potential to degrade state waters.
RESPONSE: See Response 101.

375. COMMENT: Commentor 90 states that there is no absolute constitutional prohibition against degradation, but the protection of water must be balanced against the inalienable right of pursuing life's basic necessities, including the right to acquire property and use water for beneficial purposes. The rules should implement the nondegradation policy by defining the details of this balance in a reasonable way. To be reasonable the rules must define achievable goals and parameters.
RESPONSE: The proposed rules were drafted in view of the Statement of Intent included in SB 401 and the guidance in § 75-5-301, MCA. For these reasons, the rules should achieve this balance.

376. COMMENT: Commentor 92 states that the current provisions for development of site specific standards should be retained.
RESPONSE: Proposed amendments to the water quality standards retain the provisions for site specific criteria. The current provisions have been modified in this rulemaking and extended to other stream classifications, which do not include provisions for site specific criteria.

377. COMMENT: Commentors 92 and 93 state that these rules do not treat all sources of nitrate equally. Agricultural practices contribute large amounts of nitrate, some of which are unregulated. All sources should be treated equally.
RESPONSE: See Response 227.

378. COMMENT: Commentor 93 asks whether lowering of water quality means concentration, load, or both?
RESPONSE: See Response 146.

379. COMMENT: Commentor 95 states asks what the relationship is.
between "significance" as used in these rules and "significance as used in MEPA? If they are not the same, a different term should be used in these rules.

RESPONSE: There is no relationship between the use of the term "significance" in these rules and as it is used in MEPA. "Significance", as used under the proposed rules, provides a method for determining what types of activities are considered nonsignificant according to criteria which addresses potential for harm to human health and the environment. Under those criteria, activities found nonsignificant are excluded from the definition of "degradation" due to their low potential to significantly change existing water quality. This determination of significance is a very narrow assessment of the change in existing water quality. Significance under MEPA, on the other hand, considers a broad range of impacts to the "human environment", including secondary impacts, in order to determine whether an Environmental Impact Statement is required. Through this rulemaking proceeding, a consideration of impacts to water quality has been conducted similar to the analysis required by MEPA. The use of the term "significance" will remain in the final rule, as it is consistent with the legislative directive to develop criteria for determining nonsignificant changes in water quality.

380. COMMENT: Commentor 95 asks whether these rules apply to hard rock and placer exploration? Is the department prepared to review approximately 300 to 600 such activities per year? Should they be categorically exempted?

RESPONSE: Yes, the rules do apply to hard rock and placer exploration. The department will, within the constraints imposed by staffing limitations, review all such exploration activities in a timely manner.

381. COMMENT: Commentor 96 states that these rules do not "prohibit" degradation.

RESPONSE: The proposed rules are consistent with the nondegradation policy, which does not prohibit degradation but provides a process for making an informed decision on whether or not degradation may be allowed according to the requirements of § 75-5-303, MCA.

382. COMMENT: Commentor 98 asks how the cases where the actual levels are less than reliable quantification levels will be handled?

RESPONSE: See Response 6, 7, 12, and 40.

383. COMMENT: Commentor 99 states that water is our most important resource and the proposed rules must achieve a balance in determining what kinds of human activities are important enough to compromise water quality.

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RESPONSE: The proposed rules have been developed according to the guidance in the nondegradation statute and in response to public comment. Accordingly, the proposed rules allow only non-significant changes in water quality and provide a process for full public participation in any decision to authorize degradation. The procedures for allowing degradation ensure that only those activities that benefit society will be allowed.

384. COMMENT: Commentator 100 states that the current policy should not be weakened and opposes its amendment by SB 401.

RESPONSE: This comment cannot be addressed because the 1971 nondegradation policy was amended by SB 401 during the 1993 legislative session. Consequently, the proposed rules implement the new nondegradation policy.

385. COMMENT: Commentators 101, 105, 106, 109, 110, 127, 128, and 129 state that our water quality should not be lowered. Our water quality should be raised.

RESPONSE: The nondegradation policy is not meant to improve the quality of water, but to maintain existing water quality. The proposed rules implement this policy.

386. COMMENT: Commentator 103 states that the final decision of these rules should be postponed for 6 months to allow for further study and public input. In the interim, the current standards and rules should be applied.

RESPONSE: During the 1993 legislative session, the provisions of the 1971 nondegradation law were repealed and replaced by the provisions of SB 401. With the repeal of the 1971 provisions, the rules implementing the 1971 policy were no longer consistent with the requirements of SB 401. Consequently, those rules cannot implement the requirements of the new law, which became effective April 29, 1993. The suggestion to delay adoption of the proposed rules and use the old rules would contravene existing statutory requirements and, therefore, must be rejected.

387. COMMENT: Commentator 103 asks what the economic impact of the rules is?

RESPONSE: The proposed rules were developed as a result of a legislative mandate to adopt rules according to the statutory guidelines of § 75-5-301, MCA. There is no authority in the statutory guidance or in the Water Quality Act for the agency to consider the economic impacts resulting from implementation of the policy. Consequently, no economic analysis was considered or developed regarding the adoption of these rules.

388. COMMENT: Commentator 103 states that the ones who use Mon-
tana's water should pay the costs of keeping it clean.

RESPONSE: This comment is not specific enough to formulate a response.

389. COMMENT: Commentor 107 (DNRC) states that all state agencies should employ the same basic approach when using a cost benefit analysis in their environmental impact statements and their permitting decisions. The cost benefit analysis should conform to well established, professionally defensible theories and practices of economics. Therefore, this commentor proposes amendments to the rules, particularly Rule V, regarding the economic analysis required under that rule in order to avoid conflicts with the cost benefit analysis conducted by DNRC under the Major Facility Siting Act and the Water Reservation Program.

RESPONSE: Rule IV(7) and Rule V(4) were modified in response to Commentor 107 for the reasons given in Response 122. The primary reason for the modifications was to provide guidance to the public and the agency regarding the method to be used in weighing the benefits and costs to society resulting from a proposal to degrade.

190. COMMENT: Commentor 108 (Confederated Salish and Kootenai Tribes) state that they remain willing to work with the board to achieve comprehensive water quality protection for all Montana waters.

RESPONSE: Comment noted.

191. COMMENT: Commentor 113 states that the procedures for performing cost benefit analyses must be improved. A two tier process should be established so that less effort is required for projects with little impact.

RESPONSE: The parts of the rules dealing with cost benefit analyses have been modified to clarify them. The suggestion for a two tier process was considered and rejected as unnecessarily complex.

192. COMMENT: Commentor 115 states that provision for the development of site specific standards and associated permit limits for all waters needs to be in these rules.

RESPONSE: This change is included in the surface water quality standards. See Response 376.

193. COMMENT: Commentor 115 states that the use of site specific criteria developed by an applicant must not be conditional if the results are obtained in conformance with the rules. Thus, the language proposed in the surface water quality standards dealing with site specific standards must be changed back to the current language.

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RESPONSE: The provision for site specific criteria must be changed in order for the department to consider other routes of exposure, such as sediment contact and ingestion of organisms with elevated concentrations of toxicants.

394. COMMENT: Commentator 116 asks the board to be conservative in labeling things nonsignificant.

RESPONSE: Comment noted.

395. COMMENT: Commentator 118 asks how and where the department has complied with the 1989 HB 757 section 137.

RESPONSE: See Response 257.

396. COMMENT: Commentator 119 asks that what is significant not be tied to what is detectable.

RESPONSE: See Response 6 and 7.

397. COMMENT: Commentator 119 states that for standards that are below detection levels, standards should be based on calculated concentrations in the receiving water. Any change that would cause a 10% increase in the receiving water should be considered significant in these cases.

RESPONSE: See Response 6 and 7.

398. COMMENT: Commentator 120 states that the categorical exclusions for nonsignificance makes it impossible to comply with MEPA requirements to assess and mitigate cumulative impacts which will escape public review.

RESPONSE: The rules adopted by the board implementing MEPA allow the agency to use an interdisciplinary approach in evaluating alternatives and determining the significance of a state action pursuant to 516.2.626. Through this process the agency may determine that a proposed action, including the adoption of rules, meets the functional equivalence of an EA, provided the action does not result in significant impacts requiring an EIS. The legislative guidance for establishing nonsignificance require the agency to take into account harm, length of time, character of the pollutant, and equate significance with those parameters that are potentially harmful to human health or the environment. The agency has considered the impacts to the environment through the development of the criteria, whose function is to protect existing water quality, and taken into account public comment. This has been accomplished through this rulemaking proceeding. Since the agency has determined that the adoption of the categorical exclusions under Rule VIII is not a significant state action and the objectives of MEPA have been met through this rulemaking, adoption of these rules complies with MEPA.
399. COMMENT: Commentor 120 states that the provision of 75-5-301 (4)(b), MCA, requiring the preliminary decision to include "the limits of degradation authorized" and the "methods for determining compliance with the authorization to degrade." The proposed rules must include these requirements.

RESPONSE: Rule VI(2) requires the preliminary decision issued by the department to contain the following: (1) "(f) the amount of allowed degradation"; and (2) "(h) a description of all monitoring and reporting requirements". Those requirements meet the requirements of § 75-5-301, MCA, regarding the inclusion in the preliminary decision of the limits of degradation and the methods for determining compliance. Therefore, no further change is necessary.

RESPONSE TO PUBLIC COMMENTS RECEIVED IN RESPONSE TO THE PUBLIC HEARING OF MAY 26, 1994, INCLUDING COMMENTS RECEIVED PRIOR TO MAY 27, 1994

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RE: PROPOSED AMENDMENTS AND NEW RULES ON NONDEGRADATION, SURFACE WATER QUALITY STANDARDS, MIXING ZONES AND GROUNDWATER

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**Written Testimony Received at BRES Hearing on 05/20/94**

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Esther Lilly
Jess Coulston
Lane Coulston
Joel Shouse
William C. Bradt
Dave Gano

Paul Hawks
Western Env. Trade Assoc
Mont. Assoc of Realtors
Mont. Water Resources Assoc
Mont. Stockgrowers Assoc
Colstrip Energy Ltd Part.
Mont. Coal Council
Mont. Wood Product's Assoc
Mont. Bldg Industry Assoc
Mont. Mining Assoc
Mont. Petroleum Assoc
Mont. Dairymen’s Assoc
Mont. Farm Bureau
Yellowstone Energy Partnership Limited
Mont. Contractor’s Assoc
Mont. Chamber of Commerce

Collin Bangs
Joe Steiner
Max Weiss

Joséph Pérez
S. Web
Chip Pr
Lucille Nishy
Lini Beneke

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Craig FauntLeRoy
Jackie Smart
Sharon G. Roos
Briga and Alice Austin
Patrick McNutt
Tiffiny Burgad
Rick Oncken
Patay Flaggemeyer
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David D. Traylor
Boyd I. McGee
Hab Kelly
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Vicki Watson
William C. Brandt
Loren Merill

WRITTEN TESTIMONY RECEIVED AT BHE'S HEARING ON 05/20/94

Abe Horpeetad Debbie Sauskojus
Rafael M. Liston Bob Kern
William L. & Lorraine Baker Bob Evans
Carmen Redmond 301 Jeff Cornell
Scott Parley 302 Mary Betha
John Glach 305 Lloyd Eikert
Ruth Egan 306 Brooke A. Bushman
Darlene Lowry 307 Mary E. Cockerham
? Stahl 308 Patty Dolund
John V. Puckett 309 Neil Kubesh
Bob Onet 310 Florence Zundel
Jim Meade 310 Joan Humiston
Betty duPont 311 Florence Ore
Roy S. O'Connor 312 Phyllis L. Wolfe
Wayne A. Wilcox 313 Jim Barrett
Peggy Stelmach 314 Jerry Iverson
Dj U. Dondurant 315 Alice & Briggs M. Austin
Sheila L. Veerkamp 316 Richard D. Cohen
Betty Wilkins
Charles Pilgrim
Sandy Schlotterbeck
Frances Clark
Donna Mensel
Tom Parac
David D. Traylor
John D. Haynes
Al Hicks
Pam Langley
Russell E. Esten
Sandra S. Lee
Michael L. McKenna
Katherine R. McKenna
Diana Heimer
Fred Bells
Connie Hahn
Jerry Wadkin
Tom Parac
Lela Decock
Cindy Kostrba
Jim Lytle
Tom Parac
Lela Decock
Cindy Kostrba
Jim Lytle
Warren Vooley
Linda Torrey
Martha O'Mara
Allan Kottowitz
1. COMMENT: Commentors 1, 2, 4-20, 22-51, 53-59, 61, 65-70, 75-80, 82, 83, 87-94, 96, 98-101, 112, 119, 120, 122, 123, 125, 126, 128, 129, 131, 132, 134-136, 140-141, 149, 151, 152, 153, 154, 158-163, 138, 169, 171, 174, 179, 180, 216, 218, 230, 271, 277-288, and 291-308 state that it is critical to use septic tanks and drainfields until suitable alternative systems can be identified and that the department should approve alternative systems state wide as rapidly as possible.

RESPONSE: Suitable systems are available, as cited in Department Circular WQP-5, which contains minimum design standards for on-site alternative wastewater treatment systems. Those systems include the following: waste segregation systems, elevated sand mound systems (Wisconsin Mounds), aerobic package plant systems, intermittent sand filter systems, recirculating sand filter systems, nutrient removal systems, and other systems provided they have been demonstrated to perform reliably and meet state standards. Counties, however, are not bound by state approval of these systems and may adopt more stringent requirements. The department plans to hold training sessions at various points throughout the state after the rules are adopted. These sessions will include explanation of the rules, how they should be applied and options acceptable under the rules. No change in the rules will be made to address this comment.

2. COMMENT: Commentors 3 and 251 believe that most people in Montana desire clean water and that the board should dedicate itself to the greatest good for the state.

RESPONSE: Comment noted. These rules implement the requirements of the amended Water Quality Act.

3. COMMENT: Commentor 21 makes the same comment as No. 1, and in addition states that it is not fair to treat all properties the same regardless of their size.

RESPONSE: Rule IX(1)(d)(viii)(A), (B) and (C) in the mixing zone rules generally allow larger mixing zones for larger properties. The rules have been changed to add a new provision (C), which specifically allows larger mixing zones where public health will be protected by conditions imposed prohibiting development on adjacent land.

4. COMMENT: Commentors 52, 73, 74, 81, 85, 86, 95, 97, 105, 106, 109, 117, 127, 131, 132, 142, 146, 151, 154, 155, 156, 171, 175, 176, 178, 185, 186, 193, 198, 200, 213, 217, 219, 223, 224, 226, 228, 232, 236, 239, 250, 251, 253, 256-261, 263, 266, 270, 272, 275, 276, 309, 310, 314 and 315 state that the self determination of significance is unacceptable and must be deleted. They suggest that all applicants should be required to submit a checklist to the department. The department would then make these checklists available to the public and would audit a percentage of them to determine compliance.

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checklists would also be used to maintain a tracking system to determine long term compliance.

RESPONSE: Under the law the department must assure that all activities reviewed, authorized or permitted by the department comply with the law. This means that the department will determine significance in most cases, and language has been added in Rule IV(1) to clarify this. Therefore, the suggested modifications to the rules are not necessary and will not be adopted into these rules. The final rule will include a provision clarifying that all activities that are permitted or authorized by the department will be reviewed for nonsignificance by the department.

5. COMMENT: Commentors 60, 62, 71, 72, 112, 183, 195, 196 and 225 point out that the cost of sand filtration systems would drastically hurt affordability, could stop home construction in some areas, and have not been proven to reduce nitrates to 2.5 parts per million.

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. The use of level 2 treatment could increase the cost of a new home by approximately 2% to 5%. As stated in Response 1, there are several treatment systems that will comply with the level 2 removal requirements and allow the activity to be considered nonsignificant.

6. COMMENT: Commentors 60, 62, 71, 72, 112, 183, 191, 195, 196 and 225 contend that it will be virtually impossible for a homeowner to prove that they are in compliance with the nondegradation requirements.

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. The nondegradation requirements apply to new or increased activities. Thus, existing homeowners are exempt from the requirements. The rules are designed to prevent construction of systems that will result in degradation. For new or increased sources, homeowners will be in compliance provided their waste treatment systems are determined to cause nonsignificant changes in water quality.

7. COMMENT: Commentors 60, 62, 71, 72, 113, 183, 191, 195, 196, 225, 242, 243 and 289 infer that the state cannot afford to monitor these regulations and that the expertise to assure nondegradation may not be available or affordable.

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. As mentioned in Response 6, the concept of nondegradation is to prevent problems not to correct them. Although difficult to project, the administration of these rules does not appear to be an unreasonable burden on the State. Expertise does exist to comply with these rules.

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8. COMMENT: Commentors 60, 62, 71, 72, 112, 183, 191, 195, 196 and 225 contend that these rules have the potential to force all Montanans to live on central services and that the resulting load cannot be absorbed by the municipalities.

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. These rules may result in more people choosing to live where they can use central systems. They will not require central systems; in many cases properly utilized on-site systems will continued to be the preferred type of disposal.

9. COMMENT: Commentors 60, 62, 71, 72, 183, 191, 195, 196 and 225 contend that there is conflicting scientific evidence concerning the measurement of nitrates in ground water.

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. There is some conflicting data regarding the expected concentrations of nitrate in the effluent from septic tanks and in the ground below the drainfield trench. In the absence of specific data, the department will use conservative assumptions of 50 mg/l under the drainfield for standard systems, 27 mg/l under the drainfield for pressure dosed closed bottomed sand filters, 16 mg/l under pressure dosed open bottomed intermittent sand filters, and tested values plus 10% under the drainfields for other systems.

10. COMMENT: Commentors 60, 62, 71, 72, 183, 191, 195, 196 and 225 contend that the Board has an obligation to seek a change in the nondegradation law at the next session of the legislature because it cannot administer the present code.

RESPONSE: Until rules are adopted, it is too speculative to say that the department will be unable to administer these requirements of the Water Quality Act. While the present law and the draft rules may require modifications in staff responsibilities or staffing levels, it is presumed that the department can administer them. No change will be made based upon this comment.

11. COMMENT: Commentor 63 contends that these rules will not prevent degradation and that all these rules will do is prevent further development because the criteria cannot be attained. The rules are "over kill".

RESPONSE: These rules will limit degradation while still allowing responsible development.

12. COMMENT: Commentor 64 supports clean water.

RESPONSE: Comment noted. This comment was not specific enough to formulate a response.
13. COMMENT: Commentors 73, 74, 85, 95, 97, 106, 118, 127, 137, 142, 146, 151, 154, 155, 157, 165, 185, 186, 188, 197, 211, 217, 219, 232, 250, 251, 258 and 272 contend that dischargers should be required to do everything possible to meet water quality standards at the end of the pipe with no mixing zone. If the discharger cannot meet this requirement, a nondegradation application should be required for any mixing zone that will "significantly" change water quality.

RESPONSE: The proposed mixing zone rules have been developed in conformance with the guidance in the board's rulemaking authority provided in § 75-5-301(4), MCA. There is nothing in that guidance or in the Water Quality Act itself that suggests mixing zones should generally be denied and discharges should generally be required to obtain authorization to degrade under § 75-5-103, MCA. The only statutory requirements for mixing zones is that they are as small as practicable with minimum effect on water uses and have definable boundaries. This commentor's suggestion is contrary to the rulemaking authority of the board and will not be adopted.

14. COMMENT: Commentors 73, 81 and 198 contend that increases of nitrate concentration above 5 parts per million in the ground water are significant.

RESPONSE: The levels for nitrate established under the rules is consistent with the guidance in § 75-5-301(5)(c). Nitrate can, particularly with domestic waste water systems, be an indicator of other parameters which may be of even greater concern such as viruses, bacteria and other pathogens. For this reason the proposed rules treat nitrate from domestic waste water systems more stringently than from other sources. These rules limit nitrate increases from domestic waste to 5 parts per million. Table I of the rules has been changed, however, to prevent a change in the background nitrate level from exceeding 2.5 mg/l for all sources.

15. COMMENT: Commentor 81 states that existing dischargers be required to comply with the mixing zone requirements, while Commentor 227 asks how this will be done.

RESPONSE: Since the applicability section in SR 401 indicated that the new law would only apply to new or increased sources commencing after April 29, 1991, the new mixing zone requirements will not be retroactively applied to existing permits. Existing discharge permits will be reviewed at the time of their renewal and any new permit issued will have a mixing zone with definable boundaries. A proposed modification to Rule III of the mixing zone rules clarifies this point.

16. COMMENT: Commentors 97, 105 and 107 contend that there should not be any categorical exclusions and to delete Rule VIII.

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RESPONSE: Degradation has been defined statutorily to include any change in water quality except those changes determined nonsignificant under rules adopted by the board. The board's rule making authority requires the adoption of criteria for determining what activities or changes of activities are nonsignificant. For this reason, the proposed change will not be made.

17. COMMENT: Commentors 104 and 186 question the source of the 60% removal requirement in level treatment and contends that level 2 treatment should require 80 percent removal for industrial sources.

RESPONSE: The 60% figure was chosen because several systems for treating human waste can achieve this figure. The definition of level 2 treatment has been modified to clearly exclude industrial wastes. Treatment requirements for nitrate resulting from industrial wastes will be established by the department as provided in the surface water quality rules.

18. COMMENT: Commentor 104 states that the department should develop and provide a list of acceptable treatment techniques that will achieve the required removal.

RESPONSE: A partial list for systems treating human wastes was developed in the previous response to comments, which is provided below.

The costs for various systems and their estimated nitrate removal efficiencies are:

1. Standard in-ground septic tank drainfield on-site systems: $1500 - $2500; 10% removal.
2. Shallow place cap and fill systems: $2000 - $3000; 10% to 20% removal.
3. Low pressure systems: $3000 - $4000; 10% removal.
4. Bottomless sand filters: $5000 - $8000; about 50% removal.
5. Typical trench discharge sand filters: $6000 - $10,000; 50% to 70% removal.
6. Mound system or fill systems: $5000 - $10,000; 50% to 70% removal.
7. Soil discharge aeration chamber systems: $6000 - $8,000; 50% to 80% removal.

Costs for on-site sewage system are site specific. Therefore, costs will vary depending on site conditions, access, availability of material and contractor discretion, expertise, or bidding practices.

Other costs associated with on-site sewage systems include costs incurred when improper siting, density, design, construction, or maintenance results in a health hazard. States and local governments expend hundreds of thousands of dollars per year in man hours rectifying problems caused by inadequate systems. In certain areas in the State, such as at Frenchtown, homeowners and lending agencies have lost either the use of the property or the value of the property due to inadequate sewage. 

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treatment.

There are also instances where health hazards caused by inadequate on-site sewage systems required the construction and use of public treatment works in certain areas of the state. In Montana, the cost associated with constructing these facilities ranges from $10,000 to $30,000 per lot.

19. COMMENT: Commentator 104 points out that definition (24) in Rule II does not include nutrients while in Rule VII(c), it refers to trigger values for nutrients. It is also stated that there is no trigger value for nitrogen in WQB-7.

RESPONSE: The definition of trigger values should be modified by inserting "and nutrients" after toxins. In addition nitrate plus nitrite, nitrate and phosphorus in surface waters need to be categorized as nutrients in WQB-7. There is a trigger value for nitrate plus nitrite and for nitrate in WQB-7.

20. COMMENT: Commentator 104 contends that increased dischargers, as defined in Rule II(15) of the nondegradation rules, should not be entitled to both their permitted or approved discharge and the increases allowed by the significance thresholds specified in the rules.

RESPONSE: In order to clarify that existing discharges cannot increase above limits established in a permit without obtaining an authorization to degrade, the following language will be added to the definitions in Rule II of the Nondegradation rules as follows: "(2) "Degradation" is defined in 75-5-102, MCA, and also means any proposed increase of a discharge that exceeds the limits established under or determined from a permit or approval issued by the department prior to April 29, 1993."

21. COMMENT: Commentators 104, 186, 197, 198, 230 and 258 contend that the significance thresholds for nitrate in ground water are too high and points out that the increases should be tied to existing values. The increases of nitrate proposed in Table I may degrade surface water. In addition, there is a lack of data to establish that treatment systems, which remove nitrate, also remove a proportionate amount of pathogens. The proposed rules encourage discharges to ground water while moving towards tighter nutrient controls for municipal discharges.

RESPONSE: The levels for nitrate established under the rules are consistent with the guidance in § 75-5-301(5)(c). Proposed changes to Table I clarify that "existing values" refers to the levels existing at the time the law was passed. Section (1)(d) of Rule VII specifically limits the effect of nitrate increases in ground water based on the expected effects on surface water. While it is not possible at this time to quantify the pathogen removal efficiency associated with nitrate removal systems, professional judgement indicates that a significant amount of viruses, bacteria and other pathogens will be removed with
these systems. Finally, these rules will not encourage discharges to ground waters but will in fact discourage them. For the reasons stated above, no further changes will be made based upon this comment.

22. COMMENT: Commentor 104 contends that nitrate, nitrite and ammonia increases in ground water caused by septic tank dispos- al systems should be covered by encouraging a class authorization for these systems.

RESPONSE: While class authorizations may be appropriate for certain activities, the on-going construction of homes argues against delaying the adoption of rules that allow nonsignifi- cant changes in nitrate levels resulting from on-site treatment systems. Class authorizations for individual counties would delay construction throughout the state until those activities are approved through a process that may take years to accomplish. Clearly the legislature did not intend this result.

23. COMMENT: Commentors 105, 106, 198, 217, 219, 251, 257, 260, and 275 contend that the significance threshold for nitrate increases in ground water should be 2.5 parts per mil- lion.


24. COMMENT: Commentors 105, 186 and 228 contend that the board should adopt a definition of "natural condition" in these rules.

RESPONSE: The provision referencing "natural condition" is derived from § 75-5-306, MCA, in the Water Quality Act. The term is used in the surface water quality standards, and its inclusion in rules amending the surface water quality standards and establishing requirements for mixing zones is appropriate. Defining this term is not necessary for the adoption of these rules.

25. Comment: Commentors 104, 198, 217, 219, 257, 261 and 275 contend that all "nonsignificant" activities should be required to use approved best management practices.

RESPONSE: The use of reasonable land, soil, and water conserva- tion practices are more protective than best management prac- tices (BMP) and are required for nonpoint sources. The sug- gested change will not be made as BMPs are not appropriate for point sources that may qualify as nonsignificant.

26. COMMENT: Commentors 107 and 217 contend that degradation should not be allowed.

RESPONSE: The rules have been written in response to SB 401, which specifically allows degradation under limited circum- stances. Therefore, no change will be made based upon this
27. COMMENT: Commentor 107 contends that there should be no increase allowed in the nitrate concentration in ground water.

RESPONSE: The levels for nitrate established under the rules are consistent with the guidance in § 75-5-301(5)(c), MCA.

28. COMMENT: Commentors 108, 198 and 262 point out that protecting the ground water will in the long run enhance property values, and that allowing nitrate contamination of the ground water will depress the real estate market. This commentor contends that a significance threshold of 7.5 parts per million is too high.

RESPONSE: The draft rules will prevent nitrate concentrations resulting from the disposal of human waste from exceeding 5 parts per million and will require level 2 treatment, if the increases will exceed 2.5 parts per million. The levels for nitrate established under the rules are consistent with the guidance in § 75-5-301(5)(c), MCA. A modification of Table I is proposed, which would clarify that "existing values" refers to levels existing existed at the time the law was passed, thereby eliminating the use of changing background levels.

29. COMMENT: Commentor 110 contends that the rules should contain a provision for the designation of outstanding resource waters (ORW).

RESPONSE: Rule II(19) defines ORW as any waters that are classified as such by the board. Under § 2-4-315, MCA, any person may petition the board for the adoption or amendment of rules that would classify a particular water as an ORW.

30. COMMENT: Commentor 110 contends that the term "unreasonable interference with or danger to existing beneficial uses" in Rule III(2) and Rule IV(1) of the mixing zone rules should be changed to "threaten or impair existing beneficial uses" as this term is used in Rule VIII(6).

RESPONSE: For consistency, the suggested change will be made.

31. COMMENT: Commentor 110 contends that the language "may be appropriate" in Rule IV(2)(a), (c), (e) and (g) of the mixing zone rules should be changed to "may be nonsignificant due to their low potential for harm to human health or the environment."

RESPONSE: The present language accurately expresses the intent to provide agency discretion in designating mixing zones. The term "nonsignificant" refers to changes in water that do not cause degradation. Inclusion of that term in the mixing zone rules would only cause confusion. Consequently, the proposed change will not be made.

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32. COMMENT: Commentor 110 contends that allowing the use of a standard mixing zone without approval from the department is not legal.

RESPONSE: There is nothing in the rule making authority under § 75-5-301(4), MCA, which precludes allowing individuals to use a standard mixing zone without approval from the department. Generally, this will only occur when individuals make "self-determinations" of nonsignificance. As stated in a prior response, instances of self-determinations will seldom occur in practice.

33. COMMENT: Commentor 110 contends that allowing a standard mixing zone for leakage from an impoundment or seepage from a land application area will allow an escape from department review.

RESPONSE: See Response 4.

34. COMMENT: Commentor 110 asks how can there be enough dilution, if a discharge flow exceeds the flow of the receiving water?

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. In response to the comment, this means that the discharge will be very rapidly mixed, but it does not address the resulting concentrations in the stream. Those concentrations may or may not comply with the requirements for minimum impact and compliance with standards.

35. COMMENT: Commentor 110 contends that Rule VI(2)(i) of the nondegradation rules should be modified by deleting "description" of the mixing zone and inserting "specifically identifying" the mixing zone.

RESPONSE: This change will be made in order to conform to the requirements in § 75-5-301(4), MCA.

36. COMMENT: Commentors 110 and 106 contend that the language "in any review subsequent to the first, the department may not make a determination of incompleteness on the basis of a deficiency which could have been noted in the first review" in Rule IV(11) of the nondegradation rules should be deleted.

RESPONSE: The provisions in this rule require the information as necessary to conduct a thorough review. This particular requirement will ensure a timely review by the department because it ensures that any requests for supplemental information will not unduly delay the application process. The rule will remain as proposed.

37. COMMENT: Commentor 110 contends that the language dealing with the required 5 year review in previous version of these

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rules in Rule X should be reinstated.
RESPONSE: Rule X was deleted because it unnecessarily repeated statutory language, which is prohibited under the Montana Administrative Procedure Act. Therefore, the suggested change will not be made.

38. COMMENT: Commentor 111, 209-211 and 243 contend that "Existence values" in Rule II(3) and "Opportunity cost" in Rule II(18) should be deleted and no reference should be made to those terms in the rules.
RESPONSE: Because the quantification of projected social costs and benefits (i.e., opportunity costs and existence values) are imprecise and uncertain, these terms have been removed from the rules.

39. COMMENT: Commentors 111, 209-211, 221 and 243 suggest deleting the definition in Rule II(1), which provides examples of "management or conservation practice".
RESPONSE: This language adds clarity and will be retained as proposed.

40. COMMENT: Commentors 111, 209-211, 221 and 243 contend that the definition of outstanding resource waters, Rule II(19), should be deleted and all requirements for these waters removed from the rules.
RESPONSE: Under federal rules, all states are required to designate outstanding resource waters (ORW) and provide additional levels of protection. The suggested deletion would result in disapproval of these rules and promulgation of federal rules, which the state would be required to enforce. The rule will remain as proposed rather than allow a federal rule, which may list additional waters as ORWs and corresponding requirements to protect them. The rule has been modified, however, to delete the term "recreational" because existing recreational activities would be excluded and because there is no direct relationship between degradation and outstanding recreational significance.

41. COMMENT: Commentor 111 suggests that reporting values should be deleted from WQB-7.
RESPONSE: See Response 90.

42. COMMENT: Commentors 111 and 209-211 contend the "trigger values" in Rule II(24) should be deleted and it should not be used in the rules.
RESPONSE: See Response 90.

43. COMMENT: Commentors 111 and 209-211 contend that the non-
degradation Rule III(2)(b) is unworkable and at a minimum the Phrase "the assurance will be achieved through ongoing administration by the department of the existing programs for control of point and nonpoint source discharges" should be used in Rule III(2)(b).

RESPONSE: The intent of the proposed rule is to require a review of existing permits and programs to ensure compliance before degradation is allowed in conformance with 40 CFR 131.12(2). The proposed language will not be used because it may unnecessarily preclude some future use of a broader based assessment of water quality than currently provided by existing permits and nonpoint source programs. The rules will be changed, however, to provide that assurance will be achieved through the administration of any approved program of the department (i.e., existing or future program).

44. COMMENT: Commentors 111 and 209-212 contend Rule IV(7) should be changed to delete the list of information which must be submitted and instead say that "an applicant shall include an analysis demonstrating that the proposed activity will provide important economic or social development which exceeds any cost to society of allowing the proposed change in water quality."

RESPONSE: While this change simplifies the rule, it fails to clarify what type of factors the department will consider in the applicant's demonstration. Therefore, it will not be adopted.

45. COMMENT: Commentors 111, 209, 210, 212 and 221 suggest modifying Rule V(4) by deleting the current language and replacing it with a list of criteria that would allow the department to approve a project based on the ability of the project to provide employment, create or maintain a supply of goods and services, increase local or state revenues, or provide a public service. The proposal allows the department to weigh these benefits against any quantifiable harm to any person caused by the change in water quality, as well as the ability of the proposed to foreclose a project that would provide greater benefits to society. This change should be made because the enabling legislation did not contemplate the type of cost/benefit analysis proposed in the current rules.

RESPONSE: In response to the extensive comments on the cost/benefit analysis in the proposed rules, Rules IV(8) and V(4) have been modified to provide flexibility in considering other societal benefits and goals than previously allowed. Many of the proposed changes suggested by this commenter have been included in the proposed rules. In addition, the rules now give the department discretion to simplify the analysis depending upon the complexity or magnitude of the proposed activity.
46. COMMENT: Commentors 111, 209-212 and 221 suggest deletion of any reference to changes in flow.

RESPONSE: This provision is consistent with legislative guidance for establishing nonsignificant criteria as it recognizes the fact that changes in flow can, and do, impact water quality. § 75-5-301(5)(c) addresses, among other things, the potential harm to human health and the environment, not just discharges of pollutants. Therefore, the suggested change will not be made.

47. COMMENT: Commentor 111 suggests changing the language in Rule VII(1)(c) to treat toxic parameters in the same manner as harmful parameters. This would allow a 10% increase as long as the existing water quality is less than 50% of the standard, or if the standard is lower than the reporting value, changes up to the reporting value should be allowed without considering the change significant.

RESPONSE: This approach does not consider the potential for harm to the environment as required in § 75-5-301(5)(c), MCA. This proposal, in conjunction with the commentor’s suggested reporting values, allows significantly greater changes in water quality than allowed under the proposed rules to be considered nonsignificant. Therefore, the proposed change will not be made.

48. COMMENT: Commentor 111 suggested changes in Rule VII(1)(f), which consist of grammar changes and the inclusion of the provision dealing with reporting values discussed in Comment 47.

RESPONSE: In conjunction with the suggested reporting values, this proposed change would allow significantly greater changes in water quality to be considered nonsignificant and is contrary to the intent of the nondegradation policy. Therefore, the suggested change will not be made.

49. COMMENT: Commentor 11, 209-211 and 221 call for deletion of Rule VII(2)(a) dealing with cumulative impacts or synergistic effects. The issue of cumulative impacts and synergistic effects was deleted from SB 401 by the Montana Legislature. For the Department to have such discretion was viewed as improper by the legislature, and should not be included in these rules.

RESPONSE: The purpose of the nondegradation policy is to prevent cumulative impacts or the incremental degradation of water. Since this is the essence of the policy, no specific wording addressing cumulative impacts was necessary in the proposed legislation, nor was it proposed. This does not, however, preclude the inclusion of cumulative impacts or synergistic effects in the rules implementing the policy. For the above reasons, the rule will remain as proposed.
50. COMMENT: Commentors 111, 209 and 211 contend that "remedial" should be added after "emergency" in Rule VIII(1)(c).

RESPONSE: In order to clarify that remedial actions are not subject to the application procedures under the nondegradation policy, the suggested change will be included in the final rule.

51. COMMENT: Commentors 111, 209-212 and 221 suggest adding a new categorical exclusion as (p) of Rule VIII(1) as follows:

"Activities permitted pursuant to § 75-7-101, MCA, and section 404 of the Clean Water Act."

RESPONSE: One of the proposed exclusions would exempt activities permitted under Section 404 of the Clean Water Act (CWA). Those activities, however, must be certified by the department under Section 401 of the CWA for compliance with state water quality laws. Since 404 activities are subject to department review, they must be reviewed for compliance with the nondegradation policy. An exclusion of those activities is not justified as they may cause degradation.

The suggestion to exempt activities currently permitted under the National Streambed and Land Preservation Act of 1975 is allowed under Rule VIII(1)(e). This categorical exclusion allows activities to be considered nonsignificant that result in short-term changes in water quality as specified under § 75-5-308, MCA. This would include construction or hydraulic projects conducted under § 75-7-101 et seq., MCA. Therefore, no change in the rules is necessary to address this comment.

52. COMMENT: Commentor 111 suggests insertion of a statement that recognizes the validity of mixing zones made or recognized by the department prior to the adoption of these rules and that nonsignificant activities are not required to obtain mixing zone designations or approval from the department.

RESPONSE: Under Rule III of the mixing zone rules, a provision has been added that recognizes the continuing validity of mixing zones under existing permits, provided those mixing zones do not impair existing or anticipated uses. The suggested exemption for nonsignificant activities from the requirement to obtain a mixing zone from the department will not be made as some of those activities may require a permit or other form of authorization from the department.

53. COMMENT: Commentor 111 requests that the language "zone of passage for migrating fish or other species" be used in Rule IV(2)(e) instead of "passage of aquatic organisms."

RESPONSE: This suggested change would only cause confusion, not clarity. Therefore, the suggested change will not be made.
RESPONSE: While predictions of changes in water quality can be made using present methods, the accuracy of these predictions depends upon the validity of assumptions used to calculate the predictions and the quality of the site specific data. In some settings the accuracy of predicted changes in water quality will be good, at some other sites it will be poor. This section gives the department authority to deny mixing zones when the actual mixing zone cannot be accurately predicted. Therefore, the rule will remain as proposed.

55. COMMENT: Commentator III suggested changes to (h) of Rule IV of the mixing zone rules to clarify its intent.

RESPONSE: This change will be made for clarification.

56. COMMENT: Commentator III requested changing (1)(b) of Rule V of the mixing zone rules so that acute standards may be exceeded in the zone immediately surrounding the outfall regardless of its effect on existing beneficial uses.

RESPONSE: This change will not be made as the Water Quality Act and the nondegradation policy require the protection of existing beneficial uses.

57. COMMENT: Commentators III and 209-211 propose that the ban on mixing zones for carcinogens and bioaccumulatives be deleted from the sections containing specific restrictions for ground water and surface water mixing zones.

RESPONSE: The rules will be modified to remove those provisions as the Water Quality Act does not impose this prohibition.

58. COMMENT: Commentator III requested including a statement in Rule VI(1)(a) of the mixing zone rules to clarify that aquatic life standards do not apply to ground water.

RESPONSE: This change will be made for clarification.

59. COMMENT: Commentators III and 209-211 contend that "an alternative or modified mixing zone, as defined by the department" should be replaced with "a source specific mixing zone" in Rule VII[(1)(d) and add a provision to clarify what a "source specific mixing zone" is in Rule X(5).

RESPONSE: This change will be made for clarification.

60. COMMENT: Commentators III and 209-211 contend that (7) of Rule VIII should be changed to state that once a mixing zone is granted, it may only be modified in response to a change in the discharge.

RESPONSE: The rules must allow flexibility on the part of the
department to modify permitted mixing zones due to changing technology and the development of new information regarding the effects of the mixing zone. Therefore, the requested change will not be made.

61. **COMMENT:** Commentators 111 and 209-211 contend that (3)(b) of Rule VIII should be modified to allow discharge limitations proportionate to the dilution of the 7Q10.

**RESPONSE:** The commentor apparently misunderstands the intent of this section. It is intended to allow standard mixing zones when the dilution, even at low flow, is much larger than the flow of the receiving water so that impacts to uses are relatively unlikely. If the dilution is less than 100:1, and the discharge limitations are based on less than 25% of the 7Q10, this would not be the case. Therefore, the suggested change will not be made.

62. **COMMENT:** Commentators 111 and 209-211 contend that (3)(c) of Rule VIII should be modified in the interests of clarity.

**RESPONSE:** This change will be made for clarification.

63. **COMMENT:** Commentators 111 and 209-211, suggest adding a clarifying phrase to (1)(c) of Rule IX of the mixing zone rules stating that aquatic life standards do not apply to ground water.

**RESPONSE:** This change will be made to clarify the rules.

64. **COMMENT:** Commentators 111 and 209-211, contend that the proposed consideration of other routes of exposure in the development of site specific standards in the surface water quality standards rules should not be adopted and that these effects should be dealt with through standards for toxics in sediments recommended by the EPA.

**RESPONSE:** Unfortunately, criteria for toxics in sediment have not been developed. The present EPA guidance lacks a consideration of the potential effects of ingestion of sediment, vegetation, and smaller aquatic organisms. These must be considered to assess the potential impacts on aquatic life. Therefore, the suggested change will not be made.

65. **COMMENT:** Commentor 112 contends that the depth of the mixing zone in ground water should be 25 feet.

**RESPONSE:** Fifteen feet is a reasonable value for the standard ground water mixing zone and will remain as proposed. In specific cases, an applicant may demonstrate to the department that a greater depth is justified in an application for a non-standard mixing zone. Since this flexibility is provided in the rules, the change from 15 feet to 25 feet will not be included in the rules.
66. COMMENT: Commentor 112 recommends that the nitrate chart be modified to change all references to "significant" to read "Level 2 treatment".

RESPONSE: The proposed change will not be made because at certain levels, the change in nitrate concentrations in ground water will cause degradation and require authorization from the department. In addition, level 2 treatment refers only to domestic waste while industrial waste discharges are required, under both federal and state law, to provide "best available treatment" or its equivalent or meet "new source performance standards". These requirements are not comparable to level 2 treatment. Table I will be modified to clarify treatment requirements for various sources.

67. COMMENT: Commentor 113 states that the provision that mixing zones may not be allowed for discharges containing carcinogenic or bioconcentrating substances should be deleted. This restriction is unnecessarily restrictive.

RESPONSE: This section will be deleted as the Water Quality Act and nondegradation rules will provide the protection necessary for carcinogenic or bioconcentrating parameters.

68. COMMENT: Commentor 113 states that the proposed rules prohibit mixing zones unless the requirement for "near instantaneous mixing" is met. Municipal discharges would be required to use effluent diffusers extending the entire stream width, which would result in environmental damage far greater than any potential water degradation.

RESPONSE: Commentor 113 states that the proposed rules do not require "near instantaneous mixing" for all discharges, but allow the use of diffusers as one way of achieving "near instantaneous mixing". The other provisions for standard or nonstandard mixing zones may be appropriate for other discharges, including municipal discharges. For these reasons, no change will be made in response to this comment.

69. COMMENT: Commentor 113 contends that Rule VIII of the nondegradation rules is in conflict with federal law, which exempts all municipalities with populations less than 100,000 from being required to have approved storm water permits.

RESPONSE: The provision exempting certain activities covered by a general storm water permit has been removed from the final rules in response to comments suggesting that such activities should be reviewed on a case-by-case basis for compliance with the nondegradation policy. Due to its removal from the rule, no further change will be made in response to this comment.

70. COMMENT: Commentors 113 and 208 contend that the rules are complex, confusing and unworkable.
RESPONSE: The rules are complex because the issues are complex. Under the circumstances, the proposed rules are as simple, clear, and practical as possible. Future implementation and refinement of the rules should provide more clarity and certainty to the process. For the reasons stated above, no specific change will be made in response to this comment.

71. COMMENT: Commentator 114 asks what the department is doing to "conduct or encourage necessary research and demonstration concerning water pollution"?

RESPONSE: This comment does not request proposed changes to the rules so none will be made in response to this comment. In response to this question, the department does not have sufficient funds to have a formal program in this area. The department informally encourages such research and demonstrations.

72. COMMENT: Commentator 117 contends that the significance thresholds for nitrate increases in ground water in the non-degradation rules are too high.

RESPONSE: In many instances, the nitrate level in ground water can exceed 1.0 mg/l and still be nonsignificant according to the guidance in § 75-5-301(5)(c), MCA. The proposed rules reflect those instances and will not be changed as suggested.

73. COMMENT: Commentator 117 contends that the rules should prohibit development that relies on septic systems and all developments should be hooked to existing city disposal systems.

RESPONSE: In many cases, the use of properly installed and maintained on-site systems are the preferred type of disposal and will protect the public health and the environment. Therefore, no change to the rules will be made in response to this comment.

74. COMMENT: Commentator 118 contends that any proposed activity which will increase ground water nitrate level by 5 mg/l should apply rather than the proposed relative limit. The commentator also suggests that nitrate levels alone are not sufficient to determine the potential human health effects of bacteria and viruses present in septic tank leachate.

RESPONSE: Because the potential human health effects of bacteria and viruses present in septic tank leachate are not associated with other sources of nitrate, those other sources have a lower potential for harm to public health. Thus, there is little justification for not allowing relative limits and the requested change will not be made. See Responses 14, 27, and 28.

75. COMMENT: Commentators 121, 185, 212 and 255 contend that the Montana Administrative Register
nitrate threshold for nitrate in ground water should be 5 rather than 2.5 mg/l.

RESPONSE: The proposed limits are appropriate and no change will be made in response to this comment. See Responses 14, 27, 28 and 75.

76. COMMENT: Commentors 127, 139, 228, 233-235 and 272 contend that any change is degradation, and allowing individuals to determine for themselves what is degradation makes a mockery of the policy.

RESPONSE: SB 401 specifically recognizes small changes in water quality as being nonsignificant. The provision allowing individuals to make determinations of nonsignificance will not include any activity regulated by the department. In effect, there will be very few instances when an individual will not be subject to department review and approval. The provisions for allowing self-determinations of nonsignificance will remain as proposed.

77. COMMENT: Commentors 130 and 208 ask who is responsible in cases where an existing well must be abandoned or re-drilled because of pollution that results from new development? Will the new home(s) be forced to remedy the problem? What if the problem cannot be fixed by a new well or attachment to a public source? Is the state liable for permitting degradation that is economically or physically harmful to existing home owners?

RESPONSE: This comment does not request a change in the rules so none will be made in response to this comment. The issue of liability is complex and dependent on applicable law and specific facts. It may be in some instances liability will attach to the state or the developer. Under the current proposed rules, authorizing degradation must protect any existing or beneficial uses. Therefore, it is unlikely the issue of harm to adjacent land owners will ever arise.

78. COMMENT: Commentors 142, 151, 155, and 175 contend that all nonsignificant activities should be required to use best management practices.

RESPONSE: The use of best management practices applies only to nonpoint sources and does not include point sources. Since many nonsignificant activities are point sources, the use of best management practices would not be appropriate or applicable for many of those activities. Therefore, the suggested change will not be made.

79. COMMENT: Commentors 142, 151, 154, 155, 165, 175-177 and 257 contend that any increase in nitrate concentration above 2.5 mg/l is significant and that treatment should be required in these cases.

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RESPONSE: See Responses 14, 27, 28, and 75.

80. COMMENT: Commentors 143, 148, 154, 155, 167, 184, 186, 188, 193, 194, 197, 226, 231, 236, 244-247, 249, 256, 264-266, 272, 274 and 309 contend that the rules are too lenient and will allow problems to occur that the citizens will ultimately pay to clean up.

RESPONSE: This comment is not specific enough to formulate a response regarding any proposed changes in the rules. The rules as proposed, however, are consistent with the requirements of the Water Quality Act and are meant to ensure that high quality waters are protected from degradation. The rules are meant to ensure that changes in existing water quality are only allowed in limited circumstances and under certain conditions. The rules do not address remedial activities for sources that violate water quality standards. Enforcement procedures for such violations may fall under the Water Quality Act or other state laws and requirements.

81. COMMENT: Commentors 144 and 145 support the comments made by WETA (Commentor 111).

RESPONSE: See Responses 38 through 67.

82. COMMENT: Commentor 146 contends that these rules allow many loopholes for the mining and logging industries.

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. The rules apply equally to all activities from ranching and housing development to industrial development. They are intended to be as stringent as the law requires.

83. COMMENT: Commentor 147 contends that the body is unable to accommodate high levels of nitrate and other toxic materials.

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. All substances are harmful or toxic at some level. The standards are set at levels which will protect all beneficial uses of water. The rules prohibit significant changes in existing nitrate levels without authorization from the department.

84. COMMENT: Commentor 154 contends that the potential health effects from bacteria and viruses in septic tank leachate should be determined from specific testing and not extrapolated from nitrate levels.

RESPONSE: This comment does not specifically propose a change in the rules so none will be made in response to this comment. In regard to testing the effects of bacteria and viruses, this should be done. However, determining the potential health effects of viruses in septic tank leachate is not technologi-
cally or politically possible due to liability issues involved with on-site research and the difficulty in recovering and identifying viruses.

85. COMMENT: Commentor 154 contends that the rules allowing mixing zones are discriminatory in effect because this commentor cannot obtain a permit to dump an old car body into the Clark Fork River, while an existing discharger has a permit to discharge using an 8-mile mixing zone.

RESPONSE: The rules follow statutory guidance and allow mixing zones so long as they have minimal effect and are as small as practicable. If a discharge qualifies for a discharge permit, the mixing zone rules apply equally without discriminatory effect. Therefore, no change will be made in response to this comment.

86. COMMENT: Commentors 155 and 208 contend that the rules, as proposed, would encourage potential polluters to request mixing zones as large as possible in order to avoid having to go through the process to apply for a nondegradation exemption.

RESPONSE: This comment is not specific enough to justify a change in the rules. All discharges must comply with the mixing zone requirements, which are intended to be as small as practicable with minimum effect. They are not intended as an exemption from the nondegradation process.

87. COMMENT: Commentor 155 contends that any discharger requesting the use of a mixing zone prove that no harm will be caused to any beneficial use.

RESPONSE: A mixing zone that may harm a beneficial use cannot be granted. Information requested or received by the department will ensure this protection. Therefore, no change will be made in response to this comment.

88. COMMENT: Commentor 165 contends that mines abandoned prior to 1955 should not be considered natural.

RESPONSE: This comment is not specific enough to justify a change in the rules. In addition, this issue will not be addressed in these rules as it is outside the scope of this rule making.

89. COMMENT: Commentor 165 contends that the department is having secret meetings with industry.

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. In response to the comment, the department has met many times with all types of individuals and interest groups during the development of these rules. It is impractical to provide public notice on a day to day basis whenever department staff meet with industry or other
interest groups to discuss the rules.

90. COMMENT: Commentors 111, 170, 209 and 221 recommend that WQB-7 use Method Limits (ML) or practical quantification limits rather than Method Detection Limits (MDL’s). MDL’s are essentially (ML’s X 3.18), which are supposed to be obtainable and quantifiable. In contrast, MDL’s can only reliably be determined to be not zero.

RESPONSE: Practical Quantification Levels (PQL) are not applicable to water quality standards and significance determinations under the nondegradation rules and policy. WQB-7 includes trigger levels for toxic parameters and a reporting level for all parameters. The trigger level represents a level of change in a parameter in the receiving water caused by a discharge. This predicted change will determine whether or not the activity would result in degradation. It should be applied in a predictive manner. If the change in water quality is less than the trigger level, then the activity is considered nonsignificant.

Use of trigger values alone, however, includes a consideration of the relationship of the increase to the standard. That is, where a trigger value is similar in magnitude to the standard, then use of the trigger value will allow a relatively large change that will be considered nonsignificant. If the trigger value is much less than the standard, then use of the trigger value would allow only a very small change be found nonsignificant. To correct this disparity, the following change has been added to Rule VII(1)(c) of the nondegradation rules: "Whenever the change in water quality exceeds the trigger value the change is not significant, if the resulting concentration outside of a mixing zone designated by the department does not exceed 1% of the lowest applicable standard."

The trigger level is based on the Method Detection Limit (MDL) approach and does not consider Practical Quantification Levels (PQL). The MDL is a statistical method of estimating the lowest concentration that can be determined to be statistically different from a blank specimen (zero concentration) with a 99% probability. This is a valid approach of measuring concentrations of ambient water within the context of the nondegradation policy as expressed in SB 401. The trigger level does not represent a level of analysis for routine sampling, only for determining a predicted change.

Practical Quantification Levels (PQL) are not used to determine compliance with water quality standards. PQL are arbitrarily set at 2 to 500 times the MDL depending upon the media. The required reporting level is the department's best determination of a level of analysis that can be achieved in routine sampling. The reporting level is based on levels actually achieved at both commercial and governmental laboratories within Montana using accepted methods. Neither WQB-7 nor the nondegradation rules are proposing procedures for determining compliance. Compliance is established through the use of statistical techniques, as well as other technical review criteria.
that are established on a programmatic basis.

For the 7 inorganic substances, Aluminum, Antimony, Arsenic, Lead, Mercury, Silver, and Thallium, the reporting values based on MDLs have been replaced with the MLs which is 3.18 times as great as the MDLs.

Since the use of MDL, trigger levels, and reporting levels are most protective of water quality, no change will be made in response to this comment.

91. COMMENT: Commentor 170 contends that the methods for hexavalent chromium and organic mercury are not EPA approved they should be deleted from WQB-7. In addition WQB-7 should refer to the “latest edition of EPA/400-4-9-010”.

RESPONSE: In response to this comment, the rules will be changed to delete the methods which are not EPA approved. The suggested change to use the “latest edition” will not be made for the following reason. Rules cannot refer to the “latest edition” but must by law refer to a published document existing at the time the rules are adopted. The date of that document must be published in the rule incorporating the document.

92. COMMENT: Commentor 172 contends that the tiered scheme of nonsignificant nitrate levels violate the notion of what should be considered to be maximum allowable level. This level needs to be defined and any level above this amount is unacceptable.

RESPONSE: See Responses 14, 27, 28, and 75.

93. COMMENT: Commentors 176 and 226 contend that the department should stop using site specific analysis of pollution to determine cumulative impacts and begin using watershed analysis to determine the full impact of pollution.

RESPONSE: This comment is not specific enough to justify a change in the rules. In response, the department is developing methods for watershed management. However, because of the greater complexity and cost of this approach, site specific analysis of pollution is, and will remain for the foreseeable future, a major emphasis for new discharges.

94. COMMENT: Commentors 176, 186, 232 and 263 contend that there are too many categorical exceptions in the nondegradation rules.

RESPONSE: This comment is not specific enough to justify removing a particular categorical exemption, so no change will be made in the proposed rules. In addition, categorical exceptions are available for only those classes of activities that are nonsignificant according to the guidance given in the law.

95. COMMENT: Commentor 178 suggests the concept of Best Available Technology (BAT) is missing from the equation of water quality to allow individual systems the flexibility to meet
RESPONSE: BAT for individual treatment systems has not been defined. Thus, the approach of defining minimum acceptable removal, which can be reasonably achieved, has been adopted through the requirement for level 2 treatment. Therefore, no change will be made in response to this comment.

96. COMMENT: Commentor 178 contends that any discussion of socioeconomic impacts concerning the protection of Montana's waters is moot. The responsibility of the department is to protect water. SB 401 concerns itself with the environment, not economics.

RESPONSE: SB 401 specifically requires a determination of social and economic importance before degradation can be allowed. In addition, the rule making authority of the board requires the adoption of criteria for determining social and economic importance. Therefore, the inclusion of an economic analysis will remain in the final rules.

97. COMMENT: Commentor 182 contends that Department Circular WQB-7 must be approved as part of the rule package and all revisions and modifications of WQB-7 must go through the formal rulemaking process.

RESPONSE: Department Circular WQB-7 will be adopted through its incorporation by reference in the surface water quality standards and other water quality rules. All future revisions and modifications of WQB-7 must go through the formal rule-making process. Therefore, no change is necessary in response to this comment.

98. COMMENT: Commentor 186 suggests changes to the section in the rules concerning site specific standards so that they may be used only if they are equal or more stringent than the levels in WQB-7.

RESPONSE: Such a restriction would destroy the intent of this section, which provides flexibility in setting standards. The provision for site specific standards is intended to be used whenever the levels in WQB-7, which are based on average conditions, are demonstrated to be unnecessarily restrictive in protecting all uses. In those instances, site specific standards may be developed and used. For the above reasons, no change will be made in the proposed rule.

99. COMMENT: Commentor 186 contends that the word "other" be reinstated wherever the phrase "... which establishes limits for toxic, carcinogenic, bioconcentrating, and other harmful parameters in water: ...." appears in these rules.

RESPONSE: Because WQB-7 categorizes substances as carcinogenic, toxic, and harmful, the use of "other harmful" in this phrase
would be confusing. Therefore, the change will not be made.

100. COMMENT: Commentor 186 objects to the definition of "currently available data". It should include "currently obtainable data".

RESPONSE: The term "currently obtainable" could be construed broadly to include data that must be developed by the applicant, but which may not be necessary for the protection of water. Under Rule VII, the department may require additional information as necessary for an informed decision. Therefore, the requested change will not be made.

101. COMMENT: Commentor 186 contends that the definitions of the terms "recreational" and "recreational area" are too narrow. By limiting those definitions to "swimming" and "public beaches or swimming areas", the rules ignore the wide range of recreational activities that now make up a significant part of Montana's growing recreation-based economy and which could be severely impacted by a mixing zone. This commentor suggests the following: "a leisure-time activity engaged in for the sake of refreshment or entertainment".

RESPONSE: The definition, as proposed in the rules, includes those activities where public health may be affected by the presence of a mixing zone. The definition is intended to include any human contact with the water. The definition suggested by this commentor could include activities occurring on a golf-course, in a home, or other places where mixing zones are not an issue. Therefore, the suggested change will not be made and the rule will remain as proposed.

102. COMMENT: Commentor 186 suggests that Rule VI(1)(a) should read "Human health and aquatic life based ground water standards must not be exceeded beyond the boundaries of the mixing zone".

RESPONSE: There are no aquatic life standards for ground water. Therefore the proposed change will not be made.

103. COMMENT: Commentor 186 suggests that wherever publications are adopted by reference that they be preceded by a general explanation of what the publications are for, e.g., standards or testing procedures. There should also be an explanation of why they are needed, i.e., compliance with federal regulations.

RESPONSE: The present language in the proposed rule lists the content of the adopted material after the incorporation by reference. For example, ARM 16.20.1003(1)(b) states in relevant part, "These publications set forth EPA approved testing procedures ...". The reason for these materials is the requirement for their use throughout the rules. For the above reasons, no change will be made in response to this comment.
104. Comment: Commentor 186 suggests that throughout the rules, the issue of prohibitive versus optional language should be carefully reviewed.

RESPONSE: This comment is not specific enough to justify a change in the rules. In response, the rules are reviewed for consistency with the enabling law and the requirements of the Montana Administrative Procedure Act as required by law.

105. COMMENT: Commentor 186 contends that there is no provision in the rules for comprehensive protection of outstanding resource waters.

RESPONSE: Comprehensive protection is provided by (2)(c) of Rule 111 of the nondegradation rule, which states that no degradation of outstanding resource waters is allowed. Therefore, any activity that is authorized to degrade will be prohibited from degrading at the point where impacts from the proposed discharge meet an outstanding resource water. No change is necessary to address this comment.

106. Comment: Commentor 186 contends that the threshold for nonsignificance must be set at low levels to ensure that substances that are known or even suspected of being harmful are kept out of our water rather than arguing over how much is or is not there.

RESPONSE: Adoption of trigger values will ensure that nonsignificance thresholds are set at the lowest practical levels. Therefore, no change will be made to address this comment.

107. Comment: Commentors 186 and 208 feel that "where reasonable land, soil and water conservation practices have been implemented and the discharge does not impact existing or anticipated uses" on Page 3 of 18, Rule II(16)(b) should not have been deleted.

RESPONSE: The intent of this rule is to clarify that nonpoint sources using practices that prevented impacts to water uses prior to the effective date of the new law were excluded from its requirements. Nonpoint sources have been and continue to be subject to the state's nondegradation policy. It is not the intent of the rule, however, to require nonpoint sources that were in violation of the Water Quality Act prior to April 29, 1993, to seek authorization to degrade. The final rule will remain as proposed to clarify the intent to exclude all nonpoint sources discharging prior to April 29, 1993, from the procedures of the new law.

108. Comment: Commentor 186 objects to the retroactive application of the proposed "nonsignificance criteria" and consequent exemption of such activities under the definition of "new or increased sources" in Rule II(16)(d).
RESPONSE: In Section 10 of 40 CFR 401 an applicability date for the amended nondegradation was expressly stated as April 29, 1993. The amended policy allows certain activities or class of activities to be considered nonsignificant. The rules are not retroactive in their effect, but recognize that, at the time of the adoption of these rules, certain activities are considered nonsignificant. As these rules are consistent with the law, no change will be made in response to this comment.

109. COMMENT: Commentor 186 contends that all terms relating to the socio-economic determinations required by the nondegradation rules will require much more detailed definition in order to be useful to the regulated public.

RESPONSE: This comment was not specific enough to justify a change in the rules as none has been made based upon this comment. In response to the numerous comments on the socio-economic analysis, the rules have been modified to allow greater flexibility in determining social benefit than was formerly proposed. The rules have also been changed to require a demonstration of costs and benefits that can be quantified.

110. COMMENT: Commentors 186, 198 and 208 suggest that "reporting values" and "trigger values" be more completely explained.

RESPONSE: Changes have been made in the final rules to clarify the use of these terms.

111. COMMENT: Commentor 186 objects to the substitution of the words "shall be" for the words "have been" in Rule III(1)(b).

RESPONSE: The language, "there shall be achieved", is specified in the federal requirements for state's nondegradation policies at 40 CFR 131.12(2). In order to be consistent with the federal requirements, the language has been changed from "there have been achieved" to "there shall be achieved". This language will remain as proposed in the final rule.

112. COMMENT: Commentor 186 objects to Rule VII(b) of the nondegradation rules. This rule essentially states that if there already are concentrations of carcinogenic and biocaccumulating parameters in the receiving waters then the Department will allow discharges with the same parameter to be non-significant this does not protect water quality.

Response: Where there are naturally occurring concentrations of carcinogenic or biocaccumulating parameters in a stream, the effects of these parameters are not increased by discharges that do not increase those concentrations. Therefore, no change will be made in response to this comment.

113. COMMENT: Commentor 186 asks how does Rule VII(1)(c) and (d) which both make reference to a "mixing zone designated by
the department" apply to mixing zones that are allowed by virtue of a self-determination of non-significance?

RESPONSE: There are instances that the department will not designate a mixing zone in "self determinations of non-significance". The rules will be modified to clarify that all mixing zones will comply with the rules adopted by the board.

114. COMMENT: Commentor 186 contends that Rule VII(1)(d) should include intermittent or ephemeral after perennial in the last line.

RESPONSE: This section has been modified in response to comments and the term perennial has been removed as the trigger value for determining nonsignificance applies to toxins in all state surface waters.

115. COMMENT: Commentor 186 contends that the treatment by chlorination of public water supplies should not be categorically excluded as nonsignificant because of the probable health effect of chlorinated compounds.

RESPONSE: At the present time available data indicates that the beneficial health effects of chlorination far outweigh any demonstrated detrimental effects. This issue will be revisited when or if detrimental effects are identified. For this reason, no change will be made in response to this comment.

116. COMMENT: Commentor 185 contends that "short-term changes" needs to be defined and limited in some way in the categorical exclusions from significance.

RESPONSE: Rule VII(2)(a) and (g) allow the department to make case-by-case evaluations that would preclude short term repetitive activities from being considered nonsignificant. Establishing a time limit by rule would not be practical considering the varying types of short term activities that may occur. Therefore, the proposed change will not be made.

117. COMMENT: Commentor 188 does not believe any waters should be degraded from their present pristine qualities.

RESPONSE: The legislature enacted SB 401, which expressly authorizes the department to allow degradation provided all the requirements in § 75-5-303, MCA, are met. To adopt rules prohibiting any degradation would conflict with the intent of the legislature as expressed in the Water Quality Act and the Statement of Intent for SB 401. Therefore, the suggested change will not be made.

118. COMMENT: Commentor 192 contends that there are a number of instances where the "Trigger Level" is the same level as the "Required Reporting Limit" in WQB-7 (for example, nitrate plus nitrite has a "Trigger Level" of 10 ppm). If the trigger and
required reporting levels for toxic, carcinogenic, or harmful chemicals are the same, damage to human health and the environment may be beyond repair.

RESPONSE: This comment was not specific enough to justify a change so none will be made. In addition, there is no relationship between "trigger values", "reporting values" and standards. Standards are set at levels which will prevent effects on uses. Trigger values are values which can theoretically measure change. Reporting values are the detection values achievable in good quality laboratories. The trigger value for nitrate plus nitrite is 10 ppb.

119. COMMENT: Commentor 192 contends if mixing zones are granted for individual parameters, the size of the zone may be different for different constituents. This will cause inconsistent and problematic reporting requirements. This commentor also asks for the technical documentation used in the determination of mixing zone area calculations.

RESPONSE: No change in the rule is necessary to clarify that the parameter which results in the most limiting requirements will govern the mixing zone requirements. The calculations are based on EPA guidance.

120. COMMENT: Commentor 192 contends that there should be specific restrictions for groundwater mixing zones for parameters that are toxic and harmful parameters.

RESPONSE: The concentrations of toxic and harmful parameters are adequately restricted by the general mixing zone requirements. Therefore, no change is necessary to address this comment.

121. COMMENT: Commentor contends that values for hydraulic conductivities should not be estimated from field observations as there are accurate technical methods for determining hydraulic conductivities.

RESPONSE: Under the "General Considerations" in Rule III(1)(d), the rules provide that "estimated parameter levels in the mixing zone area will be calculated, unless the department determines that monitoring is necessary due to the potential harm to the impacted water and its beneficial uses". This concept will also be applied in determining hydraulic conductivities. No change in the rules will be made based upon this comment.

122. COMMENT: Commentor 198 contends that public participation in the review of application completeness and the preliminary decision by the department to authorize degradation is essential. The department will be given up to 180 days to review complete applications to degrade, and the public should be involved in this process from the start.

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RESPONSE: Completeness review by the department consists of a
technical review and analysis that is time consuming and gener-
ally beyond the expertise of the general public. The rules do
include, however, provisions that require public notice and
opportunity to comment on all applications to degrade. The
rules require the department to issue a preliminary decision
accompanied by a statement of basis explaining the basis for
the decision pursuant to Rule VI(4). No further changes to the
rules are necessary to provide an opportunity for public in-
volvement.

123. COMMENT: Commentor 198 contends that most carcinogens are
persistent in the environment, and hence, it is the total load
of these parameters that is a concern, not simply their concen-
tration in the discharge.

RESPONSE: The effects of carcinogens are manifested through the
concentration of the intake not through the load in the envi-
ronment. No changes to the rules are necessary to address this
comment.

124. COMMENT: Commentor 198 contends that the background ni-
trate concentrations in ground water should be determined in
accordance with definition (3) of Rule II.

RESPONSE: Definition (3) of Rule II does not apply to ground
water and, therefore, no change will be made in response to
this comment.

125. COMMENT: Commentor 198 contends that unless the Board or
the department has a specifically proven method to distinguish
the source of nitrate in ground water, we must assume all ni-
trogen is from human wastes and apply the more stringent stan-
dards to properly protect human health as well as the environ-
ment.

RESPONSE: There are no specific methods to determine the source
of nitrate in ground water. In practice the source of nitrate in
ground water will be determined by using all available data
including past and present land uses in the area. Since the
background source of nitrate can generally be determined, the
rules will not be changed as suggested.

126. COMMENT: Commentor 198 contends that the public must have
the opportunity to participate in the development of the pre-
liminary decision regarding a petition to degrade.

RESPONSE: See Response 122.

127. COMMENT: Commentor 198 contends that categorically ex-
cluded activities should not be exempt from the intent of the
Nondegradation Law. If these activities are in fact found to
be degrading state waters, they should be corrected or stopped.
More importantly, anyone planning to carry out these activi-

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ties, particularly oil and gas drilling operations, must demonstrate to the department that they are using state accepted water conservation and pollution prevention practices.

RESPONSE: Categorically excluded activities are not exempt from the law. If these activities are degrading state waters they will be corrected or stopped. There is no need for a demonstration because it has been determined that these activities, if conducted in conformance with law, will not cause degradation. If they are not in conformance with law, then they are subject to enforcement proceedings. In addition, there are no approved state water conservation and pollution prevention practices at this time.

128. COMMENT: Commentor 198 contends that the dissolved oxygen limits in WQB-7 must be re-addressed as fish eggs need higher oxygen levels in order for them to reach juvenile life stages. Also, the aquatic insects the fish feed on need dissolved oxygen as well.

RESPONSE: The proposed dissolved oxygen limits will adequately protect all life stages of all types of aquatic life. Therefore, no change will be made in response to this comment.

129. COMMENT: Commentor 199 requests that the department evaluate and report the socio-economic effects of the proposed rules.

RESPONSE: This comment does not request a change in the rules so none will be made. In response, the proposed rules are being adopted in response to the legislative enactment of SB 401, which was adopted in April of 1993 and effective immediately upon adoption. This law requires the adoption of rules implementing its provisions. It is not appropriate for the agency to withhold the adoption of rules based upon economic considerations when those rules implement legislative intent.

130. COMMENT: Commentors 200, 260, 261, 263, contend that permitted stormwater discharges should not be categorically excluded as nonsignificant.

RESPONSE: This exclusion has been removed in response to comments.

131. COMMENT: Commentor 200 asks how will wildlife be kept away from mixing zones? How will the area be monitored to ensure the zone doesn't enlarge and slip contaminated water through an irrigation ditch headgate to damage hay or poison cattle?

RESPONSE: This comment is not specific enough to justify a change so none will be made. Potential effects on wildlife and irrigation withdrawals will be considered under Rule IV(1) of 15-8/11/94 Montana Administrative Register.
the mixing zone rules.

132. COMMENT: Commentor 208 contends that mixing zones are only appropriate for substances which can be assimilated.

RESPONSE: The mixing zones allowed in the proposed rules are consistent with the criteria of § 75-5-101(4), MCA, which do not limit the applicability of mixing zones to substances that can be assimilated. For this reason, the suggested change will not be made.

133. COMMENT: Commentor 208 asks why trigger values are not listed for all parameters?

RESPONSE: This commentor did not suggest a change, so none have been made in response. In response, trigger values are used to determine significance for substances categorized as toxic. For carcinogens, any increase is significant however small so that trigger values do not apply. For less detrimental substances, such as sulfate, a 10% increase is significant.

134. COMMENT: Commentor 208 contends that Note 19 in WQB-7 should say that the reporting level is the minimum detection level that must be achieved.

RESPONSE: The addition of the word "minimum" does not add to the clarity of this footnote and, therefore, the suggested change will not be made.

135. COMMENT: Commentor 208 contends that in Rule III(1) the size, configuration and location of mixing zones, both standard and nonstandard, should always be described, instead of only when "applicable".

RESPONSE: The term "applicable" acknowledges that in some cases a mixing zone will not be granted and thus a requirement to describe the mixing zone is not always "applicable". For this reason, the suggested change will not be made.

136. COMMENT: Commentor 208 contends that the mixing zone requirement should apply when re-issuance of MPDES or GWPCS permits occur.

RESPONSE: The mixing zone rules will not be applied retroactively to existing permits. At the time of their renewal, however, the department will review any mixing zone previously allowed in a permit to determine whether it is as small as practicable and does not impair any existing or anticipated uses. Rule III(1) of the mixing zone rules has been modified to clarify this issue.

137. COMMENT: Commentor 208 states that it is unclear as to what type of data would satisfy Rule IV of the mixing zone rules and what occurs in the absence of data. If, for example,
data is unavailable or incomplete for any of these items, would a proposed mixing zone be rejected?

RESPONSE: This comment is not specific enough to justify a change in the rules. No change will be made. In response, the department will determine the potential impacts of a proposed mixing zone on a case-by-case basis. In cases where sufficient data does not exist to make a reasoned decision, the department will err on the side of protecting water quality and either deny the mixing zone or request sufficient data to make a reasoned decision.

138. COMMENT: Commentor 208 asks what does "a period of years" mean in Rule IV(2)(d) of the mixing zone rules?

RESPONSE: This will be determined on a case-by-case basis based upon best professional judgment of the department. No change in the rules will be made to address this comment.

139. COMMENT: Commentor 208 contends that mixing zones should be prohibited for any substance that is both toxic and persistent.

RESPONSE: Flexibility is important in dealing with toxic and persistent. Everything is "toxic" and "persistent" to some degree. Therefore, no change will be made to prohibit these substances from using mixing zones.

140. COMMENT: Commentor 208 contends that acute criteria should never be exceeded in the mixing zone.

RESPONSE: The authority for allowing exceedances of standards is expressly stated in the definition of mixing zones in § 75-5-103(11), MCA, which defines a mixing zone as an area where standards may be exceeded. Although Rule V(1)(b) constrains exceedances of acute standards in the mixing zone, it does allow such exceedances if certain conditions are met. For the above reasons, the suggested change will not be made.

141. COMMENT: Commentors 208, 260, 261 contend that discharges to wetlands (other than constructed, pollution-reducing wetlands) should not be granted mixing zones especially if they contain bioaccumulative, bioconcentrating and biomagnifying substances.

RESPONSE: Section (2) of Rule V of the mixing zone rules prohibit mixing zones in wetlands for any substance for which the state has adopted numeric standards. This requirement, together with the general requirements of the mixing zone rules, will protect wetlands. Therefore, no change in the rules is necessary to address this comment.

142. COMMENT: Commentor 208 contends that "zone of influence" used in Rule VI(2) of the mixing zone rules needs to be de-
RESPONSE: The following definition has been added to the mixing zone rules in response to comments: "Zone of influence" means the area from which a well can be expected to withdraw water.

143. COMMENT: Commentor 208 states that it is unclear who provides the data and what quality it must be in Rule VIII of the mixing zone rules.

RESPONSE: As provided in Rule IV, the applicant must provide the information necessary to allow a determination regarding the applicability of a mixing zone. In most cases, this data will be developed by the discharger. The final decision as to the validity of the data will be made by the department. Since this is a decision based on professional judgment, no change in the rules will be made to address this comment.

144. COMMENT: Commentor 208 contends that Rule VIII(3)(c) is unclear, as is its relationship to nondegradation. Does this grant a groundwater mixing zone? Can MCLs be exceeded in the groundwater?

RESPONSE: This comment is not specific enough to justify a change in the rules so none has been made. Mixing zones are authorized by law and independent of the nondegradation policy. Rule VIII(3)(c) applies in those cases where a discharge to ground water will also affect surface water. The requirements for ground water mixing zones will still apply in these cases, but the discharge may also qualify for a standard surface water mixing zone provided certain conditions are met.

145. COMMENT: Commentors 208, 261, contend that monitoring of all surface water mixing zones should be required.

RESPONSE: The suggested requirement will not be adopted because there may be instances where it is not warranted. Monitoring will be required, however, when there is a reason for monitoring.

146. COMMENT: Commentor 208 disagrees that a standard mixing zone "is generally applicable to unconfined aquifers..." (Rule IX(1)(a)). The understanding of groundwater hydrology is not that precise.

RESPONSE: The intent of this language is to limit standard mixing zones to unconfined aquifers where ground water hydrology is relatively precise compared to semi-confined and confined aquifers. Therefore, the rule will remain as proposed.

147. COMMENT: Commentor 208 asks what happens when monitoring reveals that an unacceptable situation has occurred?

RESPONSE: This comment is not specific enough to justify a...
change in the rules so none has been made. Violations of law will be dealt with through enforcement proceedings and department policy.

148. COMMENT: Commentors 208, 217, 260, contend that mixing zones should not be allowed in lakes due to their inability to "mix" discharges and allow pollutants to accumulate.

RESPONSE: The suggested change will not be made because the requirements in the mixing zone rules will protect the uses of lakes.

149. COMMENT: Commentor 208 asks how will a contingency plan work in the case of subdivision when there are multiple-owners causing a cumulative effect as provided in Rule X(6) of the mixing zone rules?

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. In response, the contingency plan required in this section must demonstrate that alternative actions exist that will ensure compliance with the mixing zone restrictions regardless of potential impacts of other discharges.

150. COMMENT: Commentor 208 contends that the practices defined in Rule II(11) in the nondegradation rules should be EPA or state-approved.

RESPONSE: No change in the rules is necessary to address this comment. For the present these practices will be approved as needed by the department.

151. COMMENT: Commentor 208 contends that any discharge that includes carcinogenic parameters or substances that bioconcentrate, irrespective of how much, should be considered significant.

RESPONSE: Many, if not most discharges will contain some level of carcinogenic parameters or substances that bioconcentrate. The significance levels are set taking into consideration the harm that may occur due to the character of the discharge. To prohibit any discharge of the above referenced parameters is not required by law and is not necessary to comply with the intent of the nondegradation policy. For this reason, the suggested change will not be made.

152. COMMENT: Commentor 208 contends that Nondegradation Rule VII(I)(d) and Table I should be simplified and the table stricken. The significance threshold for nitrates for groundwater should be 2 mg/l (if the existing quality exceeds that, then a nondegradation petition should be required). The significance threshold for surface water, including existing quality should be 0.01 mg/l. The table is simply unworkable, and the thresholds will allow for unacceptable cumulative levels of nitrogen compounds in groundwater, which will in turn put at risk nearby
surface waters, despite language in the rules that implies streams, lakes and wetland will be protected. The monitoring burden would simply be overwhelming. In addition, the concept of separating sources of nitrates in doing calculation will be complicated in many areas of Montana where residential development is mingled with ranches and farms. Finally the levels allowed for nitrate concentrations do not account for its role as a surrogate for potentially harmful pathogens and toxins associated with sewage.

RESPONSE: The significance language of the act specifically refers to "changes". The changes allowed by the language in the rule and the table will protect public health and the environment. The rules do consider the other potentially harmful substances/organisms associated with human waste, the potential effect on surface water, and the proposed rules are implementable. For these reasons, the suggested change will not be made.

153. COMMENT: Commentor 208 contends that SB 401 did not authorize automatic exemptions from significance review as are provided by Rule VIII of the nondegradation rules (categorical exceptions). This section appears to conflict with the statute.

RESPONSE: SB 401 specifically allows for classes of activities to be considered nonsignificant. Therefore, the rule will remain as proposed.

154. COMMENT: Commentor 209 contends that it is unclear as to what "character of the discharge" means in nondegradation Rule IV (3) (c).

RESPONSE: The term is derived from the criteria for determining nonsignificance under § 75-5-301(5)(c)(iv). In order to implement the requirements of that section, this information is required in Rule IV(3) of the nondegradation rules. The term "character of the discharge" is self explanatory (i.e., the type of pollutant in the discharge) and no change will be made to clarify this term.

155. COMMENT: Commentor 209 contends that all subparts of Nondegradation Rule VII(a), (b), and (c) should be deleted. These rules are extremely vague and subject to very loose interpretation and qualification.

RESPONSE: These parts of the rules are precise and as simple as possible. Therefore, no change will be made in response to this comment.

156. COMMENT: Commentor 209 contends that Nondegradation Rule VI (2) (e) should be revised to read as follows: "A determination that all existing and reasonably anticipated uses will or will not be fully protected."

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RESPONSE: Agency decisions are held to a standard of reasonableness. In determining an anticipated use, the department will include only those uses that are reasonably anticipated for the particular stream. No change will be made to address this comment.

157. COMMENT: Commentors 213 and 258 contend that there should be restrictions on the introduction of sediment into our streams and rivers by activities such as road construction and logging.

RESPONSE: Sections (1)(f) of Rule VII and (2)(a) of Rule III restrict such activities. Therefore, no change is necessary to address this comment.

158. COMMENT: Commentors 217 and 235 contend that the 125\% rule appears to be an open invitation to the applicant to propose the lowest possible cost water quality protection practice, because the department cannot impose treatment which exceeds this cost.

RESPONSE: This commentor misunderstands this rule. If the cost of alternative treatment is less than 125\% the applicant must use the treatment; if the cost exceeds 125\% an applicant may be required to use such treatment. The rule is being modified to reduce the percentage from 125\% to 110\% in response to comments.

159. COMMENT: Commentor 217 contends that any attempt at cost/benefit analysis is an exercise in futility. If an activity or project cannot be developed in a manner that provides for protection of the environment, or if the applicant is unwilling to bear the cost of environmentally responsible development of his activity or project, the activity or project should not be allowed.

RESPONSE: The law specifically requires a demonstration that the proposed activity will result in important economic or social development that exceeds the cost to society of lower water quality. Therefore, the rule will remain as proposed.

160. COMMENT: Commentor 221 contends that the last sentence of Rule III(2)(b) be clarified so that a workable policy is developed that is able to be administered. The federal provision does not require that upstream of the proposed activity, there shall be achieved the highest statutory and regulatory requirements for all point and nonpoint sources. The following sentence is suggested: "This assurance will be achieved through the on-going administration by the department of existing point and nonpoint programs."

RESPONSE: The intent of the proposed rule is to require a review of existing permits and programs to ensure compliance before degradation is allowed in conformance with 40 CFR 131.12(2). EPA rules require some accounting for loads within
the basin in terms of both point and nonpoint sources in order to
determine existing quality as well as compliance with regu-
latory requirements. The proposed language will be used with
modifications as it clarifies that the "highest statutory and
regulatory requirements" will be achieved through an assessment
of approved department programs. In addition, while the federa-
al rule does not specify that the assessment must be "up-
stream," this term is meant to limit the water quality assess-
ment to upstream compliance rather than state-wide compliance.
For the above reason, this language will remain as proposed.

161. COMMENT: Commentor 221 contends that Rule VII(2) should
be stricken. This language is obviously too broad and should
be changed or eliminated.

RESPONSE: It is unlikely that a set of criteria for nonsignifi-
cance can be developed that would sufficiently fulfill the goal
of preventing degradation in every instance. Given that imple-
mentation of the policy under the rules has yet to be tested,
it is important that the department have discretion to make a
determination of significance independent of the criteria in
Rule VII(1). Therefore, the rule will remain as proposed.

162. COMMENT: Commentor 221 suggests modifying Nondegradation
Rule VIII(1)(a) by striking "on land". Therefore, the provi-
sion should read as follows: "Activities which are nonpoint
sources of pollution where reasonable land, soil and water
conservation practices are applied and existing and anticipated
beneficial uses will be fully protected."

RESPONSE: This change has been made to clarify that nonpoint
sources are excluded whenever they are using reasonable conser-
vation practices, whether or not those practices take place on
land or in water.

163. COMMENT: Commentor 221 contends that WQB-7 should be
modified to establish water quality standards in Montana which
are measurable, reasonable, and protect existing and anticipat-
ed beneficial uses of water.

RESPONSE: The standards in WQB-7 are reasonable and protective
of existing and anticipated uses of water. Due to analytical
limitations, however, some of the standards are not measurable.
The US EPA requires standards to be set at levels that will
protect uses, regardless of the ability to measure at those
levels with present methods. The levels set in WQB-7 are based
on EPA recommended levels for protecting beneficial uses. Since
the standards in WQB-7 are protective of present and anticipat-
ed uses, no change will be made based upon this comment.

164. COMMENT: Commentor 221 contends that the effect of the
nondegradation law is restricted to changes which occur after
the adoption of the law.

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RESPONSE: Comment noted.

165. COMMENT: Commentor 221 contends that it should be clear in the proposed rules that activities which are exempt from the requirement to obtain NPDES or Montana permits and nonsignificant activities under the nondegradation law are not required to obtain any mixing zone approval from the Department. Language should be added which reflects this concept.

RESPONSE: The rules are clear in this respect and no change is necessary to address this comment.

166. COMMENT: Commentor 221 states that the nondegradation Rule V(2), concerning mixing zone requirements for wet lands should be re-analyzed. Natural wetlands have generally been recognized as natural filters of pollutants.

RESPONSE: Natural wetlands are in some cases effective "filters" for pollutants. Unfortunately, such filtering may not be good for the wetland. For this reason, the rule will remain as proposed.

167. COMMENT: Commentor 227 supports the comments made by Commentor II.

RESPONSE: See response to Commentor II.

168. COMMENT: Montana's classification system for state waters is too broad.

RESPONSE: This comment is not specific enough to justify a change and none will be made. Although the classification system for state waters may need to be more detailed, the classification system is part of this rulemaking process.

169. COMMENT: Commentor 227 contends that these rules are more restrictive than the written guidance from US EPA Region VIII and regulations adopted by neighboring states.

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. In response, the proposed rules contain the minimum restrictions necessary to implement Montana law and meet federal requirements.

170. COMMENT: Commentor 227 notes that the very low levels listed for a number of parameters are not measurable and are exceeded naturally in many Montana streams. Does the department intend to ignore a public health standard once it is adopted? How does the department propose to use the human health standard? Will recreational use be restricted?

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. In response, upon adoption of these rules, the department is required by law to
administer and enforce their provisions.

171. COMMENT: Commentor 228 contends that it is inappropriate to discharge pollutants or toxic substances in water bodies containing native fish known to be considered sensitive, threatened or endangered.

RESPONSE: At the present time there are no provisions of law which specifically prohibit discharges to water bodies containing sensitive or threatened native fish. The nondegradation law, however, prohibits changes in water quality which would affect existing or potential beneficial use. Support of sensitive, threatened or endangered species is an existing use of some waters and protected by the rules. Therefore, no change is necessary to address this comment.

172. COMMENT: Commentor 228 states that data on many fish and aquatic species is unavailable simply because studies have not been conducted. How can we protect the fish from effluent plumes blocking migration into tributary segments, if the data is not available?

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. In response, there will be many cases where all of the data necessary to make a "fully informed decision" is lacking. Until sufficient data accumulates, the department will make decisions that are as protective as possible of water quality based on available data. When there is doubt, any errors made will be on the side of protecting existing uses.

173. COMMENT: Commentor 228 asks whether there are existing standard water mixing zone permits for lakes or wetlands and if so, will they be subject to this rule when the current permit expires?

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. In response, the mixing zone rules have been changed to clarify that existing permits may continue to use any mixing zone allowed under the permit until the permit expires. At that time, the permit will be reissued with the mixing zone specifically identified, as long as the continued use of the prior mixing zone will not harm existing or anticipated uses.

174. COMMENT: Commentor 228 asks what are the impacts from 1 million gallons per day entering a stream segment in terms of bank erosion, bed load movement, sedimentation and fisheries habitat? (with respect to the allowance for a standard mixing zone for discharges of less than 1 million gallons per day at a dilution of 100:1)

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. In response, under...
the circumstances described above, allowing a standard mixing
zone is unlikely to impact uses.

175. COMMENT: Commentor 228 contends that monitoring should be
part of the permit process.

RESPONSE: This comment is not specific enough to justify a
change in the rules so none will be made. Discharge permits,
however, require self monitoring and the department periodical-
ly monitors to ensure compliance.

176. COMMENT: Commentor 228 contends that the department
should have the capability to assess cumulative impacts.

RESPONSE: This comment is not specific enough to justify a
change in the rules so none will be made. Although the depart-
ment should have this capability in order to fully protect
water quality, the extremely high cost of developing background
data and tracking changes prevent the department from doing
this at the present time.

177. COMMENT: Commentor 235 contends that monitoring mixing
zones should be a standard procedure. Estimates and calcula-
tions should not be used as provided in the rules.

RESPONSE: Mixing zones can only be monitored after a discharge
exists. Estimates and calculations must be used to predict
effects and make a reasoned decision. For this reason, the
rules will remain as proposed.

178. COMMENT: Commentor 235 contends that multiple mixing
zones could be confusing and difficult or expensive to monitor.
Only one should be allowed.

RESPONSE: Section (1)(f) of the mixing zone Rule IV gives the
department sufficient authority to deal with multiple mixing
zones. Therefore, the rules allowing multiple mixing zones
will remain as proposed.

179. COMMENT: Commentor 235 contends that the "natural" condi-
tion of water (i.e., before human impacts) should be used as the
"existing" water quality for nondegradation limitations.

RESPONSE: At this time it is essentially impossible to deter-
mine what water quality existed prior to any man caused im-
pacts. In addition, § 75.5-303(2)(b), MCA, specifically refers
to protecting existing high-quality waters, as well as existing
uses. For this reason, no change will be made in response to
this comment.

180. COMMENT: Commentor 235 contends that the rules should
define how the department will determine environmental and
technological feasibility.
RESPONSE: Although the law and the rules require this determination, there is no practical way to define environmental or technological feasibility other than listing the considerations taken into account as provided in Rule V of the nondegradation rules. The determination must be made on a case-by-case basis, based on best professional judgment of the department. For this reason, no change will be made in response to this comment.

181. COMMENT: Commentor 235 asks how will the Department determine that the specified water quality protection practice will remain in place until the degradation no longer occurs?

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. In response, this determination will be made during the authorization review process.

182. COMMENT: Commentor 235 contends that these rules do not comply with § 75-5-301(5)(c), MCA, which requires establishment of "criteria" for determining those activities that cause non-significant activities. These rules exempt activities from review without establishing that they result in non-significant changes.

RESPONSE: The categorical activities listed in Rule VIII and the criteria provided in Rule VII were developed to conform to the nonsignificance criteria given in the law. Therefore, the rules will remain as proposed.

183. COMMENT: Commentors 241, 254, support the comments of commentor 111.

RESPONSE: See Response to Comments made by Commentor 111.

184. COMMENT: Commentor 241 contends that the proposed rules governing hard rock exploration activities will comply with the criteria for nonsignificance and suggests that a categorical exclusion be provided for such activity as follows: "(g) metallic and non-fuel, non-metallic mineral exploration performed in accordance with ARM 26.4.104A".

RESPONSE: Until the proposed rules regulating hard rock exploration activities are adopted, it would be inappropriate to exclude such activities prior to the ability of the state to enforce such requirements. For this reason, the suggested change will not be made.

185. COMMENT: Commentor 241 lists a series of major problems with the cost-benefit analysis, as contained in the proposed rules, and urges the Board to review the attached comments and reject the cost/benefit approach that is currently contained within the rules.
RESPONSE: In response to the extensive comments received criticizing the proposed cost/benefit analysis, the rules have been modified to address this commentor's concern. Therefore, no further change is necessary.

186. COMMENT: Commentors 242 and 243 support the comments of commentor II1. In addition they have re-submitted comments prepared for the earlier hearings.

RESPONSE: See Response to Comments made by Commentor II1 and the Response to Comments prepared for the earlier board hearings regarding the re-submitted comments of Commentor 242 and 243.

187. COMMENT: Commentor 260 contends that the categorical exemption in Rule VII(1)(g) creates an untenable loophole in the nondegradation policy and must be revised. First, any waste stream containing nitrogen could fall within this exemption, even if the waste stream contained other harmful constituents. Second, "a complete" was deleted. By eliminating the term "complete" the most recent draft of these rules has added an unnecessary element of discretion into this exemption. Finally, this provision states that VII(1)(g) applies only if "other parameters will not cause degradation." What does this mean? Rule VII(2) provides that the discharger will determine whether this exemption is applicable.

RESPONSE: The term "other sources" has been deleted from the final rule and the categorical exclusion now applies only to nitrogen from human wastes in order to address this commentor's concern. Immediate and complete agronomic uptake, however, is unattainable and will not be included in the final rule.

188. COMMENT: Commentor 261 contends that the department has insufficient resources to adequately administer an effective nondegradation program and consequently should direct its resources away from small sources of pollution to Montana's waters. A potential, partial solution would be to increase revenues through new or increased fees.

RESPONSE: This comment is not specific enough to justify a change in the rules so none will be made. In response, the department is required to administer the requirements of the Water Quality Act as it applies to all sources of pollution, regardless of size. The department has the authority to charge fees for processing requests to degrade and has adopted a schedule for implementation of the fees.

189. COMMENT: Commentor 261 contends that activities excluded from coverage by Rule VII for nondegradation consideration must still be liable for pollution to state waters, if they cause degradation.

RESPONSE: This comment is not specific enough to justify a
change in the rules so none will be made. In response, under §
75-5-605(1)(d), MCA, no activity may cause degradation unless
authorized by the department. If an activity fails to conform
to the criteria in Rule VII and thereby causes degradation, the
person conducting the activity is in violation of the law and
subject to enforcement proceedings.

190. COMMENT: Commentor 261 contends that the limit for ni-
trate concentration in groundwater should be 2.0 ppm. In the
case where groundwater drains directly or immediately into
surface water, any source that will cause nitrate level to
exceed 2.0 should be considered significant.

RESPONSE: In many instances the nitrate level in ground water
can exceed 1.0 mg/l and still be nonsignificant according to
the criteria in § 75-5-301(5)(c), MCA. The proposed rules
reflect those instances and will not be changed as suggested.

191. COMMENT: Commentor 261 suggests that the nondegradation
rules need to be more clear regarding their relationship to the
Montana Environmental Policy Act (MEPA).

RESPONSE: The department is required by law to follow the re-
quirements of MEPA and has adopted rules establishing proce-
dures for compliance with the Act in ARM 16.2.601 et seq.
Those rules establish time-frames for agency decisions and
criteria for determining when an Environmental Impact Statement
must be prepared. Restating those requirements in the nondeg-
radiation rules would be unduly cumbersome and repetitive.
Therefore, the suggested change will not be made.

192. COMMENT: Commentor 261 suggests that in cases where a
chemical detection level is lower than the level set for the
standard, the trigger level should be set at 10% to 50% of the
standard.

RESPONSE: There is no rational basis for selection of lower
trigger values and, therefore, the suggested change will not be
made.

193. COMMENT: Commentor 261 Recommends further review of the
following chemicals and their associated standards:
* dichlorodifluoromethane, set @ 6,900ppb. Maybe needs to be
set at 1,000ppb. * 2,4-dinitrotoluene, set @ 0.11ppb. Maybe
needs to be set at 0.05ppb. * endrin, set @ 0.76ppb. Maybe
needs to be set at 0.2ppb. * simazine, set @ 4ppb. Maybe
needs to be set at 1.7ppb. * toluene, set @ 1,000ppb. Maybe
needs to be set at 34ppb. * trichlorofluoromethane, set @
10,000ppb. Maybe needs to be set at 1,490ppb. * vinyl chlo-
ride, set @ 2ppb. Maybe needs to be set at 0.2ppb. * xylene,
set @ 10,000ppb. Maybe needs to be set at 620.

RESPONSE: * dichlorodifluoromethane, set @ 6,900 micrograms per
liter. This is an updated value of the published 304(a) Human
Health Criteria for water plus fish consumption. The updated information was published by EPA Region VIII on July 1, 1993. The previously published value was 0.19 micrograms per liter. * 2,4-dinitrotoluene, set at 0.11 micrograms per liter. This value did not change from the previously published Human Health Criteria. * endrin, set at 0.76 micrograms per liter. This is an updated value of the published 304(a) Human Health Criteria for water plus fish consumption. The updated information was published by EPA Region VIII on July 1, 1993. The previously published value was 0.2 micrograms per liter. Footnotes indicate the value was based on drinking water MCL's.* simazine, set at 4 micrograms per liter. Based on published drinking water MCL criteria. * toluene, set at 1,000 micrograms per liter. This value was based on drinking water MCL's. The updated value of the published 304(a) Human Health Criteria for water plus fish consumption was published by EPA Region VIII on July 1, 1993. The update gave the new value of 6,800 micrograms per liter. The previously published value was 14,300 micrograms per liter. In setting the standard, the department used the more restrictive value derived from the drinking water MCL.

194. COMMENT: Commentator 261 suggests that the following 25 chemicals be added to WQ8-7:
* acetone * butylate * carbaryl * chloramben * cyanazine * dicamba * 1,1-dichloroethylene * dimethoate * eptam (EPTC) * ethylene glycol * di(2-ethylhexyl)phthalate * bis(2-ethylhexyl)phthalate * formaldehyde * methyl ethyl ketone (MEK) * metolachlor * methyl isobutyl ketone (MIBK) * isopropylacetone * methyl tert-butyl ether (MTBE) * 2-methoxy-2-methylpropane * metribuzin * tetrahydrofuran * trifuralin

RESPONSE: There are tens-of-thousands of chemicals/compounds not listed in WQ8-7. Those listed in WQ8-7 come from two primary sources. One is the U.S. EPA's list of 126 "Priority Pollutants" and the second being chemicals listed for drinking water MCL's. If a chemical/compound was on either list, it is in WQ8-7. A few chemicals are not found on either list but are in WQ8-7 because they affect quality factors such as organoleptic effects, oil and suspended solids, or other aesthetic considerations.

WQ8-7 is not intended to be an all inclusive list of harmful pollutants. It is meant to list a minimum set of chemical/compounds that need to be controlled. This determination and proof is left with the U.S. EPA. Future changes, both additions and deletions, to WQ8-7, will reflect EPA's changes based on its scientific evidence and recommendations. The department simply does not have the resources to conduct these types of investigations to make a rational choice regarding what must be in WQ8-7. Incidentally, di(2-ethylhexyl)phthalate -- bis(2-ethylhexyl)phthalate is listed on page 11. 1,1-dichloroethylene is listed on page 15.

195. COMMENT: Commentator 261 states that the following 7 chemicals...
COIl/compounds found on the EPA's list of 126 'Priority Pollutants' were omitted from WQB-7: 2-chloronaphthalene, paraphenolmetacresol, 1,1-dichloroethylene, dichlorobromomethane, di-n-butyl phthalate, diethyl phthalate, dimethyl phthalate.

RESPONSE: 2-chloronaphthalene, listed on page 2 of WQB-7, paraphenolmetacresol, listed on page 11 of WQB-7, 1,1-dichloroethylene, listed on page 9 of WQB-7, di-n-butyl phthalate, listed on page 10 of WQB-7, diethyl phthalate, listed on page 11 of WQB-7, dimethyl phthalate, listed on page 10 of WQB-7.

196. COMMENT: Commentor 261 states that some "Toxic Pollutants" were left out of WQB-7.

RESPONSE: Many of those suggested as missing by this Commentor seem to be from a general class of chemicals. WQB-7, whenever possible, lists chemicals individually. WQB-7 does include all 126 "Priority Pollutants" plus chemicals with Drinking Water MCL's plus those other few chemicals/compounds where justification exists for inclusion. Therefore, the suggested change will not be made.

197. COMMENT: Commentor 261 suggests that compounds (organic reagents) associated with processing mining ores be included in WQB-7.

RESPONSE: WQB-7 is not an all inclusive list of harmful pollutants. It is a minimum set of chemical/compounds that should be limited to make it useable. Future changes, both additions and deletions, to WQB-7, will reflect scientific evidence and EPA recommendations. Therefore, the suggested change will not be made.

198. COMMENT: Commentor 261 suggests that another column(s) be added to WQB-7 to contain the uses of the compounds (organic reagents) listed, as well as the main effluents in which organic reagents will be found.

RESPONSE: WQB-7's scope is and will remain limited to Water Quality Standards and their associated values. While additional information can add value to a document, it can also unnecessarily clutter or cause confusion. Discussions of socio-economic impacts, chemistry, and mining engineering practices are better left to another format. Therefore, the suggested change will not be made.

199. COMMENT: Commentor 261 points out that the value for "Ratio", concerning the chronic ammonia standard, is 13.5 in WQB-7, but was listed as 16.0 in the old EPA Gold Book.

RESPONSE: This value, 13.5, was published by EPA Region VIII on Montana Administrative Register 15-8/11/94.
73. The previously published value for ratio was 16.0. The value as listed in WQ-7 is correct and will remain as proposed.

200. COMMENT: Commentor 261 suggests footnotes 4 and 5 in the dissolved oxygen table in WQ-7 seem to contradict one another. Footnote 4 should be eliminated.

RESPONSE: There is a contradiction. Footnote 4 will be eliminated in response to this comment.

201. COMMENT: Commentor 261 contends that footnote 2 in the dissolved oxygen table in WQ-1 should include eggs.

RESPONSE: This footnote includes "all embryonic and larval stages". Thus, eggs are included and no change is necessary.

202. COMMENT: Commentor 261 suggests that in each of the water use classifications in the water quality standards (16.20.616-624), Section (h)(i) states: "Concentrations of carcinogenic, bioconcentrating, toxic, or harmful parameters which would remain in [drinking] water after conventional [drinking] water treatment...". To avoid confusing this with ambient water and wastewater treatment, add the word drinking (shown above in brackets).

RESPONSE: The suggested change will not be made as it is beyond the scope and purpose of this rulemaking.

203. COMMENT: Commentor 261 contends that the proposed language for site specific standards in Class I waters would mean that site-specific standards can only be less stringent and not more stringent than WQ-7, even though the EPA recommends that site-specific standards may sometimes need to be more stringent than its general criteria.

RESPONSE: The language regarding site specific standards in the surface water quality rules will be modified for the reasons stated by this commentor.

204. COMMENT: Commentor 261 contends that ARM 16.20.623 (2)(h)(iv) does not specify the period used to determine the "mean instream concentrations immediately upstream". As such, Class I streams effectively are excluded from the nondegradation rules, which was not the intent of the legislature and ultimately weakens the application of water quality standards. It certainly is not the intent of the legislature that any impaired stream be further degraded. Therefore, this section of the rules should be removed. Please note that the previous section, ARM 16.20.623 (2)(h)(iii), appropriately states that the standards for Class I streams are the applicable levels in WQ-7 or site-specific standards developed under the appropriate guidance from EPA.
RESPONSE: The use of one-half of the upstream quality as a discharge limit results in improved water quality and therefore, will not be changed as requested. In addition, the legislature specifically excluded Class I waters from the non-degradation law by excluding such waters in the definition of high-quality waters. Section (h)(iii) effectively set goals for the water quality in these streams. Therefore, no change will be made.

205. COMMENT: Commentor 261 recommends the following change concerning mixing zone rules, Rule III(1): "Information received by the applicant" should be changed to: "Information received from the applicant".

RESPONSE: This change will be made.

206. COMMENT: Commentor 261 recommends the following change concerning mixing zone rules, Rule III(1): the department needs to indicate how concentrations in the mixing zone will be calculated (by what approach or model).

RESPONSE: Due to the large variety of situations that may arise, it is not possible to specify precisely how these calculations will be made except to say that best professional judgment will be employed. Therefore, the suggested change will not be made.

207. COMMENT: Commentor 261 recommends the following change concerning mixing zone rules, Rule V(1): The rule says "No mixing zone will be granted, if it would cause unreasonable interference with or danger to existing beneficial uses." The word "unreasonable" should be dropped since it is not defined and is very subjective.

RESPONSE: The language cited above has been changed in Response to Comment 30. The term "unreasonable" has been removed and the rule now refers to "threaten or impair existing beneficial uses" for consistency with Rule VIII(6) of the mixing zone rules. No further change is necessary to address this comment.

208. COMMENT: Commentor 261 recommends the following changes concerning Rule V(3) of the mixing zone rules: This commentor believes that whether or not a pollutant is granted a surface water mixing zone should depend more on its fate than on its effect on humans. Therefore, only substances and situations that meet the following criteria should be granted mixing zones: (a) the substance does not bioconcentrate (BCP<100); (b) the substance is rapidly broken down to nontoxic, harmless compounds (The half-life of the substance in surface waters is <1 day); (c) the oxygen depletion in the receiving water must have recovered fully before allowing the next oxygen-demanding mixing zone.

RESPONSE: This commentor overlooks the logic of the patholo-
gists that "the dose makes the poison". There are no "nontoxic harmless compounds" so that implementation of the requested change would result in no mixing zones for any pollutant. The mixing zone rules as proposed will adequately protect all present and anticipated uses of water and will remain as proposed.

209. COMMENT: Commentor 261 recommends the following change concerning mixing zone rules, Rule VIII(3): The rule now states that facilities which meet conditions in (a) and (d) qualify for standard mixing zones. This should be changed to (a) through (d).

RESPONSE: This was an error and the requested change will be made.

210. COMMENT: Commentor 261 contends that there is an error in mixing zone Rule VIII(3)(b). She contends that if you add the conditions in (b) to the conditions in (a), it would include all facilities because (a) and (b) together specify every conceivable combination of discharges and dilution rates and requests that (b) be eliminated or corrected.

RESPONSE: For the reasons stated above, (b) has been changed to address this comment.

211. COMMENT: Commentor 261 recommends the following change concerning mixing zone rules, Rule VIII(3)(d): Facilities with instantaneous mixing zones (<2 stream widths) should not be granted standard mixing zones (10 stream widths) because the legislature intended that mixing zones should be as small as practicable.

RESPONSE: Facilities with instantaneous mixing zones (<2 stream widths) under the above cited rule are granted a standard mixing zone, which is less than 2 stream widths in length. This is as short as practical and, therefore, the suggested change will not be made.

212. COMMENT: Commentor 261 contends that mixing zone Rule VIII(6) is unnecessary in light of nonstandard mixing zones.

RESPONSE: The above cited rule is necessary to clarify the authority of the department to modify standard mixing zones as needed to protect uses. Therefore, the rule will remain as proposed.

213. COMMENT: Commentor 261 recommends the following change concerning Rule IX(1)(c) of the mixing zone rules: Change the last line from "discharge qualifies for a standard mixing zone" to "discharge may qualify for a standard mixing zone" because it may not satisfy Rule IX(1)(a).

RESPONSE: If the ground water discharge is subject to the limi-
tations in (a), a standard mixing zone may not be appropriate. Where the limitations in (a) do not apply, then the discharge clearly qualifies for a standard mixing zone whenever the conditions in (c) are met.

214. COMMENT: Commentator 261 contends that in mixing zone Rule IX(1)(d)(viii): the downgradient boundary of a standard mixing zone should be limited by its distance to the nearest groundwater well. The same is true of nonstandard mixing zones.

RESPONSE: Protection of drinking water supply wells is assured by Rule VII(2). Therefore, no further change is necessary to address this comment.

215. COMMENT: Commentator 261 contends that nondegradation Rule II(16)(a) should be deleted because a point source discharging under an existing permit can cause degradation if it significantly increases its discharge.

RESPONSE: The above referenced rule is renumbered as Rule II(15)(a) in the nondegradation rules. The rule allows changes in water quality under an existing permit or approval obtained prior to the enactment of the new law. This is consistent with legislative intent as clearly expressed in Section 10 of SB 401 and discussions before the Senate Natural Resources Committee. Therefore, the rule will remain as proposed.

216. COMMENT: Commentator 261 recommends nondegradation Rule II(16)(b) should read: "nonpoint sources discharging prior to April 29, 1993, which have had no increase in land disturbance (that is, no increase in acres disturbed, no increase in grazing or tree harvest rates)."

RESPONSE: The requested change will not be made because the increased land disturbance, if it caused degradation, would fall under the definition of "new or increased source" in Rule II(15).

217. COMMENT: Commentator 261 recommends the following change concerning nondegradation Rule VII(2)(d): after "determination of economic or social importance" add "of the proposed activity and of the loss of existing water quality."

RESPONSE: In response to numerous comments on the economic analysis required under the rules, this entire section has been changed. No further change is necessary to address this comment.

218. COMMENT: Commentator 261 recommends the following change concerning nondegradation Rule VII(11)(a): before "10%" add the words "less than."

RESPONSE: This change has been made.
219. COMMENT: Commentor 261 recommends adding teratogenic and
mutagenic substances to nondegradation Rule VII(1)(b) as param-
eters that cannot exceed background levels.

RESPONSE: To the best of our knowledge, there is no adequately
documented list of such parameters and the department does not
have the means to develop a defensible list. Therefore, the
suggested change will not be made.

220. COMMENT: Commentor 261 recommends the following change
centering nondegradation Rule VII(1)(b): add “Where
parameters are below detection in receiving water upstream of a
discharge, the parameters will be assumed to be zero for the
purposes of determining the allowed levels in that discharge.”

RESPONSE: This change will not be made as such an assumption is
not reasonable.

221. COMMENT: Commentor 261 recommends the following change
centering nondegradation Rule VII(1)(e): delete the
words “for a period of 50 years”.

RESPONSE: Phosphorus is removed from soil solution in two ways.
First, some fine soil particles can absorb phosphorus. The
amount of phosphorus absorbed by soils is limited by the soil
texture and the type of soil particles present. The absorptive
capacity of the soil can be determined through the proper
tests. Second, phosphorus can also be removed from soil solu-
tion through the process of precipitation. Although the amount
of precipitation is determined by the chemical characteristics
of the soil solution, the process for making this determination
is very complex and not well understood. The available data
indicates, however, that if the absorptive capacity of the soil
exceeds 50 years, it is likely that phosphorus will be effec-
tively removed due to precipitation. The 50 year requirement
will not be deleted but may be modified when better data is
available.

222. COMMENT: Commentor 261 contends that nondegradation Rule
VIII(1)(f) should be deleted.

RESPONSE: Since increases in nitrate are covered in Rule VII of
the nondegradation rules, the proposed change will be made.

223. COMMENT: Commentor 263 points out that the equation for a
"one-half area" in mixing zone Rule VIII(4) is actually an
equation for the distance downstream it takes for the mixing
zone plume to get to one-half the width of the stream. This
rule should be modified to indicate that the equation should be
used to calculate the downstream distance to one-half width
mixing.

RESPONSE: The equation will be changed in response to this
coment.

15-8/11/94 Montana Administrative Register
224. COMMENT: Commentors 273 and 316 urge the board to approve composting toilet systems.

RESPONSE: See Response 1.

225. COMMENT: Commentors 216, 218, and 219 contend that if a mixing zone is needed, the activity is significant. Therefore the nonsignificance criteria in the nondegradation rules should not include mixing zones.

RESPONSE: The inclusion of certain activities that require mixing zones under the proposed rules is consistent with the criteria for determining nonsignificant activities pursuant to § 75-5-303(5)(c), MCA. Therefore, the inclusion of mixing zones will remain in the final rules.

226. COMMENT: Commentor 276 contends that any increase greater than 5.0 mg/l is significant.


227. COMMENT: Commentor 289 agrees with the substance of comments made by Commentor 111.

RESPONSE: Comment noted.

228. COMMENT: Commentor 290 contends that the categorical exclusion for agricultural chemicals in Rule VIII(1)(b) should be deleted and a section added to clarify that under the provisions of § 85-15-212, MCA, these activities are exempt from permitting.

RESPONSE: The requested change will not be made because unpermitted nonpoint source activities remain subject to the nondegradation policy and its requirements. This exclusion recognizes that the activities are nonsignificant provided they comply with the conditions set forth in the rule.

229. COMMENT: Commentor 290 contends that "anticipated beneficial uses" should be deleted from nondegradation Rule VIII(1)(b) because it is not defined.

RESPONSE: §§ 75-5-301(1) and 75-5-303(3)(c), MCA, require the protection of existing and anticipated uses of state waters. The rule will not be changed as suggested because the law requires the protection of "anticipated uses".

230. COMMENT: Commentor 290 contends that the nitrate standards should be the same for both surface and ground water.

RESPONSE: The standards to protect public health are the same. However, nitrate may cause undesirable changes in aquatic growth for surface waters at concentrations far below the levels which are protective of public health. In contrast, ni-
trate does not cause undesirable changes in aquatic growth for ground waters. Due to its effect in surface water, it is appropriate that the standard be more stringent. For this reason, the rule will remain as proposed.

231. COMMENT: Commentor 314 contends that if there are mistakes during the completeness review, it should not be possible to correct them.

RESPONSE: This requirement would be counterproductive and therefore, will not be included in the rules.

RAYMOND W. GUSTAFSON, Chairman
BOARD OF HEALTH AND ENVIRONMENTAL SCIENCES

By ROBERT J. ROBINSON, Director

Certified to the Secretary of State August 1, 1994

Reviewed by:
Eleanor Parker, DHES Attorney
unless an action is brought in the district court as provided in 16-2-307 through 16-2-310, 15-1-406."


Approved April 29, 1993.

CHAPTER NO. 595

[SB 401]

AN ACT AMENDING THE WATER QUALITY LAWS; DEFINING "DEGRADATION" AND CERTAIN OTHER TERMS; TRANSFERRING AUTHORITY FROM THE BOARD OF HEALTH AND ENVIRONMENTAL SCIENCES TO THE DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES TO AUTHORIZE DEGRADATION OF STATE WATERS; ALLOWING APPEAL OF THE DEPARTMENT'S FINAL DECISION TO THE BOARD; REQUIRING THE BOARD TO ADOPT RULES REGARDING MIXING ZONES AND THE NONDEGRADATION POLICY; CLARIFYING THAT IT IS UNLAWFUL TO CAUSE DEGRADATION OF STATE WATERS WITHOUT AUTHORIZATION; ESTABLISHING FEES; AMENDING SECTIONS 75-5-103, 75-5-901, 75-5-903, AND 75-5-605, MCA; AND PROVIDING AN APPLICABILITY DATE AND AN IMMEDIATE EFFECTIVE DATE.

STATEMENT OF INTENT

A statement of intent is required for this bill because the bill requires the board of health and environmental sciences to adopt administrative rules. The legislature clearly intends that the nondegradation policy protect and maintain existing quality of state waters from any loss in the quality of those waters. The nondegradation policy is intended to apply to any activity that has the potential to affect existing water quality and requires department review of all such activities to ensure that degradation does not occur.

In recognition that certain activities promote general welfare and may justify lower water quality in a particular water segment, the legislature intends that degradation be allowed in limited circumstances and under certain conditions. For example, if there is no alternative to a proposed project that does not result in degradation and the project is found to be in the best interests of the state, degradation may be allowed provided that water quality protection practices are implemented that limit degradation to the extent determined to be economically and technologically feasible.

To promote the goal of maintaining existing high-quality water, the board is to develop rules specifying the level of protection or treatment required if degradation is allowed. Rules are to be developed that provide procedures for department review of applications to degrade state waters, that provide guidance or standards for the level of treatment required, and that establish criteria that allow the department to weigh the social and economic benefit to the public of allowing the proposed project against the loss of water quality. It is the intent of the legislature that the department's decision involve public and governmental agencies' comment prior to a final decision.
It is further the intent of the legislature that the board develop rules that will provide guidance to the department in the use and creation of mixing zones. The rules are to ensure that water quality impacts from the use of mixing zones are minimized.

Be it enacted by the Legislature of the State of Montana:

Section 1. Section 75-5-103, MCA, is amended to read:

"75-5-103. Definitions. Unless the context requires otherwise, in this chapter, the following definitions apply:

(1) "Board" means the board of health and environmental sciences provided for in 2-15-2104.

(2) "Contamination" means impairment of the quality of state waters by sewage, industrial wastes, or other wastes, creating a hazard to human health.

(3) "Council" means the water pollution control advisory council provided for in 2-15-2107.

(4) "Degradation" means a change in water quality that lowers the quality of high-quality waters for a parameter. The term does not include those changes in water quality determined to be nonsignificant pursuant to 75-5-301(3)(c).

(4)(5) "Department" means the department of health and environmental sciences provided for in Title 2, chapter 15, part 21.

(6)(6) "Disposal system" means a system for disposing of sewage, industrial, or other wastes and includes sewage systems and treatment works.

(6)(7) "Effluent standard" means an a restriction or prohibition on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged into state waters.

(8) "Existing uses" means those uses actually attained in state waters on or after July 1, 1971, whether or not those uses are included in the water quality standards.

(9) "High-quality waters" means state waters whose quality for a parameter is better than standards established pursuant to 75-5-301. All waters are high-quality water unless classified by the board within a classification for waters that are not suitable for human consumption or not suitable for growth and propagation of fish and associated aquatic life.

(10)(10) "Industrial waste" means any a waste substance from the process of business or industry or from the development of any natural resource, together with any sewage that may be present.

(11) "Interested person" means a person who has submitted oral or written comments on the department's preliminary decision regarding degradation of state waters, pursuant to 75-5-303. The term includes a person who has requested authorization to degrade high-quality waters.

(12)(12) "Local department of health" means the staff, including health officers, employed by a county, city, city-county, or district board of health.
(13) "Mixing zone" means an area established in a permit or final decision on nondegradation issued by the department where water quality standards may be exceeded, subject to conditions that are imposed by the department and that are consistent with the rules adopted by the board.

(14) "Other wastes" means garbage, municipal refuse, decayed wood, sawdust, shavings, bark, lime, sand, ashes, offal, night soil, oil, grease, tar, heat, chemicals, dead animals, sediment, wrecked or discarded equipment, radioactive materials, solid waste, and all other substances that may pollute state waters.

(15) "Owner or operator" means any a person who owns, leases, operates, controls, or supervises a point source.

(16) "Parameter" means a physical, biological, or chemical property of state water when a value of that property affects the quality of the state water.

(17) "Person" means the state, a political subdivision of the state, institution, firm, corporation, partnership, individual, or other entity and includes persons resident in Canada.

(18) "Point source" means any a discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, or vessel or other floating craft, from which pollutants are or may be discharged.

(19) "Pollution" means contamination or other alteration of the physical, chemical, or biological properties of any state waters which exceeds that permitted by Montana water quality standards, including but not limited to standards relating to change in temperature, taste, color, turbidity, or odor; or the discharge, seepage, drainage, infiltration, or flow of any liquid, gaseous, solid, radioactive, or other substance into any state water which will or is likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish, or other wildlife. A discharge, seepage, drainage, infiltration or flow which is authorized under the pollution discharge permit rules of the board is not pollution under this chapter.

(20) "Sewage" means water-carried waste products from residences, public buildings, institutions, or other buildings, including discharge from human beings or animals, together with ground water infiltration and surface water present.

(21) "Sewage system" means a device for collecting or conducting sewage, industrial wastes, or other wastes to an ultimate disposal point.

(22) "Standard of performance" means a standard adopted by the board for the control of the discharge of pollutants which reflects the greatest degree of effluent reduction achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants.

(23) "State waters" means any a body of water, irrigation system, or drainage system, either surface or underground; however, this subsection does
not apply to irrigation waters where the waters are used up within the irrigation system and the waters are not returned to any other state waters.

(48)(24) "Treatment works" means works installed for treating or holding sewage, industrial wastes, or other wastes.

(25) "Water quality protection practices" means those activities, prohibitions, maintenance procedures, or other management practices applied to point and nonpoint sources designed to protect, maintain, and improve the quality of state waters. Water quality protection practices include but are not limited to treatment requirements, standards of performance, effluent standards, and operating procedures and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from material storage."

Section 2. Section 75-5-301, MCA, is amended to read:

"75-5-301. Classification and standards for state waters. Consistent with the provisions of 75-5-302 through 75-5-307 and 80-15-201, the board shall:

(1) establish and modify the classification of all waters in accordance with their present and future most beneficial uses;

(2) formulate standards of water purity and classification of water according to its most beneficial uses, giving consideration to the economics of waste treatment and prevention;

(3) review, from time to time, at intervals of not more than 3 years, established classifications of waters and standards of water purity and classification;

(4) adopt rules governing the granting of mixing zones, requiring that mixing zones granted by the department be specifically identified, and requiring that mixing zones have:

(a) the smallest practicable size;
(b) a minimum practicable effect on water uses; and
(c) definable boundaries;

(5) adopt rules implementing the nondegradation policy established in 75-5-303, including but not limited to rules that:

(a) provide a procedure for department review and authorization of degradation;
(b) establish criteria for the following:
   (i) determining important economic or social development; and
   (ii) weighing the social and economic importance to the public of allowing the proposed project against the cost to society associated with a loss of water quality; and
(c) establish criteria for determining whether a proposed activity or class of activities will result in nonsignificant changes in water quality for any parameter in order that those activities are not required to undergo review under 75-5-303(3). These criteria must be established in a manner that generally:
(i) equates significance with the potential for harm to human health or the environment;

(ii) considers both the quantity and the strength of the pollutant;

(iii) considers the length of time the degradation will occur; and

(iv) considers the character of the pollutant so that greater significance is associated with carcinogens and toxins that bioaccumulate or biomagnify and lesser significance is associated with substances that are less harmful or less persistent; and

(6) to the extent practicable, ensure that the rules adopted under subsection (5) establish objective and quantifiable criteria for various parameters. These criteria must, to the extent practicable, constitute guidelines for granting or denying applications for authorization to degrade high-quality waters under the policy established in 75-5-303(2) and (3).”

Section 3. Section 75-5-303, MCA, is amended to read:

“75-5-303. Nondegradation policy. The board shall require:

(1) that any state waters whose existing quality is higher than the established water quality standards be maintained at that high quality unless it has been affirmatively demonstrated to the board that a change is justifiable as a result of necessary economic or social development and will not preclude present and anticipated use of those waters; and

(2) any industrial, public, or private project or development which would constitute a new source of pollution or an increased source of pollution to high-quality waters, referred to in subsection (1), to provide the degree of waste treatment necessary to maintain that existing high water quality. (1) Existing uses of state waters and the level of water quality necessary to protect those uses must be maintained and protected.

(2) Unless authorized by the department under subsection (3), the quality of high-quality waters must be maintained.

(3) The department may not authorize degradation of high-quality waters unless it has been affirmatively demonstrated by a preponderance of evidence to the department that:

(a) degradation is necessary because there are no economically, environmentally, and technologically feasible alternatives to the proposed project that would result in no degradation;

(b) the proposed project will result in important economic or social development that exceeds the benefit to society of maintaining existing high-quality waters and exceeds the costs to society of allowing degradation of high-quality waters;

(c) existing and anticipated use of state waters will be fully protected; and

(d) the least degrading water quality protection practices determined by the department to be economically, environmentally, and technologically feasible
will be fully implemented by the applicant prior to and during the proposed activity.

(4) The department shall issue a preliminary decision either denying or authorizing degradation and shall provide public notice and a 30-day comment period prior to issuing a final decision. The department's preliminary and final decisions must include:

(a) a statement of the basis for the decision; and

(b) a detailed description of all conditions applied to any authorization to degrade state waters, including, when applicable, monitoring requirements, required water protection practices, reporting requirements, effluent limits, designation of the mixing zones, the limits of degradation authorized, and methods of determining compliance with the authorization for degradation.

(5) An interested person wishing to challenge a final department decision may request a hearing before the board within 30 days of the final department decision. The contested case procedures of Title 2, chapter 4, part 6, apply to a hearing under this section.

(6) Every 5 years, the department shall review authorizations to degrade state waters. To enable the department to adequately review authorizations as required under this section, the authorization holder shall revise the initial authorization application no sooner than 3 1/2 years and no later than 4 years after the date of the authorization or the date of the latest department review. The specific revised information required must be determined by the department. If, based on the review, the department determines that the standards and objectives of 75-5-303 or the rules adopted pursuant to 75-5-303 are not being met, it shall revoke or modify the authorization. A decision by the department to revoke or modify an authorization may be appealed to the board."

Section 4. Section 75-5-605, MCA, is amended to read:

"75-5-605. Prohibited activity. (1) It is unlawful to:

(a) cause pollution as defined in 75-5-103 of any state waters or to place or cause to be placed any wastes in a location where they are likely to cause pollution of any state waters;

(b) violate any provision set forth in a permit or stipulation, including but not limited to limitations and conditions contained therein;

(c) cause degradation of state waters without authorization pursuant to 75-5-303;

(d) violate any order issued pursuant to this chapter; or

(e) violate any provision of this chapter.

(2) It is unlawful to carry on any of the following activities without a current permit from the department:

(a) construct, modify, or operate a disposal system which discharges into any state waters;
(b) construct or use any outlet for the discharge of sewage, industrial wastes, or other wastes into any state waters; or

(c) discharge sewage, industrial wastes, or other wastes into any state waters."

Section 5. Rulemaking authority. The board shall adopt rules to implement 75-5-301 and 75-5-303.

Section 6. Fees required for nondegradation application, monitoring, and enforcement. (1) Application fees for authorization to degrade state waters and fees for authorization review under 75-5-303(6) may not exceed the following:

(a) $2,500 for domestic sewage treatment plant discharges;

(b) $5,000 for industrial discharges; and

(c) $200 per lot for subdivisions reviewed under Title 76, chapter 4.

(2) The minimum annual monitoring and enforcement fee for degradation authorizations is $250 and may not exceed $2,500 per million gallons discharged per day.

Section 7. Codification instruction. [Sections 5 and 6] are intended to be codified as an integral part of Title 75, chapter 5, part 3, and the provisions of Title 75, chapter 5, part 3, apply to [sections 5 and 6].

Section 8. Coordination instruction. If House Bill No. 388 is passed and approved and if it requires the department of health and environmental sciences to impose and collect fees for authorizations to degrade state waters, then [section 6 of this act] is void.

Section 9. Severability. If a part of [this act] is invalid, all valid parts that are severable from the invalid part remain in effect. If a part of [this act] is invalid in one or more of its applications, the part remains in effect in all valid applications that are severable from the invalid applications.

Section 10. Applicability. [This act] applies to all requests to degrade state waters filed with the department after [the effective date of this act].

Section 11. Effective date. [This act] is effective on passage and approval.

Approved April 29, 1993.

CHAPTER NO. 596

[SB 430]

AN ACT GENERALLY REVISING THE LAWS RELATING TO INSURERS; PROVIDING REGULATION OF BUSINESS TRANSACTED WITH PRODUCER-CONTROLLED INSURERS; PROVIDING CREDIT FOR REINSURANCE; REGULATING MANAGING GENERAL AGENTS; PROVIDING FOR INTERSTATE EXCHANGE OF INSURER REGULATORY INFORMATION; REGULATING REINSURANCE INTERMEDIARIES; REVISING THE

In preparing the 2014 draft permit, DEQ considered historic monitoring data and the lack of site-specific data demonstrating the extent and rate of the volatilization and destruction of cyanide in the Flathead River. DEQ notes that mixing zones are used for dilution and not for treatment.

**INTERROGATORY NO. 7:** Please state in detail the rational the MDEQ employed to determine in 2014 an acute mixing zone was not appropriate for cyanide.

**ANSWER:**

See DEQ’s Response to Comments, Response to Comment No. 17. In general, an acute mixing zone (zone of initial dilution) is not granted for toxic and persistent substances. ARM 17.30.506(2) (d). To grant an acute mixing zone, the discharger must demonstrate to DEQ that allowing minimal, initial dilution will not threaten or impair existing beneficial uses. ARM 17.30.507(1) (b).

DEQ first granted CFAC a surface water mixing zone under the terms of the 1999 MPDES Permit (although DEQ’s 2014 Response to Comments indicates, in error, that a surface water mixing zone was first granted in 1994, See Page 10, Response to Comments). Therefore, the surface water mixing zone is not subject to the limitations for renewing mixing zones found at ARM 17.30.505 (1) (c).

Additionally, DEQ also noted that the 1998 Mixing Zone Study provided that “[c]yanide concentrations at station RIV-2 are variable but are typically higher than the Aquatic Life Standard for cyanide during low flow conditions and typically lower but occasionally higher than the Aquatic Life Standard during high flow conditions.” River monitoring station RIV-2 is located within the surface water mixing zone at the
Toxicity test results to be "actual biological data" that can be used to demonstrate that effluent water does not impair beneficial uses or cause acute toxicity? If not, please explain the rational for this conclusion.

**ANSWER:** No. DEQ considers Whole Effluent Toxicity (WET) testing to be a predictive tool to determine toxicity of a discharge at a specific period of time. This laboratory test can be one source of information to determine the expected toxicity of the discharge on the receiving water, but it is not actual biological data for the specific receiving water.

**INTERROGATORY NO. 15:** Does the MDEQ consider Whole Effluent Toxicity tests to be an accurate and valid assessment of the potential acute toxicity of an effluent?

**ANSWER:** Yes, to the extent that the sample is representative of the effluent during all conditions.

**INTERROGATORY NO. 16:** Does the MDEQ deny the 1999 MPDES permit issued to CFAC permitted the release of groundwater containing cyanide from onsite landfills to the Flathead River?

**ANSWER:** DEQ objects to this Interrogatory because it is vague and ambiguous. Without waiving the foregoing objection, and in respect thereof, DEQ answers as follows:

The 1998 Statement of Basis, dated November 12, 1998, stated that the principal source of cyanide present in site groundwater was a former solid waste landfill located north of the former fluoride sludge pond. To the extent the 1999 MPDES Permit covers specific releases, the document speaks for itself. DEQ notes that such releases may not
be considered “permitted” for all purposes in all contexts. The 1999 MPDES Permit did not contain permitted effluent limits for cyanide.

**REQUEST FOR PRODUCTION NO. 1:** Please provide copies of all study plans and final reports submitted within the past 10 years where actual biological data was collected and used to evaluate the appropriateness of an acute mixing zone to MDEQ satisfaction.

**RESPONSE:** There have been no study plans or final reports submitted within the past 10 years where actual biological data was collected and used to evaluate the appropriateness of an acute mixing zone.

**REQUEST FOR PRODUCTION NO. 2:** Please provide copies of other MPDES permits issued by the MDEQ in the past 10 years that included monitoring after treatment by ponds and before dilution by groundwater.

**RESPONSE:**

The following permits include monitoring after treatment by ponds and before dilution by groundwater:

- MT0020401 – City of Three Forks WWTF. “Self-monitoring of effluent discharged for Outfall 001 shall be conducted at the splitter valve structure…” which follows two facultative lagoons and precedes I/P cells.
- MT0021849 – City of Sidney WWTF. “Self-monitoring of effluent discharged from Outfall 001 shall be conducted after the primary lagoon cell treatment prior to discharge into the second cell…”

Copies of these permits may be viewed online at http://deq.mt.gov/wqinfo/mpdes/majorpermits.mvp.

**REQUESTS FOR ADMISSION**

**REQUEST FOR ADMISSION NO. 1:** Please admit that the Montana mixing zone rules do not contain a definition of the term “discharge.”

**RESPONSE:**
Deny. The specific mixing zone rules incorporate additional definitions found at Section 75-5-103, MCA and Title 17, chapter 30, subchapters 6 and 7, ARM. A definition of discharge is found at ARM 17.30.602 (8).

**REQUEST FOR ADMISSION NO. 2:** Please admit that mixing zones are not limited to point source discharges.

**RESPONSE:**

Deny. Mixing zones granted as part of MPDES permitting are limited to point source discharges.

**REQUEST FOR ADMISSION NO. 3:** Please admit that historical landfill practices are not precluded from mixing zone coverage.

**RESPONSE:**

DEQ objects to the Request for Admission because it is vague and ambiguous and calls for speculation. Without waiving the foregoing objections, and in respect thereof, DEQ admits that if historical landfill practices are eligible to receive permit coverage, then a mixing zone request could be considered and potentially be granted (e.g., a leachate collection system, provided DEQ also determines that a mixing zone is appropriate). DEQ denies this Request for Admission in part because historical landfill practices are precluded from mixing zone coverage when such sources are ineligible to receive permit coverage under Title 17, chapter 30, subchapter 13, ARM, or when DEQ determines that a mixing zone is not appropriate under Title 17, chapter 30, subchapter 5, ARM.

**REQUEST FOR ADMISSION NO. 4:** Please admit that CFAC’s 1998 Mixing Zone Application and the MDEQ’s 1999 Statement of Basis specifically addressed all
criteria listed in ARM 17.30.506, and the MDEQ considered these factors in granting an acute mixing zone for cyanide in the 1999 permit.

**RESPONSE:**

In answering this Request for Admission, DEQ assumes CFAC is referring to the Statement of Basis dated November 12, 1998, prepared by Timothy Byron. Admit.

**REQUEST FOR ADMISSION NO. 5:** Please admit that cyanide exists in a number of chemical forms and that those forms have different toxicities.

**RESPONSE:**

Admit.

**REQUEST FOR ADMISSION NO. 6:** Please admit that cyanide is broken down and attenuated by a number of geochemical processes, including oxidation, photolysis, chemical and biological degradation, and volatilization.

**RESPONSE:**

Admit.

**REQUEST FOR ADMISSION NO. 7:** Please admit that Mont. Code Ann. § 75-5-103(25)(b) allows coverage for a variety of contaminant releases, including seepage, drainage, infiltration, or flow under Montana pollution discharge permit rules.

**RESPONSE:**

Deny. Mont. Code Ann. § 75-5-103 (25) (b) defines a category of Outstanding Natural Resources Waters designated by the Board through procedures set forth at Mont. Code Ann. § 75-5-316 and approved by the legislature. Furthermore, as a definition, it does not allow coverage for contaminant releases.

**REQUEST FOR ADMISSION NO. 8:** Please admit that CFAC has informed
that cyanide and fluoride from historical landfill practices discharged through groundwater to seeps that enter the Flathead River.

**RESPONSE:**

DEQ objects to this Request for Admission because it is vague and ambiguous and to the extent the Request calls for a legal conclusion. Without waiving the foregoing objections, and in respect thereof, Admit.

**REQUEST FOR ADMISSION NO. 12:** Please admit that the north and south pond systems provide primary treatment in the form of filtration and removal of particulates that contain metals and other regulated chemicals.

**RESPONSE:** DEQ objects to this Request for Admission because the term “filtration” is vague and ambiguous. Without waiving the foregoing objection, and in respect thereof, DEQ admits that the north and south ponds provide primary treatment, through settling, of the wastewater deposited therein and that such primary treatment may filter and remove some particulates that contain metals and other regulated chemicals. DEQ has insufficient knowledge to determine the effectiveness of such primary treatment and therefore denies that all suspended solids and organic matter, and the metals or other regulated chemicals attached thereto, are filtered or removed by the north and south ponds.

DEQ reserves the right to supplement and amend these discovery responses and answers pursuant to the Montana Rules of Civil Procedure and ARM 1.3.217.

DATED this 27TH day of July, 2015.

[Signature]

KURT R. MOSER
Legal Counsel
an acute mixing zone for cyanide, DEQ made findings that CFAC’s discharges contain cyanide in concentrations that have the reasonable potential to cause or contribute to in-stream exceedances above water quality standards and to the extent that permit limitations contained in the 2014 MPDES Permit are calculated and established to prevent such exceedances. DEQ also made findings that CFAC’s discharges contained elevated concentrations of cyanide. These findings and the resulting permit limitations are contained within the 2014 Fact Sheet, the 2014 Response to Comments, and are expressed in the issuance of the 2014 Permit.

**REQUEST FOR ADMISSION NO. 22:** Please admit that in not continuing CFAC’s site-wide ground water mixing zone for cyanide and fluoride, MDEQ did not make a finding that the previously allowed site-wide ground water mixing zone threatened or impaired existing or anticipated beneficial uses.

**RESPONSE:** DEQ objects to this Request for Admission because it is vague and ambiguous. Without waiving the foregoing objections, and in respect thereof, DEQ admits that in issuing the 2014 MPDES Permit and in considering a site-wide ground water mixing zone for cyanide and fluoride, DEQ did not make a finding that the previously allowed site-wide ground water mixing zone threatened or impaired existing or anticipated beneficial uses.

**REQUEST FOR ADMISSION NO. 23:** Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ considered CFAC to have “not demonstrated that CN will naturally dissipate in the receiving water sufficiently to avoid acute affects.”

**RESPONSE:** Admit.
REQUEST FOR ADMISSION NO. 24: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ “did not believe the information provided by CFAC in the 1998 Mixing Zone Study was sufficient to demonstrate that the levels of cyanide discharged from Outfall 006 would not threaten or impair existing beneficial uses in the Flathead River, including the backwater zone.”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 25: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ determined the 1998 Mixing Zone Study should have addressed “fish species that can be found in the Flathead River” other than trout species.

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 26: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that the MDEQ regarded the 1998 Mixing Zone Study to be insufficient or incomplete because it provided “no site-specific evidence of the state of the cyanide cycle in the backwater or mixing zone area.”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 27: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ “was not aware of any historical information that shows no observed impacts to the Flathead River from CFAC[‘s]” historical discharges.

RESPONSE: Admit.
REQUEST FOR ADMISSION NO. 28: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that CFAC needed to provide “actual biological data from the Flathead River to demonstrate that [CFAC’s] discharge does not impair beneficial uses.”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 29: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application of MDEQ’s “Standard Operating Procedures (SOPs) that describe acceptable biological monitoring techniques.”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 30: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that CFAC need to provide “an acceptable method to measure the quantity and quality of the effluent exiting the bottom of the ponds for demonstrating compliance with effluent limits.”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 31: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that “CFAC has not demonstrated that netting [for TBELs] complied with 40 CFR 122.45(g) and ARM 17.30.1345(9).”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 32: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that
its 2013 MPDES permit application lacked “data demonstrating that CFAC meets the aquatic life standards at the end of the [acute surface water] mixing zone.”

**RESPONSE:** Admit.

**REQUEST FOR ADMISSION NO. 33:** Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that “the scientific methodology required to measure cyanide had changed since the 1999 permit, and new data is needed to determine the appropriateness of the past mixing zone.”

**RESPONSE:** Admit.

**REQUEST FOR ADMISSION NO. 34:** Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that CFAC’s 2013 MPDES permit application was lacking “a model simulating cyanide (a complex mixture containing iron cyanides) persistence in surface water, taking into account the kinetically and thermodynamically controlled reactions and the conditions at Outfall 006.”

**RESPONSE:** Admit.

DEQ reserves the right to supplement and amend these discovery responses and answers pursuant to the Montana Rules of Civil Procedure and ARM 1.3.217.

DATED this 25TH day of September, 2015.

[Signature]

KURT R. MOSE
Legal Counsel
EXHIBIT 2

to

COLUMBIA FALLS ALUMINUM COMPANY’S
OBJECTIONS TO CERTAIN PROPOSED FINDING OF FACT AND
CONCLUSIONS OF LAW

Case No. BER 2014-06 WQ
Columbia Falls Aluminum Company (hereinafter “CFAC”), by and through its counsel of record, respectfully submits the following Brief in Support of its concurrently filed Motion for Partial Summary Judgment. Pursuant to Rule 56 of the Montana Rules of Civil Procedure, CFAC has moved the Board of Environmental Review (hereinafter “Board”) for partial summary judgment on issue No. 1 in CFAC’s Notice of Appeal (Changes to the previously designated mixing zones). As discussed in greater detail below, the Montana Department of Environmental Quality (hereinafter “MDEQ”) violated ARM 17.30.505(1) and ARM 17.30.506(1) when it denied CFAC’s request to renew the groundwater mixing zone and an acute surface water mixing zone for cyanide without requesting specific information from CFAC to support the requested mixing zones.

**INTRODUCTION**

CFAC is a primary aluminum smelting facility located near Columbia Falls, Montana. CFAC has possessed either a Montana Groundwater Pollution Control System permit or a Montana Pollution Discharge Elimination System (hereinafter “MPDES”) permit continuously
since September 1984. CFAC submitted a MPDES permit renewal application to the MDEQ in July 2003, but the MDEQ did not act on the permit renewal application, instead informing CFAC that the permit application was deemed complete, and administratively continuing the permit. In May 2013, MDEQ requested CFAC submit updated information, although none of the requested information pertained to the mixing zones CFAC had requested in its July 2003 permit renewal application. CFAC complied with the request, and submitted a revised MPDES permit renewal application in July 2013. The revised permit renewal application expressly requested MDEQ renew the groundwater and surface water mixing zones that had been included in CFAC’s 1999 MPDES permit. MDEQ did not request any further information from CFAC regarding the mixing zones.

In February 2014, the MDEQ issued a draft permit and a Fact Sheet regarding the renewal MPDES permit. The draft permit included a chronic surface water mixing zone for cyanide, but denied the groundwater mixing zone and the acute surface water mixing zone for cyanide, stating that CFAC had failed to “demonstrate that [cyanide] will naturally dissipate in the receiving water sufficiently to avoid acute affects.” In April 2014, CFAC provided comments to MDEQ regarding the draft permit and Fact Sheet, requesting MDEQ reconsider its denial of the groundwater mixing zone and the acute surface water mixing zone for cyanide. MDEQ issued the final proposed permit in July 2014, which still did not include the groundwater mixing zone or the acute surface water mixing zone for cyanide. In August 2014, CFAC appealed certain elements of the proposed MPDES permit including the changes to the previously designated mixing zones.

CFAC’S UNDISPUTED MATERIAL FACTS

1. On September 17, 1984, MDEQ’s predecessor agency, the Montana Department of Health and Environmental Sciences (hereinafter “MDHES”) issued Montana Groundwater Pollution Control System Permit No. MGWPCS-0005 to CFAC’s predecessor ARCO Aluminum Primary Operation.
2. On May 1, 1994, MDHES issued Montana Pollutant Discharge Elimination System (hereinafter “MPDES”) Permit No. MT-0030066 to CFAC, authorizing CFAC to discharge process wastewater from its aluminum reduction plant to ground waters discharging to the Flathead River. The Permit, which became effective on February 1, 1999, and expired at midnight on February 28, 1999, expressly permitted a groundwater mixing zone and acute and chronic surface water mixing zones.

4. On February 5, 1998, as part of CFAC’s MPDES permit renewal process, MDEQ sent a letter to CFAC requesting CFAC provide certain information to MDEQ regarding mixing zone delineation. A copy of the letter is attached herewith as Exhibit 1. The letter specifically requested CFAC provide a water quality assessment as required by ARM 17.30.506(1) so the MDEQ could make the determination that the mixing zone would not harm beneficial uses pursuant to ARM 17.30.507(1)(b).

5. On July 31, 1998, CFAC submitted a permit renewal application to MDEQ regarding MPDES Permit No. MT-0030066. The renewal application expressly requested the surface water and groundwater mixing zones be continued, and contained a Mixing Zone Study, which provided the information requested by MDEQ in its letter dated February 5, 1998. A copy of the Mixing Zone Study is attached herewith as Exhibit 2.

6. On January 4, 1999, MDEQ reissued MPDES Permit No. MT-0030066 to CFAC, authorizing CFAC to discharge process wastewater from its aluminum reduction plant to ground waters discharging to the Flathead River. A copy of the Permit is attached herewith as Exhibit 3. The Permit became effective on February 1, 1999, and expired at midnight on January 31, 2004, and expressly permitted a groundwater mixing zone for cyanide and fluoride, and surface water mixing zones for cyanide. In association with the Permit, MDEQ issued a Statement of Basis that described its decision-making process regarding the reissuance of the Permit. A copy of the Statement of Basis is attached herewith as Exhibit 4. The Statement of Basis expressly found that CFAC’s Mixing Zone Study complied with the administrative rules of Montana governing mixing zones. Exhibit 4, pages 11-15, Tables 11-15.
7. On July 30, 2003, CFAC submitted a renewal application for its MPDES Permit MT-0030066. The renewal application expressly requested continued authorization for the surface water and groundwater mixing zones. A copy of CFAC’s permit renewal application cover letter is attached herewith as Exhibit 5.

8. On October 28, 2003, MDEQ notified CFAC that the renewal application for MPDES Permit No. MT-0030066 was substantially complete. A copy of MDEQ’s completion letter is attached herewith as Exhibit 6.

9. On May 2, 2013, MDEQ permit writer Christine Weaver sent a letter to CFAC acknowledging that MDEQ had deemed CFAC’s renewal application substantially complete on October 28, 2003, and that MDEQ had administratively extended CFAC’s Permit since the permit expired on January 31, 2004. A copy of MDEQ’s letter is attached herewith as Exhibit 7. While the letter requested CFAC update certain information contained in the 2003 application, MDEQ made no request for information regarding the requested surface water and groundwater mixing zones.

10. On July 26, 2013, CFAC submitted the updated renewal application as requested by MDEQ. The updated renewal application expressly requested both the surface water and groundwater mixing zones be renewed with the permit. The renewal application cover letter and permit application summary are attached herewith as Exhibit 8. After CFAC submitted the renewal application, MDEQ never requested CFAC to provide any additional information regarding either the surface water or groundwater mixing zones. See Declaration of Steve Wright, attached herewith as Exhibit 9.

11. On February 13, 2014, MDEQ issued a draft MPDES permit for CFAC, which did not include a groundwater mixing zone or an acute surface water mixing zone for cyanide as had been expressly requested by CFAC. A copy of the draft Permit is attached herewith as Exhibit 10. Contemporaneously with the issuance of the draft Permit, MDEQ issued a Fact Sheet that set forth MDEQ’s decision-making process regarding CFAC’s permit. A copy of the
Fact Sheet is attached herewith as Exhibit 11. The Fact Sheet offered the following explanation for why the acute surface water mixing zone for cyanide was denied:

DEQ granted a CN acute surface water mixing zone as part of the 1998 renewal (Figure 4 “Exhibit 2”). CFAC exceeded the acute CN standard of 22 ug/L within the surface water mixing zone (DMR data for Flathead River mixing zone monitoring location RIV2 showed a maximum concentration of 53 ug/L). It is unknown whether CN exceeded acute water quality standards at the end of the 150-foot acute water [sic] mixing zone. However, CFAC has not demonstrated that CN will naturally dissipate in the receiving water sufficiently to avoid acute affects. DEQ will not include an acute mixing zone for cyanide.

Exhibit 11, Fact Sheet, page 31.

12. On April 4, 2014, CFAC submitted comments regarding the draft MPDES permit and the Fact Sheet. A copy of CFAC’s comments are attached herewith as Exhibit 12. The comments specifically noted that the Fact Sheet “offers no fact from or references to the Administrative Record that would contradict the conclusion that the Site Wide Groundwater Mixing Zone in the [1999] permit as shown on the referenced Figure 3 continues to be necessary and appropriate.” Exhibit 12 at page 5. The comments also note that the 1998 mixing zone study demonstrated that cyanide is not persistent in surface water and that acute effects would be avoided. Exhibit 12 at page 5-6.

13. On July 25, 2014, MDEQ issued proposed MPDES Permit No. MT-0030066 to CFAC. A copy of the proposed Permit is attached herewith as Exhibit 13. The proposed permit made no changes to the draft Permit’s denial of the groundwater mixing zone and the acute surface water mixing zone for cyanide. Contemporaneously with the reissuance of the Permit, MDEQ issued a Response to Comments. A copy of the Response to Comments is attached herewith as Exhibit 14. The Response to Comments states:

Both CFAC’s 1998 Mixing Zone application and the 2014 response to comments argue that the discharge does not threaten or impair beneficial uses based primarily on literature review. There is no actual biological data from the Flathead River to demonstrate that the discharge does not impair beneficial uses, including macroinvertebrates, amphibians, birds, or mammals.

Exhibit 14, Response to Comments, page 10.
14. On August 22, 2014, CFAC appealed certain elements of the reissued MPDES Permit No. MT-0030066, including the changes to the previously designated mixing zones.

15. On September 18, 2014, MDEQ issued a letter to CFAC acknowledging the appeal of MPDES Permit No. MT0030066, and confirming that, among other things, the previously designated mixing zones will remain in effect as identified in CFAC’s 1999 MPDES permit. A copy of MDEQ’s stay letter is attached herewith as Exhibit 15.

16. In its responses to CFAC’s first discovery requests, MDEQ acknowledged that it did not request any information from CFAC regarding the applicability of an acute surface water mixing zone for cyanide. A copy of MDEQ’s responses to CFAC’s first discovery requests is attached herewith as Exhibit 16. For example, Interrogatory No. 7 inquired: “Please state in detail the rationale the MDEQ employed to determine in 2014 an acute mixing zone was not appropriate for cyanide.” MDEQ’s response demonstrates that MDEQ only considered information provided by CFAC in the 1998 Mixing Zone Study:

During the 2014 renewal, DEQ did not believe the information provided by CFAC in the 1998 Mixing Zone Study was sufficient to demonstrate that the levels of cyanide discharged from Outfall 006 would not threaten or impair existing beneficial uses in the Flathead River, including the backwater zone. In the 1999 MPDES permit application process, the issues were addressed by CFAC mainly through a literature review referenced in the 1998 Mixing Zone Study. For example, Section 3.10.1 of the Mixing Zone Study addressed biologically important areas and concluded that the backwater area could not be a fish spawning or nursery area for trout species, relying on a three-year FWP study from 1979-1981. However, the Mixing Zone Study did not address other fish species that can be found in the Flathead River. Another example was in Section 3.10.4 of the Mixing Zone Study, where CFAC addressed the toxicity and persistence of cyanide. This discussion was based wholly upon a literature review, with no site-specific evidence of the state of cyanide cycle in the backwater or mixing zone.

Exhibit 16, page 10.

17. Christine Weaver, permit writer for MDEQ, admitted during her deposition that MDEQ never requested CFAC to update the Mixing Zone Study. Exhibit 17, 107:1-9; 117:15-17; 171:16-25; 172:1-25; 173:1-5. Ms. Weaver further admitted that MDEQ did not request any other information from CFAC regarding the mixing zones. Exhibit 17, 113:6-25; 114:1-10;
144:17-25; 145:1-21; 162:16-25; 163:1-10; 165:14-25; 166:1-18 (the word “show” on line 4 should be “know”); Ms. Weaver also acknowledged that the letter she sent to CFAC on May 2, 2013, did not request any information regarding the mixing zones. Exhibit 17, 80:8-11.

18. In MDEQ’s responses to CFAC’s Second Discovery Requests, MDEQ admitted that it did not issue a notice of deficiency to CFAC within 60 days of CFAC’s submitting its MPDES permit application (Response to Request for Admission No. 15); admitted that it did not notify CFAC within 60 days of receiving CFAC’s permit application that MDEQ considered the information CFAC submitted regarding the rate of volatilization and destruction of cyanide in the Flathead River to be incomplete (Response to Request for Admission No. 18); admitted that it did not notify CFAC within 60 days of receiving CFAC’s permit application that MDEQ considered CFAC to have not demonstrated that cyanide will naturally dissipate in the receiving water sufficiently to avoid acute affects (Response to Request for Admission No. 23); admitted that MDEQ did not notify CFAC within 60 days of receiving CFAC’s permit application that MDEQ did not believe the information provided by CFAC in the 1998 Mixing Zone Study was sufficient to demonstrate that the levels of cyanide discharged from Outfall 006 would not threaten or impair existing beneficial uses in the Flathead River, including the backwater zone (Response to Request for Admission No. 24); and that MDEQ did not notify CFAC within 60 days of receiving CFAC’s permit application that CFAC needed to provide actual biological data from the Flathead River to demonstrate that CFAC’s discharge does not impair beneficial use (Response to Request for Admission No. 28). A copy of MDEQ’s responses to CFAC’s second discovery requests is attached herewith as Exhibit 18.

ARGUMENT

This provision requires the moving party to demonstrate that there is no genuine issue of material fact. See e.g., Kober v. Stewart, 148 Mont. 117, 417 P.2d 476 (1966). The moving party must establish both the absence of genuine issues of material fact and entitlement to judgment as a matter of law. The opposing party must present material and substantial evidence, rather than mere conclusory or speculative statements, to raise a genuine issue of material fact. Hanson v. Water Ski Mania Estates, 2005 MT 47, ¶ 11, 326 Mont. 154, ¶ 11, 108 P.3d 481, ¶ 11.

If the Court determines that no genuine issue of material fact relevant to the summary judgment claims exist, the Court must determine whether the moving party is entitled to summary judgment as a matter of law. See e.g., Skites v. Blue Cross Blue Shield of Montana, 297 Mont. 156, 991 P.2d 955, (1999).

I. MDEQ VIOLATED ARM 17.30.505(1) AND ARM 17.30.506(1) WHEN IT FAILED TO REQUEST INFORMATION FROM CFAC REGARDING THE ACUTE SURFACE WATER MIXING ZONE FOR CYANIDE

A mixing zone is an area established by an MPDES permit “where water quality standards may be exceeded, subject to conditions that are imposed by the department and that are consistent with the rules adopted by the board.” Mont. Code Ann. § 75-5-103(21). Pursuant to Mont. Code Ann. § 75-5-301(4), the Board is required to adopt rules governing the granting of mixing zones. The Board fulfilled its obligation to adopt rules governing mixing zones by adopting ARM 17.30.501 et seq., which provides the rules by which MDEQ considers and grants mixing zones. ARM 17.30.505(1) states that “after an assessment of information received from the applicant concerning the biological, chemical, and physical characteristics of the receiving water, as specified in ARM 17.30.506 or as requested by the department, the department will determine the applicability of a mixing zone and, if applicable, its size, configuration, and location.” ARM 17.30.506(1) provides that “no mixing zone will be granted if it would threaten or impair existing beneficial uses. Before any mixing zone is allowed the applicant must provide information, as requested by the department, to determine whether a mixing zone will be allowed as well as the conditions which should be applied.” [Emphasis added.] Thus, under
ARM 17.30.505(1) and ARM 17.30.506(1), MDEQ is obligated to request information from the applicant upon which it will evaluate and determine if a mixing zone will be allowed.

A. GROUNDWATER AND SURFACE WATER MIXING ZONES WERE GRANTED IN CFAC’S 1999 MPDES PERMIT

In February 1998, prior to issuing the 1999 MPDES Permit to CFAC, MDEQ, pursuant to ARM 17.30.506(1), requested specific information from CFAC regarding delineation of the mixing zones, and specifically requested CFAC provide a water quality assessment. (CFAC’s Undisputed Material Facts, ¶4). CFAC complied with this request by submitting the Mixing Zone Study as part of its MPDES permit renewal application. (CFAC’s Undisputed Material Facts, ¶5). Based on the information provided by CFAC in the Mixing Zone Study, MDEQ granted a groundwater mixing zone for cyanide and fluoride, and surface water mixing zones for cyanide when it issued the 1999 MPDES Permit to CFAC. In granting the mixing zones, MDEQ expressly found that CFAC’s Mixing Zone Study complied with the administrative rules governing mixing zones. (CFAC’s Undisputed Material Facts, ¶6).

This process of requesting information from the applicant, evaluating the information against the administrative rules, and providing an explanation of the evaluation in the Statement of Basis, is the process mandated by the administrative rules for MDEQ’s evaluation of mixing zones. See ARM 17.30.501 et seq. The MDEQ’s appropriate use of this process in evaluating CFAC’s 1999 MPDES Permit provides a glaring exclamation point of how completely MDEQ failed to adhere to the administrative rules in its evaluation of CFAC’s 2013 MPDES permit renewal application.

B. CFAC REQUESTED THE MIXING ZONES BE CONTINUED IN THE 2014 RENEWAL APPLICATION

In its 2003 MPDES renewal application, CFAC expressly requested MDEQ renew both the surface water and groundwater mixing zones that had been granted in the 1999 permit. (CFAC’s Undisputed Material Facts, ¶7). MDEQ did not evaluate the 2003 renewal application, instead choosing to administratively extend the 1999 permit. (CFAC’s Undisputed Material
Facts. ¶ 9). Not until May 2013 did MDEQ again pick up CFAC’s renewal application and begin working on renewing the permit. (CFAC’s Undisputed Material Facts, ¶ 9). Since 10 years had passed since CFAC had submitted the renewal application, MDEQ requested CFAC provide updated information that the MDEQ characterized as “critical.” Exhibit 7, page 1. This “critical” information, however, did not include any information related to the requested mixing zones, and certainly did not resemble the letter MDEQ sent to CFAC in 1998 requesting mixing zone information as part of the 1999 permitting effort.

In response to MDEQ’s request for additional information, CFAC submitted an updated MDES renewal application on July 26, 2013. (CFAC’s Undisputed Material Facts, ¶ 10). The renewed application again expressly requested renewal of both the surface water and groundwater mixing zones that had been approved in the 1999 Permit. (CFAC’s Undisputed Material Facts, ¶ 10; Exhibit 8, page 8). At no time subsequent to CFAC’s submitting its request for the mixing zones to be continued in the renewed permit did MDEQ request any additional information from CFAC regarding the requested mixing zones. (CFAC’s Undisputed Material Facts, ¶ 10; Exhibit 9).

C. THE ADMINISTRATIVE RULES REQUIRE MDEQ TO REQUEST INFORMATION FROM CFAC IN ORDER TO EVALUATE THE REQUESTED MIXING ZONES

As discussed above, the administrative rules unequivocally require MDEQ to request information from an MPDES permit applicant in order for MDEQ to assess whether a mixing zone will be allowed, and if so, what conditions should be applied to that mixing zone. ARM 17.30.505(1) and 506(1). Specifically, ARM 17.30.505(1) states:

After an assessment of information received from the applicant concerning the biological, chemical, and physical characteristics of the receiving water, as specified in ARM 17.30.506 or as requested by the department, the department will determine the applicability of a mixing zone and, if applicable, its size, configuration, and location. [Emphasis added.]

ARM 17.30.506(1) states:
No mixing zone will be granted if it would threaten or impair existing beneficial use. Before any mixing zone is allowed, the application must provide information, as requested by the department, to determine whether a mixing zone will be allowed as well as the conditions which should be applied. [Emphasis added.]

Taken together, the Rules unambiguously require MDEQ to request from the applicant the information MDEQ needs to assess whether a mixing zone is appropriate, and if so, what conditions should be applied to the mixing zone. It would therefore be a violation of ARM 17.30.505(1) and 506(1) for MDEQ to assess the appropriateness of mixing zones without first requesting specific information from the applicant. As is discussed below, this is exactly what MDEQ did, and then went on to conclude that the mixing zones were inappropriate because CFAC failed to provide information supporting the mixing zones. The Board should not allow MDEQ to so flagrantly violate its own rules.

D. MDEQ DID NOT REQUEST ANY INFORMATION REGARDING THE MIXING ZONES AS REQUIRED BY THE ADMINISTRATIVE RULES

It is undisputed that MDEQ did not request any information from CFAC regarding the groundwater or surface water mixing zones that CFAC expressly requested be continued in its renewal MPDES permit. (CFAC’s Undisputed Material Facts, ¶¶ 16, 17, 18). The only information MDEQ considered in evaluating the mixing zones was the information CFAC submitted as part of the 1998 Mixing Zone Application, and MDEQ admitted that it failed to inform CFAC that it did not believe the information provided in the Mixing Zone Application was sufficient. (CFAC’s Undisputed Material Facts, ¶¶ 16, 17). MDEQ admitted that it did not request any information from CFAC to show cyanide will naturally dissipate in the Flathead River, and did not notify CFAC that it needed to provide biological data to demonstrate its discharges did not impair beneficial uses. (CFAC’s Undisputed Material Facts, ¶ 18). And MDEQ’s permit writer admitted in her deposition that MDEQ never requested any information from CFAC regarding the requested mixing zones or request CFAC to update the Mixing Zone Study. (CFAC’s Undisputed Material Facts, ¶ 17). Thus, it cannot be disputed that MDEQ
failed to request information from CFAC as required by ARM 17.30.505(1) and 506(1) so that MDEQ could assess the appropriateness of the requested mixing zone.

E. IT WAS A VIOLATION OF ARM 17.30.505(1) AND 506(1) FOR MDEQ TO CONSIDER THE SURFACE WATER AND GROUNDWATER MIXING ZONES WITHOUT REQUESTING ADDITIONAL INFORMATION

As shown above, ARM 17.30.505(1) and ARM 17.30.506(1) require MDEQ to request from the applicant the information MDEQ requires in order to evaluate the requested mixing zones. In the Fact Sheet for CFAC’s 2014 MPDES Permit, MDEQ provided the basis for the decisions it made during its evaluation of CFAC’s renewal permit application. (CFAC’s Undisputed Material Facts, ¶ 11). In justifying its denial of the acute surface water mixing zone for cyanide, MDEQ stated:

It is unknown whether CN exceeded acute water quality standards at the end of the 150-foot acute water [sic] mixing zone. However, CFAC has not demonstrated that CN will naturally dissipate in the receiving water sufficiently to avoid acute affects. DEQ will not include an acute mixing zone for cyanide.

Exhibit 11, page 31. Thus, MDEQ made its evaluation of the requested mixing zones without requesting information from CFAC as required by ARM 17.30.505(1) and 506(1), and then made its determination to deny the mixing zone based on a lack of information. These actions on the part of MDEQ are a clear violation of ARM 17.30.505(1) and 506(1). Thus, the Board should invalidate the decisions MDEQ made during the 2014 renewal cycle regarding the applicability of the requested mixing zones, and reinstate the mixing zones that were established in CFAC’s 1999 MPDES permit.

II. THE MIXING ZONES DESIGNATED IN CFAC’S 1999 MPDES PERMIT SHOULD REMAIN IN EFFECT DURING THE PENDENCY OF THE CURRENT PERMIT

In a letter dated September 18, 2014, MDEQ stayed implementation of the changes to the mixing zones, and designated that the mixing zones identified in CFAC’s 1999 MPDES permit would remain in effect pending resolution of CFAC’s appeal of the MPDES Permit. (CFAC’s Undisputed Material Facts, ¶ 15). CFAC therefore respectfully requests the Board to continue
the stay through the pendency of the current permit cycle due to MDEQ’s complete failure to follow its own administrative procedure for considering and granting mixing zones. CFAC also respectfully requests the Board order MDEQ to follow the promulgated mixing zone rules in evaluating CFAC’s mixing zones in the next permit renewal cycle.

DATED this 25th day of November, 2015.

W. John Tietz
Browning, Kaleczyc, Berry & Hoven, P.C.

Attorney for Appellant Columbia Falls Aluminum Company
CERTIFICATE OF SERVICE

I hereby certify that this ___ day November, 2015, I caused to be served a true and correct copy of the foregoing document and any attachments to all parties or their counsel of record as set forth below:

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BROWNING, KALECZYC, BERRY & HOVEN, P.C.
CFAC Exhibits to
Brief in Support of
Motion for Partial Summary Judgment
11/25/2015
EXHIBIT 1
February 5, 1998

Mr. Steve Wright  
Columbia Falls Aluminum Company  
2000 Aluminum Drive  
Columbia Falls, MT 59912

RE: Scope of CFAC mixing zone delineation

Dear Steve:

Thanks for your efforts during the past two weeks to resolve the permit modification issues. During our 02-05-98 meeting we identified three questions the department needed to answer for CAFC regarding mixing zone delineation. I've stated the questions below with their respective responses.

1. Is the width of the down-gradient boundary of the ground water mixing zone used to calculate a value for aquifer cross-sectional area that is, in turn, used to calculate flow?

   No. The down-gradient boundary of the ground water mixing zone is the extent of the aquifer where standards are exceeded. The extent of the actual discharge to the river is larger and can be estimated by projecting the flow path, from sampling points where CN has been detected, to the riverbank. The concentration of the discharge that is needed to calculate a load can be obtained from CN concentrations in the most down-gradient wells and sampling points. These are (from east to west) PW-5, TW-19, PW-7 and TW-16 and the接收.

2. Facilities that discharge to surface water from ground water qualify for a standard mixing zone (ARM 17.30.516 (3)(c)). What method is appropriate for determining the length of a standard surface water mixing zone?

   The surface water mixing zone, for a discharge that first passes through ground water, begins at the most upstream point of discharge (ARM 17.30.507 (3)). The length of the mixing zone will be determined using the formula for $A_W$ in ARM 17.30.516 (4)(a)), since it is likely more restrictive than 10 times the stream width at 7Q10 flow.
3. Acute aquatic life standards cannot be exceeded with a surface water mixing zone unless the department finds that the allowance of initial mixing that exceeds the acute standard will not harm beneficial uses (ARM 17.30.507 (1)(b). What criteria will the department use in making such a finding?

The beneficial use in question is propagation of aquatic life in the river. The department will use the criteria in ARM 17.30.506 in making the finding. They include:

a. Presence of fish spawning areas or shallow water nursery areas within the proposed mixing zone;

b. Presence of a drinking water supply or recreational activities;

c. Aquatic like attraction to the plume;

d. Toxicity and persistence of the pollutant;

e. Limitations to passage of aquatic organisms to tributaries.

The department requests that CFAC provide the water quality assessment, as required by ARM 17.30.506(1), using the criteria above. The acute aquatic life standard of 22 µg/l was exceeded in the river by a 06-30-96 sample analysis result of 75 µg/l. Are there more recent results for the “R2” monitoring point that exceed standards?

Where do we go from here? The Montana Water Quality Act (75-5-301(4) MCA) requires that mixing zones be specifically defined. Our goal, therefore, is an illustration of the combined extent of the surface and ground water mixing zones on an appropriately scaled map that is an attachment to the permit. The most useful source of ground water information that is pertinent to the mixing zone issue is “Assessment of Hydrological Conditions Associated with the Closed Landfill, Calcium Fluoride Pond and Production Well Number 5 at the Columbia Falls Aluminum Plant Columbia Falls, Montana”, dated November, 1993. It contains the pumping test results that can be used to arrive at values for hydraulic conductivity and hydraulic gradient. The potentiometric map shown on Figure 5 of the document illustrates a broad area in the central portion of the property where the gradient is greatly reduced. This interpretation, driven by the static water level in TW-16, broadens the east-west dimension of the plume. Earlier illustrations of the potentiometric map do not illustrate this low gradient area. For example, Figure 4 of the 1992 document entitled “Results of Testing of the Shallow Groundwater System at the Columbia Falls Aluminum Plant Columbia Falls, Montana”, shows no abrupt broadening of the gradient; Figure 3 of “Hydrological Evaluation Columbia Falls Aluminum company Columbia Falls, Montana” dated September, 1985, also shows no abrupt broadening of the gradient. These discrepancies need to be resolved by verifying the effect of the static water level in TW-16 on the current potentiometric surface.
CFAC should contact the department as soon as you know who is going to put together the mixing zone application and prepare the estimate of the 006 outfall. I can then schedule a working meeting with this person to resolve the technical issues.

I have looked at the October, 1997 sampling results for CN in TW-19 and the 0.27 mg/l again exceeds the human health standard. The mean of seven results for CN in TW-19 collected since 1993 equals the human health standard of 0.20 mg/l. I would conclude from these results that the ground water mixing zone should encompass TW-19. Drawdown of 1.03 feet was measured during the pumping test of wells PW-4 and PW-5 described in “Assessment of Hydrological Conditions Associated with the Closed Landfill, Calcium Fluoride Pond and Production Well Number 5 at the Columbia Falls Aluminum Plant Columbia Falls, Montana”. This evidence suggests that the area of influence of these production wells, that are used as CFAC drinking water supplies, extend into the mixing zone. This condition would be in violation of ARM 17.30.508 (2)) which states that no mixing zone can be allowed if the zone of influence of the drinking water supply well intercepts the mixing zone. The choice for CFAC is to demonstrate that the CN results for TW-19 are somehow in error or replace wells PW-4 and PW-5 as drinking water supplies.

I will also be looking for the production data needed to calculated technology-based limits and a completed application form 2C. Please call at 444-1454 with questions.

Sincerely,

Timothy Byron
Permitting & Compliance Division
EXHIBIT 2
ATTACHMENT A

APPLICATION
FOR GROUNDWATER AND SURFACE WATER MIXING ZONES
COLUMBIA FALLS ALUMINUM COMPANY
COLUMBIA FALLS, MONTANA

Submitted by:
Columbia Falls Aluminum Company
2000 Aluminum Drive
Columbia Falls, MT 59912

With Technical Assistance by:
Hydrometrics, Inc.
22 Second Ave. West, Suite 1100
Kalispell, MT 59901

AUGUST 1998
# Application

For Groundwater and Surface Water Mixing Zones

Columbia Falls Aluminum Company

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APPLICATION
FOR GROUNDWATER AND SURFACE WATER MIXING ZONES
COLUMBIA FALLS ALUMINUM COMPANY

1.0 INTRODUCTION

Columbia Falls Aluminum Company (CFAC) operates a primary aluminum reduction facility located near Columbia Falls, Montana (Figure 1). General features of the facility are shown on Figure 2. The facility is bounded to the northeast by Teakettle Mountain and to the south by the Flathead River and encompasses approximately 600 acres. Although discharges from the CFAC facility to groundwater or to surface water have been permitted since the early 1980s through either Montana Ground Water Pollution Control System (MGWPCS) or Montana Pollutant Discharge Elimination System (MPDES) permits, formal delineation of the groundwater and surface water mixing zones associated with these discharges has not been required. CFAC is requesting renewal of CFAC’s current MPDES Permit No. MT-0030066. Concurrent with this renewal is CFAC’s application for delineation of mixing zones.

This application provides the rationale and basis for delineation of a source specific mixing zone for cyanide and fluoride in groundwater and a standard mixing zone for cyanide in surface water associated with the CFAC facility. The source to the surface water mixing zone is the groundwater area identified on Exhibit 1 which reports to the Flathead River through the subsurface and through a diffuse seep. The source to the groundwater mixing zone includes the plant area operations and disposal areas. In 1993, through special conditions in Permit No. MT-0030066, the Department addressed these areas and required CFAC to investigate the site hydrology and submit the information (Hydrometrics, 1993) to the Department. In addition, CFAC was required to institute best management practices and place a $700,000 cap on a spent potliner landfill. This work was completed in 1994. The groundwater and surface water mixing zones complement the previously required activities and provide the Department with a mechanism by which to protect the beneficial uses of state waters. The mixing zones delineated and granted by MDEQ should be included in the renewed MPDES Permit.

1.1 Regulatory Requirements and Purpose

Mixing zones are defined in the Montana Water Quality Act as follows:

"Mixing zone" means an area established in a permit or final decision on nondegradation issued by the department where water quality standards may be exceeded, subject to conditions that are imposed by the department and that are consistent with the rules adopted by the board (75-5-103(14) MCA).
Further definition of mixing zones is provided in the Administrative Rules of Montana:

"Mixing zone" is defined in 75-5-103 MCA and also means a limited area of a surface water body or a portion of an aquifer, where initial dilution of a discharge takes place and where water quality changes may occur and where certain water quality standards may be exceeded. (ARM 17.30.502(6))

This mixing zone application complies with ARM 17.30.518 which describes informational requirements for mixing zone applications. ARM 17.30.505(1)(c) provides that for sources discharging under a permit issued by the Department prior to April 29, 1993, any mixing zone allowed under the permit will remain in effect until renewal of the permit. Upon renewal, any previously allowed mixing zone will be designated in the renewed permit, unless there is evidence that the previously allowed mixing zone will impair existing or anticipated uses. The purpose of this application is to provide the basis for delineation and designation of existing mixing zones and to provide documentation that these mixing zones will not impair existing or anticipated uses.
Figure 1: Location Map
2.0 GROUNDWATER CONDITIONS AND PROPOSED SOURCE SPECIFIC MIXING ZONE

This section provides information on groundwater conditions, nature of cyanide and fluoride, and a description of the proposed source specific mixing zone in groundwater as required by ARM 17.30.518(5). The required information and the sections of this application where the information can be found are summarized in the following table.

Table 2.0-1. Summary of Informational Requirements for Source Specific Mixing Zone in Groundwater

<table>
<thead>
<tr>
<th>ARM Citation</th>
<th>Information Required</th>
<th>Application Section</th>
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<td>17.30.518(5)(a)</td>
<td>Quantity, toxicity, and persistence of pollutants</td>
<td>2.1</td>
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<td>17.30.518(5)(b)</td>
<td>Water-bearing characteristics of subsurface materials</td>
<td>2.2</td>
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<td>17.30.518(5)(d)</td>
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<td>2.4</td>
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<td>17.30.518(5)(e)</td>
<td>Volume of groundwater and area available for mixing</td>
<td>2.5</td>
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<td>17.30.518(5)(f)</td>
<td>Concentration of pollutants within the mixing zone</td>
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<td>17.30.518(5)(g)</td>
<td>Length of time pollutant will be present</td>
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<td>17.30.518(5)(h)</td>
<td>Proposed boundaries of the mixing zone</td>
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<td>17.30.518(5)(i)</td>
<td>Potential impacts to water uses</td>
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<tr>
<td>17.30.518(5)(j)</td>
<td>Compliance monitoring</td>
<td>2.10</td>
</tr>
<tr>
<td>17.30.518(5)(k)</td>
<td>Contingency plan</td>
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</tr>
</tbody>
</table>

2.1 Quantity, Toxicity, and Persistence of Pollutants in Groundwater

The quantity of pollutants in groundwater is indicated by the existing concentrations of cyanide and fluoride in groundwater. Ambient groundwater quality data has been collected at numerous monitoring wells and a diffuse seep on the site. Groundwater quality data for the past five years (June 1993 through May 1998) is included in Appendix 1. The range (minimum and maximum) and mean cyanide and fluoride concentrations for each groundwater monitoring station are also shown on Exhibit 1.

An indication of the potential toxicity of cyanide and fluoride in groundwater can be obtained by comparison of existing groundwater concentrations with Montana Human Health Standards. Montana Human Health Standards for total cyanide and fluoride are 0.2
and 4.0 mg/L, respectively. The areas of the facility in which groundwater concentrations exceed Montana Human Health Standards are shown on Exhibit 1. Groundwater typically meets or is better than Montana Human Health Standards (Circular WQB-7; December 1995) prior to discharge to the Flathead River.

The term "persistence" that is used in ARM 17.30.518(5)(a) is not defined in the Administrative Rules of Montana. However, EPA defines a "persistent pollutant" in the Technical Support Document for Water Quality-based Toxics Control (EPA, 1991). According to EPA, a persistent pollutant is not subject to decay, degradation, transformation, volatilization, hydrolysis, or photolysis (p. xxi, EPA 1991). As defined by EPA, cyanide is not a persistent pollutant since it is subject to decay, degradation, transformation, volatilization, hydrolysis and photolysis. These decay mechanisms for cyanide are described in Section 3.10.4 of this application (see also Section 3.3 of Smith and Mudder, 1991). Fluoride is believed to be persistent since it is not subject to decay or degradation.

2.2 Water-bearing characteristics of subsurface materials

Information on subsurface materials on the CFAC facility comes from literature reviews (e.g. Alden, 1953; Konizeski et al, 1968), site surficial surveys, and monitoring well installation data (lithologic logs) summarized in reports by Hydrometrics (1985, 1992, and 1993). In general, the CFAC facility sits atop a thick sequence of glacially derived sedimentary material with localized areas of Recent alluvial deposits. These unconsolidated materials overlie PreCambrian sedimentary rocks of the Belt series.

The primary aquifers in the area are the unconsolidated glacial and alluvial sedimentary aquifers. Bedrock in the area is deep (from 70 to greater than 300 feet below ground surface (bgs)) and has low permeability. Because of its low permeability, bedrock does not transmit very much water and wells completed in bedrock yield small amounts of water. Because shallower, higher yielding aquifers are present, the bedrock unit is generally not utilized for water supply purposes.

The hydrostratigraphy of the unconsolidated aquifers is complex due to their depositional histories. Drilling logs indicate from 70 to greater than 300 feet of interbedded glacial, glaciolacustrine, and glaciofluvial sediments over the majority of the site. These units are probably laterally and vertically discontinuous. A simplified hydrostratigraphic model of the site consists of 50 to 100 feet of sand and gravel overlying fine silty sand (see Figure 3 in Hydrometrics, 1992). Near the Flathead River in the southeastern portion of the site, there is a zone of highly transmissive cobbles and gravels at depths of greater than approximately 100 feet. Wells completed in this zone yield very large amounts of water (e.g. 600 to 700 gpm). This zone is believed to be either glacial outwash or glacial outwash reworked and deposited by the ancestral Flathead River.
2.3 Rate and direction of groundwater flow

A potentiometric map of shallow groundwater in the unconsolidated aquifers is shown in Figure 3. Based on the potentiometric contours, groundwater flow direction is from the north to south toward the Flathead River.

Rates of groundwater movement and flow are variable within the different lithologies of the shallow aquifers. Since it is impossible to directly measure groundwater flows, the quantity of groundwater flows that contain cyanide and fluoride must be estimated based on the hydraulic characteristics of the groundwater flow system. The governing equation for this flow estimate is Darcy's Law:

\[ Q = K \times A \text{ where:} \]

\[ Q = \text{groundwater flow or discharge} \]
\[ K = \text{hydraulic conductivity} \]
\[ i = \text{hydraulic gradient, and} \]
\[ A = \text{cross-sectional area (saturated thickness times width) of the aquifer.} \]

For this estimate, the width of the aquifer is defined as the linear distance or length of the aquifer along the Flathead River where cyanide is present in groundwater. Cyanide is present in groundwater over a length of approximately 5,200 feet (from well PW-5 in the east to the western boundary of the proposed mixing zone; see Exhibit 1). The saturated thickness is estimated to be 15 feet (the saturated thickness assumed for a standard groundwater mixing zone in ARM 17.30.517).

Hydraulic characteristics of the aquifer are quite variable along the Flathead River. To the west, aquifer materials consist of low permeability, fine sandy silt. Aquifer tests at well TW-16 indicate a hydraulic conductivity of 0.2 to 0.8 gpd/ft² (Hydrometrics, 1992). To the east, aquifer materials consist of permeable sand and gravel. Aquifer tests at well TW-19 (Hydrometrics, 1993) indicate a hydraulic conductivity of 245 gpd/ft² (based on transmissivity of 24,540 gpd/ft and saturated thickness of 100 feet). Groundwater hydraulic gradients are also quite variable along the Flathead River. To the west, hydraulic gradients are approximately 0.1 ft/ft (see Figure 3 in Hydrometrics, 1992). To the east, hydraulic gradients are approximately 0.02 ft/ft (see Figure 5 in Hydrometrics, 1993). Based on visual observations of surficial geologic materials along the shoreline and cutbanks of the Flathead River, it is estimated that approximately one third or 30 percent of the aquifer consists of fine sandy silt materials with hydraulic properties similar to those measured in well TW-16. The remainder of the aquifer is assumed to consist of sand and gravel with hydraulic properties similar to those measured in well TW-19.

Summary of the calculated estimate of groundwater flows is shown in Table 2.3-1. Total groundwater discharge is estimated to be approximately 270,000 gallons per day. For comparison, the average streamflow in the Flathead River at Columbia Falls is
approximately 9,700 cfs (MDFWP, 1981) or 6.3 billion gallons per day. Estimated total groundwater discharge from CFAC represents approximately 0.004% of average streamflow in the Flathead River at Columbia Falls.

It is important to note that this groundwater discharge estimate is likely only accurate to within an order of magnitude. The calculation assumes that the two units (fine silty sand and sand and gravel) are accurately represented by the hydraulic characteristics measured during one pumping test at one location in each unit. However, these units are known to be quite variable both laterally and vertically and would be expected to be heterogeneous in hydraulic characteristics. Aquifer heterogeneities make accurate estimation of groundwater discharges difficult. Moreover, groundwater flow through sediments with varying lithologies is often controlled by the presence of lower permeability materials. If more permeable materials are not well interconnected, then low groundwater discharge rates may be realized even in units with apparently high permeabilities.

Table 2.3-1. Summary of Groundwater Discharge Estimate.

<table>
<thead>
<tr>
<th></th>
<th>Western Portion</th>
<th>Eastern Portion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(TW-16)</td>
<td>(TW-19)</td>
</tr>
<tr>
<td>Hydraulic conductivity (gpd/ft²)</td>
<td>0.5</td>
<td>245</td>
</tr>
<tr>
<td>Hydraulic gradient (ft/ft)</td>
<td>0.1</td>
<td>0.02</td>
</tr>
<tr>
<td>Length (feet)</td>
<td>1,560</td>
<td>3,640</td>
</tr>
<tr>
<td>Saturated Thickness (feet)</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Area (sq. feet)</td>
<td>23,400</td>
<td>105,000</td>
</tr>
<tr>
<td>Discharge (gpd)</td>
<td>1,170</td>
<td>267,540</td>
</tr>
<tr>
<td>Total Discharge (gpd)</td>
<td>268,710</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Western and eastern aquifer characteristics based on aquifer tests of wells TW-16 and TW-19, respectively.

A portion of the estimated total groundwater discharge to surface water occurs in the form of a diffuse seep(s) emanating from the riverbank. Seep flow rates are variable depending on the season (higher during spring and summer and lower during fall and winter). Because of the diffuse nature of the seep and the inability to observe the seep during the runoff period (the seep is beneath the surface of the Flathead River during the spring runoff period), it is not possible to quantitatively measure seep flows.

2.4 Pollutant migration

Pollutant migration in groundwater is depicted in Exhibit 1 which shows existing cyanide and fluoride concentrations in groundwater. Groundwater concentrations indicate that pollutant migration is to the south, following the direction of groundwater movement. As the groundwater containing cyanide and fluoride migrates to the south, the groundwater also disperses laterally in an east-west direction. As pollutants migrate in groundwater they are subject to dilution, dispersion, and attenuation such that cyanide and fluoride concentrations become progressively
FIGURE 3
FALLS ALUMINUM COMPANY
WATER POTENTIOMETRIC MAP
JULY 1998

SCALE 1" = 800'

WATER ELEVATION
ION
RIC CONTOUR
ER FLOW DIRECTION

DRAWN BY: SAH
DATE: 7/27/98
FILE: WELLS&BKGRD.DWG
2.9 Potential impacts to water uses

Existing beneficial uses of groundwater in the area include domestic use (public water supply) and industrial use (process water supply) by CFAC (wells PW3, PW4, W9, PW6, and W1 shown on Exhibit 1). Water quality of these water supply wells are equal or better than Montana Human Health Standards (Circular WQB-7, December 1995). All other beneficial uses in surrounding areas are outside the zone of detectable cyanide concentrations in groundwater.

Adverse impacts to water uses are not expected to occur from the proposed mixing zones. With the exception of the rail line, the proposed groundwater mixing zone is completely within property owned by CFAC and groundwater uses within the mixing zone are controlled by CFAC. No existing or anticipated uses occur within the groundwater mixing zone. Outside of the mixing zone, groundwater quality meets or is better than Montana Human Health Standards and there is no reasonable potential for excursions above these standards.

2.10 Compliance monitoring

CFAC is currently monitoring the groundwater within and outside of the proposed mixing zone as required by CFAC’s MPDES Permit. Monitoring for the groundwater mixing zone is proposed to consist of monitoring of the wells required by CFAC’s MPDES Permit (wells W0 through W11). Wells W1, W2, W9, and W10 will serve to monitor groundwater upgradient and downgradient of the mixing zone. The remaining wells (W0, W3, W4, W5, W6, W7, W8, and W10) will serve to monitor groundwater within the mixing zone. CFAC requests that the monitoring plan for the mixing zone is incorporated into the conditions of the renewed MPDES permit.

2.11 Contingency plan

Based on available information, groundwater quality in the vicinity of the CFAC facility currently meets and is expected to continue to meet Montana Human Health Standards at the proposed mixing zone boundaries. CFAC has developed a contingency plan in the unlikely event that monitoring data indicates that cyanide or fluoride may migrate beyond the mixing zone boundary at concentrations greater than Montana Human Health Standards. The contingency plan consists of five phases:

- Phase 1 - Additional monitoring to verify migration of constituents. If monitoring verifies that migration is likely to cause exceedance of water quality standards then additional phases of contingency plan will be conducted.
- Phase 2 - Additional studies to define the nature of cyanide/fluoride migration.
- Phase 3 - Additional studies to determine the feasibility of options for control of cyanide and fluoride migration.
lower. As a result of these dispersion/dilution/attenuation mechanisms, cyanide and fluoride concentrations in groundwater near the Flathead River are typically lower (better) than Montana Human Health Standards.

2.5 Volume of groundwater and area available for mixing

The area in which cyanide and fluoride have mixed with groundwater is indicated by Exhibit 1 which shows cyanide and fluoride concentrations in groundwater. The volume of groundwater in which cyanide and fluoride have mixed is estimated to be approximately 270,000 gallons per day (see Section 2.3).

2.6 Concentration of pollutants within the mixing zone

 Ambient groundwater quality data has been collected at numerous monitoring wells and a diffuse seep(s) on the site. Groundwater quality data for the past five years is included in Appendix 1. The range (minimum and maximum) and mean cyanide and fluoride concentrations for each groundwater monitoring location are also shown on Exhibit 1.

2.7 Length of time pollutant will be present

As described in Section 1.2, the presence of cyanide and fluoride in groundwater is due to past operations and disposal practices. In 1994, CFAC installed a $700,000 cap on the closed West Landfill to limit, and preclude as much as practicable, continued leaching from the landfill. The presence of cyanide and fluoride in groundwater is expected to continue indefinitely. The necessity and size of a mixing zone for areas where groundwater exceeds water quality standards will be reevaluated upon MPDES permit renewal.

2.8 Proposed boundaries of the mixing zone

The proposed boundary of the source specific groundwater mixing zone is shown on Exhibit 1. The proposed groundwater mixing zone boundary is based on the current extent of groundwater that exceeds the Montana Human Health Standards for cyanide or fluoride. The proposed mixing zone boundary complies with requirements of ARM 17.30.508:

- Montana Human Health Standards (0.2 mg/L cyanide and 4.0 mg/L fluoride) are not exceeded beyond the mixing zone boundary;
- no existing drinking water supply wells are located within the mixing zone boundary.
• Phase 4 - Implementation of the appropriate option for control of cyanide/fluoride migration.
• Phase 5 - Additional monitoring to verify performance of Phase 4 contingency action(s).
3.0 SURFACE WATER CONDITIONS AND PROPOSED STANDARD MIXING ZONE

This section provides information on surface water conditions, nature of cyanide, and a description of the proposed standard mixing zone in surface water (Flathead River). Although not required for a standard surface water mixing zone, this section also provides the information required for a source specific mixing zone by ARM 17.30.518(4). The required information and the sections of this application where the information can be found are summarized in the following table.

Table 3.0-1. Summary of Informational Requirements for Source Specific Mixing Zone in Surface Water

<table>
<thead>
<tr>
<th>ARM citation</th>
<th>Information Provided</th>
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</tr>
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<tbody>
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<td>17.30.518(4)(d)</td>
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<td>3.3</td>
</tr>
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<td>Length of time pollutant will be present</td>
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<tr>
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<td>Proposed boundaries of the mixing zone</td>
<td>3.5</td>
</tr>
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<td>Potential impacts to water uses</td>
<td>3.6</td>
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<td>Potential compliance monitoring</td>
<td>3.7</td>
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<tr>
<td>17.30.518(4)(i)</td>
<td>Contingency plan</td>
<td>3.8</td>
</tr>
<tr>
<td>17.30.518(4)(j)</td>
<td>Explanation why mixing zone is minimum practicable size</td>
<td>3.9</td>
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</table>

This section also includes a water quality assessment of the proposed standard mixing zone (Section 3.10) as required by ARM 17.30.506(2) and a demonstration (Section 3.5) that the proposed mixing zone complies with the length restriction for a standard surface water mixing zone given by ARM 17.30.516(4).

All groundwater discharges report to the mainstem of the Flathead River. The primary source of hydrologic and biologic information for the Flathead River are studies conducted by Montana Department of Fish, Wildlife, and Parks during 1979 through 1981 (MDFWP, 1981).

3.1 Quantity, toxicity, and persistence of pollutants

The quantity of cyanide in surface water is indicated by water quality data collected upstream (station RIV-1), downstream (station RIV-M), and adjacent to groundwater discharges of cyanide (Exhibit 1). Water quality data for the past five years (June 1993 through May 1998) for monitoring stations on the Flathead River is included in Appendix 2. Locations of monitoring stations and the range (minimum and maximum) and mean cyanide concentrations for each monitoring station are also shown on Exhibit 2. Water quality at both stations RIV-1 and RIV-M is good with less than detectable concentrations of total cyanide (<0.005 mg/L).
An indication of the potential toxicity of cyanide in surface water can be obtained by comparison of existing surface water concentrations with Montana Human Health Standard and Chronic Aquatic Life Standards for total cyanide (0.2 and 0.0052 mg/L), respectively. Surface water typically meets or is better than Human Health Standards for cyanide. At stations RIV-M (the proposed mixing zone boundary), RIV-1 (upstream of groundwater discharge), and R2 (adjacent to groundwater discharge in the main channel of Flathead River) cyanide concentrations are less than the analytical detection limit (<0.005 mg/L) and lower than (better than) the Chronic Aquatic Life Standard for cyanide.

Cyanide concentrations at station RIV-2 are variable but are typically higher than the Aquatic Life Standard for cyanide during low flow conditions and typically lower but occasionally higher than the Aquatic Life Standard during high flow conditions. Station RIV-2 is located in a channel of the Flathead River that typically receives inflow from the main river channel only during high flow conditions. During high flow conditions, mixing of groundwater discharge with river flows results in lower cyanide concentrations. During low flow conditions, the channel does not receive any inflow from the Flathead River and forms a backwater area where little or no mixing with the Flathead River occurs (see Exhibit 2). RIV-2 is located at the upstream end of the backwater area that forms during low flow conditions. The lack of mixing of groundwater discharges with the Flathead River in the backwater area results in higher cyanide concentrations in the backwater area during low flow conditions. Sampling of the Flathead River immediately downstream of the backwater area in April 1998 during low flow conditions (approximately 3,700 cfs) indicates that mixing of groundwater discharges and flows from the backwater area with the Flathead River is very rapid downstream of the backwater area. As a result of this rapid mixing, cyanide concentrations downstream of the backwater area only exceed Aquatic Life Standards for a downstream distance of approximately 150 feet and a distance of a few feet from shore (north bank of river).

The term "persistence" that is used in ARM 17.30.518(5)(a) is not defined in the Administrative Rules of Montana. However, EPA defines a "persistent pollutant" in the Technical Support Document for Water Quality-based Toxics Control (EPA, 1991). According to EPA, a persistent pollutant is not subject to decay, degradation, transformation, volatilization, hydrolysis, or photolysis (p. xxi, EPA 1991). As defined by EPA, cyanide is not a persistent pollutant since it is subject to decay, degradation, transformation, volatilization, hydrolysis and photolysis. These decay mechanisms for cyanide are described in Section 3.10.4 of this report (see also Section 3.3 of Smith and Mudder, 1991).
3.2 Rate and volume of flow
The main tributaries to the main stem of the Flathead River are the North, Middle, and South Forks of the Flathead River. The North Fork and Middle Fork are wild rivers (unregulated flows) whereas the South Fork is impounded by Hungry Horse Dam. Flows in the main stem are partially regulated by operation of Hungry Horse Dam. Peak flows in the main stem normally occur in late May or early June and coincide with peak flows in the North and Middle Fork drainages. During fall and winter, main stem flows mirror South Fork flows suggesting regulation of main stem flows by Hungry Horse Dam. Daily vertical water level fluctuations in the main stem can vary as much as 1.4 meters due to Hungry Horse Dam operations (MDFWP, 1981).

Mean monthly flows of the Flathead River at Columbia Falls range from 2,530 cfs in February to 33,894 cfs in June (MDFWP, 1981). The annual average of mean monthly flows is 9,694 cfs.

3.3 Concentration of pollutants within the mixing zone
Concentrations of cyanide within the proposed mixing zone have been measured at the monitoring stations described in Section 3.1. Water quality data for these monitoring stations is included in Appendix 2. The range (minimum and maximum) and mean cyanide concentrations for each monitoring station are also shown on Exhibit 2.

3.4 Length of time pollutant will be present
As described in Section 1.2, the presence of cyanide in groundwater is due to past operations and disposal practices. In 1994, CFAC installed a $700,000 cap on the closed West Landfill to limit, and preclude as much as practicable, continued leaching from the landfill. The presence of cyanide in surface water is due to discharge of cyanide-bearing groundwater to surface water. The presence of cyanide in surface water is expected to continue indefinitely. The necessity and size of a mixing zone for areas where surface water exceeds water quality standards will be reevaluated upon MPDES permit renewal.

3.5 Proposed boundaries of the mixing zone
The surface water mixing zone boundary is based on the current extent of surface water that exceeds Montana Chronic Aquatic Life Standards (Circular WQB-7) for cyanide, the limitation on size of a standard surface water mixing zone, and access limitations for monitoring. The proposed upstream edge of the mixing zone is the upstream (east) edge of the backwater (see Exhibit 2), the most upstream location where cyanide is detected at concentrations exceeding Standards. The proposed mixing zone boundary extends downstream to monitoring station RIV-M (Exhibit 2), a distance of approximately 2,800 feet. Station RIV-M is selected as the boundary because it is the closest point downstream of the groundwater discharges that is accessible for the majority of the year and where cyanide concentrations are better than the Standards. There is no reasonable potential for excursions above standards to occur at, or downstream of, station RIV-M.
ARM 17.30.516(1) states that “If a discharge to surface water is small in comparison to the volume of the receiving water or if the mixing is nearly instantaneous and the parameter(s) of concern will not threaten or impair existing uses as determined under ARM 17.30.506, a standard mixing zone may be used.” Available estimates of groundwater flows (see Section 2.3) indicate that discharge is small relative to surface water flows (e.g. less than 0.01 % of surface flows). Therefore, a standard mixing zone for surface water is appropriate. Furthermore, ARM 17.30.516(3)(d) states that “Facilities that discharge to surface waters through the ground may qualify for a standard surface water mixing zone.”

The length of a standard mixing zone for surface water “must not extend downstream more than the one-half mixing width distance or extend downstream more than 10 times the stream width, whichever is more restrictive.” (ARM 17.30.516(4)). Stream width in the proposed mixing zone is estimated to be approximately 350 feet during low flow conditions. The “10 times stream width” limitation is therefore 3,500 feet. The proposed mixing zone extends for approximately 2,800 feet, within the standard mixing zone limitation.

The recommended calculation for “one-half width mixing distance” is given by ARM 17.30.516(4)(a) as follows:

\[ A_{1/2} = \frac{0.4(W/2)^2 V}{L}, \]

where:

- \( W \) = width in feet at the 7Q10;
- \( V \) = velocity of the stream at the 7Q10;
- \( L \) = lateral dispersion coefficient for the 7Q10 in ft²/second; where:

  \( L = CDU \), where:
  - \( C \) = channel irregularity factor;
  - \( D \) = average water depth at the 7Q10;
  - \( U = (32.2DS)^{1/2} \); where:
    - \( D \) = average water depth at the 7Q10; and
    - \( S \) = slope of the channel in ft/ft.

The information required to perform this calculation is not readily available for the majority of surface waters and is not available for the area of the proposed mixing zone. However, conservative estimates of these input parameters indicate that the calculated one-half width mixing distance is likely to be considerably larger than the “10 times stream width” limitation and larger than the proposed mixing zone (Table 3.5-1). The proposed mixing zone therefore complies with the size restriction based on the one-half width mixing distance.
Table 3.5-1. Estimation of One-half Mixing Width Distance.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>S (channel slope in ft/ft)</td>
<td>0.001</td>
</tr>
<tr>
<td>D (depth in feet)</td>
<td>4</td>
</tr>
<tr>
<td>U (shear velocity in ft/sec)</td>
<td>0.36</td>
</tr>
<tr>
<td>C (irregularity factor)</td>
<td>0.6</td>
</tr>
<tr>
<td>L (lateral dispersion)</td>
<td>0.86</td>
</tr>
<tr>
<td>W (width in feet)</td>
<td>350</td>
</tr>
<tr>
<td>V (velocity in ft/sec)</td>
<td>1.5</td>
</tr>
<tr>
<td>A1/2 (distance in feet)</td>
<td>21.300</td>
</tr>
</tbody>
</table>

3.6 Potential impacts to water uses

The Flathead River in the vicinity of the CFAC facility is classified by the state of Montana as a “B-1” stream (ARM 17.30.608(1)). Waters classified B-1 are suitable for drinking, culinary and food processing purposes, after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, water fowl and furbearers; and agricultural and industrial water supply (ARM 17.30.623(1)).

Impacts to surface water uses from the proposed mixing zone are not anticipated. No drinking water intakes or public recreation areas exist within the proposed mixing zone. Outside of the proposed mixing zone boundary, surface water quality meets or is better than Montana Human Health and Chronic Aquatic Life Standards and no reasonable potential exists for excursions above standards.

3.7 Potential compliance monitoring

CFAC currently monitors surface water stations RIV-1 and RIV-2 as required by CFAC’s MPDES Permit. Monitoring for the proposed surface water mixing zone is proposed to consist of monitoring of additional station RIV-M, located at the proposed mixing zone boundary (see Exhibit 2 for locations of monitoring stations). CFAC requests monitoring of station RIV-M to be incorporated into the conditions of the renewed MPDES permit.

3.8 Contingency plan

Based on available information, surface water quality in the vicinity of the CFAC facility currently meets and is expected to continue to meet water quality standards at the proposed mixing zone boundary and beyond. CFAC has developed a contingency plan in the unlikely event that monitoring data indicates that cyanide may migrate beyond the mixing zone boundary at concentrations greater than water quality standards. The
contingency plan consists of five phases:

- Phase 1 - Additional monitoring to verify migration of cyanide. If monitoring verifies that migration is likely to cause exceedances of water quality standards then additional phases of the contingency plan will be conducted.
- Phase 2 - Additional studies to define the nature of cyanide migration.
- Phase 3 - Additional studies to determine the feasibility of options for control of cyanide migration.
- Phase 4 - Implementation of the appropriate option for control of cyanide migration.
- Phase 5 - Additional monitoring to verify performance of Phase 4 contingency action(s).

3.9 Mixing Zone Size

The proposed mixing zone is smaller than the maximum size allowed by the standard mixing zone requirements (see Section 3.5). The proposed mixing zone is the smallest practicable size to provide 1) mixing/dilution to meet surface water standards, 2) inclusion of all groundwater flows that result in measurable cyanide in surface waters within the mixing zone, and 3) access for monitoring at the mixing zone boundary.

3.10 Surface Water Quality Assessment

Since the proposed mixing zone is for an existing discharge, this surface water quality assessment is based primarily on empirical evidence that indicates that compliance with the proposed mixing zone boundaries is achieved by the existing discharge. All existing data for station RIV-M indicates concentrations of total cyanide at the mixing zone boundary are less than detectable concentrations (<0.005 mg/L). Moreover, existing cyanide concentrations at the proposed mixing zone boundary are less than acute and chronic standards for aquatic life. The proposed mixing zone complies with ARM 17.30.507(1)(a) which prohibits exceedance of standards beyond mixing zone boundaries, and there is no reasonable potential for excursions above standards.

The remainder of this section provides information required by ARM 17.30.506 (Sections 3.10.1 through 3.10.7) and provides documentation to indicate that concentrations exceeding acute standards for aquatic life in a portion of the mixing zone (the backwater area identified on Exhibit 2) will not threaten or impair existing beneficial uses (Section 3.10.8).
3.10.1 Biologically important areas

ARM (17.30.506(2)(a)) states that the presence of fish spawning areas or shallow water nursery areas within the proposed mixing zone will support a finding that the mixing zone may be inappropriate during the spawning or nursery periods. Although not defined in the rules, for purposes of this assessment it is assumed that a “nursery area” means an area where fish eggs hatch and/or where fish grow to become subadults or adults. Available data (MDFWP, 1981) indicates that Flathead River in general and the proposed mixing zone in particular are neither spawning areas or nursery areas for trout species.

Fish species commonly found in Flathead River include westslope cutthroat trout, rainbow trout, bull trout, mountain whitefish, and largescale sucker. Other species encountered less frequently include brook trout, Yellowstone cutthroat trout, lake trout, lake whitefish, longnose sucker, northern squawfish, peamouth, slimy sculpin, kokanee salmon, and mottled sculpin. Available fisheries information on the Flathead River is limited to data collected by MDFWP to evaluate impacts of Hungry Horse Dam on salmonids (MDFWP, 1981). These studies conducted during 1979, 1980, and 1981 included electrofishing surveys and studies to determine migration habits of trout species (biotelemetry and fish tagging studies). This data indicates that few if any trout are resident in the Flathead River. The Flathead River is primarily a migration corridor for trout to move from Flathead Lake into and out of spawning and rearing tributaries in the North and Middle Forks of the Flathead River. None of the trout species spawn in the mainstem of the Flathead River. The proposed mixing zone, therefore, is not a spawning area for trout species. Juvenile trout of all species typically reside for 1 to 4 years in the tributary streams where they emerge/hatch. After juveniles become subadults or adults they then migrate to Flathead Lake or remain residents of the tributaries of the North and Middle Forks. Although subadult fish are present in the mainstem Flathead River, their presence is transient during their migration to Flathead Lake. Available evidence suggests that the Flathead River in general and the proposed mixing zone in particular, are not nursery areas for any trout species.

3.10.2 Drinking water or recreational activities

No drinking water intakes and no public recreational areas exist in the area of the proposed mixing zone (as defined in ARM 17.30.506(2)(b); “recreational” refers to swimming, and “recreational area” refers to a public beach or swimming area).

3.10.3 Attraction of aquatic life to the effluent plume

No information on attraction/avoidance of aquatic life to cyanide is provided in the cyanide criteria development document (EPA, 1985). Nor could any information on attraction/avoidance be found on EPA’s internet databases.
3.10.4 Toxicity/persistence of cyanide

To understand the toxicity and persistence of cyanide it is necessary to understand cyanide chemistry and the toxicological studies upon which the EPA Ambient Aquatic Life Criteria and Montana Aquatic Life Standards are based. Detailed descriptions and literature citations on cyanide chemistry/toxicity/persistence are given below. To summarize this information:

- Cyanide reacts readily to form metallo-cyanide complexes and is typically present in very small amounts as “free” cyanide in natural waters.
- Metallo-cyanide complexes and free cyanide are not persistent in surface waters and naturally degrade by a variety of mechanisms including photodecomposition, volatilization, and oxidation.
- The toxic form of cyanide is free cyanide, most metallo-cyanide complexes are not very toxic.
- Although EPA aquatic life criteria and Montana Aquatic Life Standards are based on the toxicity of free cyanide, the criteria and Montana Aquatic Life Standards are specified in terms of total cyanide. The criteria and standards are therefore very conservative (i.e. very protective).

Cyanide Chemistry and Persistence
Cyanide (CN) occurs in water as hydrocyanic acid (HCN), the cyanide ion (CN⁻), simple cyanides (e.g. NaCN), metallo-cyanide complexes, and as simple chain and complex ring organic compounds (Callahan, et al. 1979). “Free” cyanide is defined as the sum of the cyanide present as HCN and (CN⁻). Below a pH of about 8.3, free cyanide is present dominantly as HCN, a gas. Because HCN readily volatilizes from solution, the major mechanism for natural cyanide degradation in surface waters is volatilization of HCN (Smith and Mudder, 1991). Because cyanide is a very strong complexing agent that readily combines with metals in the environment, free cyanide (HCN and CN⁻) typically makes up a very small portion of the total cyanide (free cyanide plus simple cyanides and cyanide complexed to metals) present in water. For instance, solutions containing 1 mg/L ferric cyanide [Fe(CN)₅] only contain 0.0002 mg/L or 0.02% free cyanide (see Table 1.6 in Smith and Mudder, 1991). Because iron is ubiquitous and abundant in soils and surficial rock materials, the dominant form of cyanide is often iron-cyanide complexes.

In addition to volatilization of HCN, oxidation and photodecomposition have been observed to be effective natural degradation mechanisms for cyanide in surface ponds. Studies summarized by Smith and Mudder (1991) have shown that volatilization of HCN removes about 90 percent of the free cyanide in solution, the remaining 10 percent is removed by oxidation of cyanide to cyanate. Cyanate (CNO⁻) is much less toxic than cyanide. For instance the LC₅₀ (lethal concentration of substance that causes death of 50 percent of organisms) of cyanate for rainbow trout ranges from 13 to 82 mg/L (see Table 5.9 in Smith and Mudder, 1991), whereas the LC₅₀ of free cyanide for rainbow trout ranges from 0.068 to 0.098 mg/L (see Table 5 in EPA, 1985). Oxidation of cyanide to cyanate, therefore, results in approximately 1,000-fold reduction in toxicity to rainbow trout.
testing of 15 different genera at various life stages. Acute values for these genera ranged from 2.49 mg/L (midge) to 0.044 mg/L (rainbow trout) free cyanide. EPA’s acute criteria for free cyanide was derived by dividing the acute value for rainbow trout (the most sensitive species) by 2, to arrive at the acute criteria of 0.022 mg/L free cyanide.

Derivation of the chronic Ambient Aquatic Life Criteria for Cyanide (EPA, 1985) was based in part on long-term survival, partial life-cycle, and life-cycle tests. One of the most sensitive species to chronic cyanide exposures was brook trout (chronic value of 0.0078 mg/L). EPA based the final chronic criteria on the final Acute-Chronic Ratio to derive a chronic criteria of 0.0052 mg/L.

Other Toxicity Information
Information on toxicity of cyanide to waterfowl and mammals is summarized by Smith and Mudder (1991). Data indicated that the mallard duck was one of the most sensitive species to cyanide (chickens were approximately 10 times more resistant than mallards to cyanide toxicity). Based on several studies, the LC$_{50}$ in seven day exposure periods for mallard ducks ranged from 158 to 212 mg/L. The highest cyanide concentrations in the proposed mixing zone are approximately 1,000 times lower than these concentrations that were found to be toxic to mallard ducks. For mammals, LC$_{50}$ values for free cyanide in rats, mice, and dogs are 554, 169, and 300 mg/L. Ruminants such as cattle have the ability to detoxify cyanide and therefore must ingest in excess of 0.9 mg/kg of body weight per hour before death occurs. At the highest concentrations of cyanide present in the proposed mixing zone, a 250 kg (550 lb) animal would have to drink approximately 1,000 liters per hour (250 gallons per hour) to cause death. For comparison the average consumption of water by cattle is approximately 30 to 50 liters per day.

3.10.5 Bioaccumulation

Montana Numeric Water Quality Standards (Circular WQB-7 December 1995) list a biocencentration factor of 1 for cyanide, indicating cyanide does not bioaccumulate. EPA (1985) states “No studies have been reported showing a biomagnification of cyanide in the food chain (Towill, et al. 1978).”

3.10.6 Passage of Aquatic Organisms

There are no tributaries to the Flathead River within the mixing zone. Thus, the mixing zone would not block access to tributaries. Migration of fish in the river should not be affected since available data (Appendix 2 and Exhibit 2) indicates that the area of exceedance of chronic standard only extends a few tens of feet from shore. Area of exceedance of acute standard is limited to the backwater area and therefore would have no effect on migration in river.

3.10.7 Cumulative effects of multiple mixing zones

No other mixing zones are known to CFAC to exist in this area.
3.10.8 Exceedance of Acute Standards

As described in Section 3.1, at times cyanide concentrations exceed Montana Acute Aquatic Life Standards in the backwater portion of the mixing zone. ARM 17.30.507(1)(b) states:

"acute standards for aquatic life for any parameter may not be exceeded in any portion of a mixing zone unless the department specifically finds that allowing minimal initial dilution will not threaten or impair existing beneficial uses."

Evidence described in the water quality assessment (Section 3.10.1 through 3.10.7) indicates the proposed mixing zone will not threaten or impair existing beneficial uses. There are no biologically important areas (fish spawning or shallow water nursery areas) within the proposed mixing zone (Section 3.10.1). There are no drinking water or recreational areas within the proposed mixing zone (Section 3.10.2). Aquatic life are not known to be attracted to cyanide (Section 3.10.3). Cyanide readily degrades in surface water and is not persistent (Section 3.10.4). Cyanide is not known to bioaccumulate (Section 3.10.5). The proposed mixing zone would not block passage of organisms (Section 3.10.6).
4.0 CONCLUSIONS

The Montana Water Quality Act allows and regulates mixing zones. This application describes and delineates a source specific mixing zone for cyanide and fluoride in groundwater on property owned and controlled by Columbia Falls Aluminum Company; and a standard mixing zone for cyanide in the Flathead River adjacent to CFAC’s property. The delineation of mixing zones in this application is based on available empirical data (i.e. existing groundwater and surface water concentration data). This application documents no impairment of existing or anticipated uses by existing concentrations of cyanide and fluoride in groundwater and surface water. Incorporation of mixing zones into CFAC’s renewed MPDES Permit will continue to provide DEQ with a mechanism for monitoring and enforcement and will continue to provide protection of human health and the environment.
5.0 REFERENCES

Administrative Rules of Montana. 17.30.501 et seq; 17.30.601 et seq; 17.30.1301 et seq.

Alden, W.C., 1953. Physiography and Glacial Geology of Western Montana and


Hydrometrics, 1992. Results of Testing of the Shallow Groundwater System at the

Hydrometrics, 1993. Assessment of Hydrological Conditions Associated with the Closed
Landfill, Calcium Fluoride Pond and the Production Well Number 5 at the Columbia Falls

Resources of the Kalispell Valley, Northwestern Montana, Bulletin No. 68. Montana
Bureau of Mines and Geology.

Montana Code Annotated. 75-5-101 et seq.

Montana Department of Fish, Wildlife, and Parks, 1981. The Impact of Hungry Horse
Dam on the Kokanee Fishery of the Flathead River. September, 1981 reprinted January
1983.

U.S. Environmental Protection Agency, 1985. Ambient Aquatic Life Water Quality
Criteria for Cyanide. PB85-227460
EXHIBIT 3
MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

AUTHORIZATION TO DISCHARGE UNDER THE
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Mont. Code Annot.(MCA) Section 75-5-101 et seq., and ARM Title 17, Chapter 30, Subchapters 5, 6, 7 and 13.

Columbia Falls Aluminum Company L.I.C
2000 Aluminum Drive
Columbia Falls, MT 59912

is authorized to discharge process wastewater and ground water containing wastewater from its aluminum reduction facility,

to ground waters discharging to the Flathead River,

in accordance with discharge points, effluent limitations, monitoring requirements and other conditions set forth herein. Authorization for discharge is limited to those outfalls specifically listed in the permit. Specified load allocations support and serve to define total maximum daily loads for the receiving waters affected.

This permit shall become effective on February 1, 1999.

This permit and the authorization to discharge shall expire at midnight, January 31, 2004.

FOR THE MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

[Signature]
Frederick C. Shewman, P. E.
Permitting & Compliance Division
MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

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[Signature]
Frederick C. Shewman, P. E.
Permitting & Compliance Division

Dated this 4th day of January, 1999.
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I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Definitions.

1. The "Annual Average Load" is the arithmetic mean of all 30-day or monthly average loads reported during the calendar year for a monitored parameter.

2. The "30-day (and monthly) average," other than for fecal coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.

3. The "7-day (and weekly) average," other than for fecal coliform bacteria, is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria. The 7-day averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks in the month that have at least 4 days. For example, if a calendar week overlaps two months, the weekly average is calculated only in the month that contains four or more days of that week.

4. "BOD_5" is the five-day measure of pollutant parameter biochemical oxygen demand.

5. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

6. "Composite sample" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) discrete sub-samples collected over the compositing period. The time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

   a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;

   b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;

   c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,

   d. Continuous collection of sample, with sample collection rate proportional to flow rate.
7. A "Daily Maximum Limit" specifies the maximum allowable discharge of a pollutant during a calendar day. Expressed as units of mass, the daily discharge is cumulative mass discharged over the course of the day. Expressed as a concentration, it is the arithmetic average of all measurements taken that day.

8. "Department" means the Montana Department of Environmental Quality.

9. "Director" means Director of the United States Environmental Protection Agency’s Water Management Division.

10. "Dissolved concentration" means that portion remaining after passing the sample through a 0.45 micron membrane filter.

11. "EPA" means the United States Environmental Protection Agency.

12. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

13. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.

14. A "mixing zone" is a limited area of a surface water body or aquifer where initial dilution of a discharge takes place and where water quality changes may occur. Also recognized as an area where certain water quality standards may be exceeded.

15. "Process wastewater" means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product (40 CFR 122.2).

16. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

17. The term "TMDL" means the total maximum daily load limitation of a parameter, representing the estimated assimilative capacity for a water body before other designated uses are adversely affected. Mathematically, it is the sum of wasteload allocations for point sources, load allocations for non-point and natural background sources, and a margin of safety.
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18. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

B. Description of Discharge Points

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under an Montana Pollutant Discharge Elimination System (MPDES) permit is a violation of the Montana Water Quality Act and could subject the person(s) responsible for such discharge to penalties under the Act. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within a reasonable time from first learning of an unauthorized discharge could subject such person to criminal penalties as provided under Section 75-5-632 of the Montana Water Quality Act.

<table>
<thead>
<tr>
<th>Outfall</th>
<th>Serial Number</th>
<th>Description of Discharge Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>002</td>
<td>002</td>
<td>Outfall 002 is paste plant briquette cooling water from the coke and coal tar pitch mixer and extruder discharging from the end of the main briquette cooling belt through a system of two percolation ponds north of the plant and into state ground waters hydraulically connected to the Flathead River. The concentrations of aluminum, fluoride, antimony and nickel in the discharge are adjusted by subtracting the corresponding ambient concentrations measured at monitoring point W02 (net credit). The discharge is monitored in the tank at the end of the main quenching belt that discharges to the north percolation ponds, Latitude 48° North, 23° 50', Longitude 144° East, 8° 34'. The flow of outfall 002 is combined with a discharge of compressor cooling water from the compressor cooling water release line located inside the compressor house portion of the plant. The combined flow of outfall 002 and the compressor cooling water is approximately 2.4 million gallons per day discharging to two percolation ponds located north of the plant. The eastern-most of the two ponds has been partially sealed by the settling of fine-grained sediments. The eastern pond is connected by a surface drainage ditch to a second pond located 1,500 feet to the west. Percolation through the base of the ponds discharges to ground water hydraulically connected to the Flathead River.</td>
</tr>
</tbody>
</table>
| 004     | 004           | Outfall 004 is contact cooling water from direct chill casting of aluminum ingots. The discharge reports to three percolation ponds located approximately 1,000 feet south of the plant near the Flathead River, Latitude 48° North, 23° 16', Longitude 144° East, 7° 53'. The percolation ponds discharge into state ground waters hydraulically connected to the Flathead River. The flow rate
ranges from 1.5 to 2.0 million gallons per day. Effluent quality is monitored in three of six casting pits within the plant. One of the three pits is sampled each month on a rotating schedule. Flow is monitored by totalizing recorders at four intake pipes to the ingot cooling process. The concentrations of aluminum, fluoride, antimony and nickel in the effluent discharge are adjusted by subtracting the corresponding ambient concentrations measured at monitoring point W02 (net credit).

Outfall 005 is the sewage treatment plant outfall discharging to the ingot cooling water pipeline that extends from the plant to the south percolation ponds. The sewage treatment plant receives water from sanitary and domestic uses and fabrication shop steam cleaning bay. The percolation ponds discharge into state ground waters hydraulically connected to the Flathead River, Latitude 48° North, 23' 16", Longitude 144° East, 7' 53". The discharge is approximately 100,000 gallons per day. The discharge is monitored as it leaves the sewage treatment plant located 400 feet south of the southwest corner of the main plant building.

Outfall 006 is ground water flowing beneath the plant site and discharging to surface water in the Flathead River along a reach extending from Latitude 48° North, 23' 18", Longitude 144° East, 7' 19" to Latitude 48° North, 23' 13", Longitude 144° East, 9' 04". The ground water receives wastewater from the north pond, south ponds, west pond, plant drywells, landfills used for historical waste disposal practices, Quonset building septic system, outdoor vehicle wash water, head tank overflow, head tank cleaning water, production well testing and maintenance discharges, lawn irrigation and dust control discharges.

The north, south and west ponds receive wastewater from Outfalls 002, 004 and 005 in addition to storm water, paste plant ball mill cooling water, motor and fan bearing non-contact cooling water, air conditioner condensate and air compressor drying tower condensate, air compressor condensate blowdown and compressor non-contact cooling water, discharges from the masonry shop, battery shop, and garage, discharges from steam cleaning sumps in the garage and pin crane shed, discharges from casting mold steam cleaning and testing, discharges from rectifier non-contact cooling and oil separator sump, discharges from the fire hydrant bleed system and discharges from other non-contact cooling equipment.

The permitted-by-rule Class V injection wells (drywells) receive storm water, non-contact cooling water from the electromelt process, laboratory instruments, heat pumps and fire pump engine, non-contact air conditioner condensate, fire hydrant bleed system, blowdown from nine package boiler plants and softener regeneration.

Area ground water is monitored in ground water wells as specified in the monitoring point descriptions below. Surface water monitoring of Outfall 006 occurs within the surface water mixing zone at monitoring point RIV-2 and at the downstream edge of the surface water mixing zone at monitoring point RIV-M.
C. Description of Monitoring Points

<table>
<thead>
<tr>
<th>Monitoring Point Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RIV-1</td>
<td>Monitoring point RIV-1 is the Flathead River upstream of the south percolation ponds, 1,800 feet east of production well PW-6. The measuring point monitors ambient Flathead River water quality upstream of Outfalls 004, 005 and 006.</td>
</tr>
<tr>
<td>RIV-2</td>
<td>Monitoring point RIV-2 is along the north bank of the Flathead River approximately 2,500 feet west of well PW-6 downstream of the south percolation ponds. The measuring point monitors Flathead River water quality within the surface water mixing zone.</td>
</tr>
<tr>
<td>RIV-M</td>
<td>Monitoring point RIV-M is along the north bank of the Flathead River downstream of the south percolation ponds, approximately 4,600 feet west of production well PW-6. The measuring point monitors Flathead River water quality at the down-gradient edge of the surface water mixing zone.</td>
</tr>
<tr>
<td>W00</td>
<td>Monitoring point W00 is a ground water monitoring well labeled CF-MW-2 located 200 feet north of the paste plant building and 300 feet south of the solids settling pond receiving flow from Outfall 002. Monitoring serves to measure the effect on ground water quality of capping the west landfill. The well is 51 feet deep; the typical static water level (SWL) is 38 feet below ground surface (bgs);</td>
</tr>
<tr>
<td>W01</td>
<td>Monitoring point W01 is a water supply well labeled PW-7 located 1,800 feet south of the plant. Monitoring of the well serves to measure ground water quality down-gradient of the ground water mixing zone and down-gradient of the south percolation ponds receiving flow from Outfalls 004, 005 and 006. The well is 73 feet deep; the typical SWL is 10 feet below ground surface (bgs);</td>
</tr>
<tr>
<td>W02</td>
<td>Monitoring point W02 is a ground water monitoring well labeled CF-MW-1 located 2,700 feet northwest of the closed west landfill. The well serves to measure ambient ground water concentrations of limited parameters that are subtracted from outfall concentrations at Outfalls 002, 004 and 006. The well is 155 feet deep; the typical SWL is 97 feet bgs;</td>
</tr>
<tr>
<td>W03</td>
<td>Monitoring point W03 is a ground water monitoring well labeled TW-20 located 500 feet west-southwest of the closed west landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 92 feet deep; the typical SWL is 73 feet bgs;</td>
</tr>
<tr>
<td>W04</td>
<td>Monitoring point W04 is a ground water monitoring well labeled TW-21 located 400 feet south of the closed landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 94 feet deep; the typical SWL is 72 feet bgs;</td>
</tr>
<tr>
<td>W05</td>
<td>Monitoring point W05 is a ground water monitoring well labeled TW-15 located 750 feet south of the closed west landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 105 feet deep; the typical SWL is 70 feet bgs;</td>
</tr>
<tr>
<td>W06</td>
<td>Monitoring point W06 is a ground water monitoring well labeled TW-18 located 600 feet south of the closed west landfill. The well serves to measure ground water quality within the ground water...</td>
</tr>
</tbody>
</table>
mixing zone for Outfall 006. The well is 90 feet deep; the typical SWL is 63 feet below ground surface (bgs);

W07 Monitoring point W07 is a ground water monitoring well labeled TW-19 located 3,800 feet southeast of the closed west landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 114 feet deep; the typical SWL is 92 feet bgs;

W08 Monitoring point W08 is a ground water monitoring well labeled TW-2 located 2,800 feet southwest of the closed west landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 60 feet deep; the typical SWL is 46 feet bgs;

W09 Monitoring point W09 is a water supply well labeled PW-5 located 4,600 feet southeast of the closed west landfill. The well serves to measure ground water quality outside the boundary of the ground water mixing zone for Outfall 006. The well is 171 feet deep; the typical SWL is 105 feet bgs;

W10 Monitoring point W10 is a nested well pair installed immediately down-gradient of the northwest percolation pond, and outside of the southwest corner of the pond exclusion fence. The deeper well (TW-22) is 60 feet deep and has a typical SWL of 27 feet bgs; the shallow well (TW-23) is 24.5 feet deep and has a typical SWL of 23 feet bgs. The wells serve to measure ground water quality down-gradient of the north percolation ponds receiving flow from Outfall 002 and is outside of the ground water mixing zone.

W11 Monitoring point W11 is a well installed approximately 60 feet southwest of the closed landfill. The well, labeled TW-17, serves to monitor ground water quality within the ground water mixing zone for Outfall 006. The well is 90 feet deep; the typical SWL is 63 feet bgs.

D. Specific Limitations and Self-Monitoring Requirements

1. Effluent Limitations. Effective immediately and lasting through the permit term, the quality of effluent discharged by the facility shall not exceed the limitations as set forth below:

a. Table 1. Outfall 002 (Main briquette quenching belt).

<table>
<thead>
<tr>
<th>Effluent Characteristics</th>
<th>Net Daily Maximum (Kg/day)</th>
<th>Net Monthly Average (Kg/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene*</td>
<td>0.003</td>
<td>0.001</td>
</tr>
<tr>
<td>Antimony</td>
<td>0.189</td>
<td>0.066</td>
</tr>
<tr>
<td>Nickel</td>
<td>0.054</td>
<td>0.028</td>
</tr>
<tr>
<td>Aluminum</td>
<td>0.60</td>
<td>0.207</td>
</tr>
<tr>
<td>Fluoride</td>
<td>5.845</td>
<td>2.016</td>
</tr>
</tbody>
</table>

* Benzo(a)pyrene limits are for gross rather than net values.
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b. **Table 2. Outfall 004 (Direct chill casting).**

<table>
<thead>
<tr>
<th>Effluent Characteristics</th>
<th>Net Daily Maximum (Kg/day)</th>
<th>Net Monthly Average (Kg/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene</td>
<td>No Discharge</td>
<td>No Discharge</td>
</tr>
<tr>
<td>Antimony</td>
<td>1.579</td>
<td>0.530</td>
</tr>
<tr>
<td>Nickel</td>
<td>0.450</td>
<td>0.228</td>
</tr>
<tr>
<td>Aluminum</td>
<td>5.0</td>
<td>1.671</td>
</tr>
<tr>
<td>Fluoride</td>
<td>48.696</td>
<td>16.282</td>
</tr>
</tbody>
</table>

d. **Table 3. Outfall 005 (Sewage treatment plant).**

<table>
<thead>
<tr>
<th>Effluent Characteristics</th>
<th>Monthly</th>
<th>7-day Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD (mg/L)</td>
<td>30.0</td>
<td>45.0</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)(mg/L)</td>
<td>30.0</td>
<td>45.0</td>
</tr>
</tbody>
</table>

The pH of the discharge from Outfall 005 shall not be less than 6.0 or greater than 9.0.

2. **Self-Monitoring Requirements**

As a minimum, upon the effective date of this permit, the following constituents shall be monitored in the discharges and at monitoring points at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored medium. The analysis results for constituents in samples of Outfalls 002, 004, 006 and all other ground water samples shall be reported for dissolved concentrations after filtration through a 0.45 micron membrane filter. Aluminum analysis of samples from the discharges, ground water and surface water monitoring points is for dissolved concentrations per Department Circular WQB-7. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.
### a. Table 4. Outfall 002 (main briquette quenching belt)

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow gallons per day (gpd)</td>
<td>Monthly</td>
<td>Continuous</td>
</tr>
<tr>
<td>Antimony (mg/L)</td>
<td>Annually</td>
<td>Composite</td>
</tr>
<tr>
<td>Aluminum (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
</tbody>
</table>

### b. Table 5. Outfall 004 (Direct chill casting).

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (gpd)</td>
<td>Monthly</td>
<td>Continuous</td>
</tr>
<tr>
<td>Benzo(a)pyrene (mg/L)</td>
<td>Annually</td>
<td>Composite</td>
</tr>
<tr>
<td>Antimony (mg/L)</td>
<td>Annually</td>
<td>Composite</td>
</tr>
<tr>
<td>Aluminum (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
</tbody>
</table>

### c. Table 6. Outfall 005 (sewage treatment plant).

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (gpd)</td>
<td>Monthly</td>
<td>Continuous</td>
</tr>
<tr>
<td>BOD (mg/L)</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH (Standard Units)</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>TSS (mg/L)</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
</tbody>
</table>
d. Table 7. Monitoring points RIV-1, RIV-2 and RIV-M.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature (°F)</td>
<td>Semi-annually</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>pH (Standard Units)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
</tbody>
</table>

e. Table 8. Monitoring points W00 through W11.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static Water Level (feet bgs)</td>
<td>Semi-annually</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Specific Conductance (µmhos/cm)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>pH (Standard Units)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
</tbody>
</table>

f. Table 9. Metal parameters required for monitoring point W02.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
</tbody>
</table>

E. Mixing Zones

Source-specific ground water and standard surface water mixing zones are delineated for outfall 006. The extent of the mixing zones is illustrated in Exhibits 1 and 2. The ground
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water mixing zone for CN and F (Exhibit 1) extends within a polygon defined by a point on the north bank of the Flathead River located 3630 feet west of well PW-7, extending northward 300 feet to the Burlington Northern railroad tracks, then 31 degrees for a distance of 4,500 feet to the roadway along the northern edge of the West Landfill, following that roadway eastward to a second roadway adjacent to the Cedar Creek diversion ditch, then southeastward along the ditch roadway for 1930 feet, then southward for 3,500 feet along the fence line to the access roadway on the south side of the South Percolation Ponds, then westward along the pond access roadway to the point of origin.

The surface water mixing zone (Exhibit 2) consists of a segment of the Flathead River extending from a point on the north bank located 2,100 west of well PW-7, westward to a point on the north bank located 4,600 feet west of well PW-7.

II. MONITORING RECORDING AND REPORTING REQUIREMENTS

A. Representative Sampling. Outfall samples taken in compliance with the monitoring requirements established under Part I shall be collected from the effluent stream prior to discharge into the receiving ponds. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Samples and measurements taken from the Flathead River shall occur within a 60-minute time period. Samples from wells shall be collected after purging of a minimum of three casing volumes. If a well is purged dry, sampling shall occur as soon as practicable after recovery.

B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under Part 136, Title 40 of the Code of Federal Regulations, unless other test procedures have been specified in this permit. All flow-measuring and flow-recording devices used in obtaining data submitted in self-monitoring reports must indicate values within 10 percent of the actual flow being measured.

C. Penalties for Tampering. The Montana Water Quality Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $25,000, or by imprisonment for not more than six months, or by both.

D. Reporting of Monitoring Results. Effluent, in-stream and well monitoring results shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the Signatory Requirements (see Part IV), and submitted to the Department and the Regional Administrator at the following addresses:
Montana Department of Environmental Quality
Water Protection Bureau
P.O. Box 200901
Helena, Montana 59620-0901
Phone: (406) 444-3080
U.S. Environmental Protection Agency
Federal Building
Drawer 10096
Helena, Montana 59626
Phone: (406) 441-1140

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E. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.

F. **Additional Monitoring by the Permittee.** If the permittee monitors any pollutant more frequently than required by this permit, using approved sampling and analytical methods as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated.

G. **Records Contents.** Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements;

2. The initials or name(s) of the individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;

4. The time analyses were initiated;

5. The initials or name(s) of individual(s) who performed the analyses;

6. References and written procedures, when available, for the analytical techniques or methods used; and,

7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

H. **Retention of Records.** The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time. Data collected on site, copies of Discharge Monitoring Reports, and a copy of this MPDES permit must be maintained on site during the duration of activity at the permitted location.
I. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall report any serious incidents of noncompliance as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the Water Protection Bureau at (406) 444-3080 or the Office of Disaster and Emergency Services at (406) 444-6911. The following examples are considered serious incidents:

   a. Any noncompliance which may seriously endanger health or the environment;

   b. Any unanticipated bypass which exceeds any effluent limitation in the permit (See Part III.G of this permit, "Bypass of Treatment Facilities"); or,

   c. Any upset which exceeds any effluent limitation in the permit (See Part III.H of this permit, "Upset Conditions").

2. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:

   a. A description of the noncompliance and its cause;

   b. The period of noncompliance, including exact dates and times;

   c. The estimated time noncompliance is expected to continue if it has not been corrected; and

   d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Water Protection Bureau, by phone, (406) 444-3080.

4. Reports shall be submitted to the addresses in Part II.D of this permit, Reporting of Monitoring Results.

J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D of this permit are submitted. The reports shall contain the information listed in Part II.I.2 of this permit.
K. **Inspection and Entry.** The permittee shall allow the head of the Department or the Regional Administrator, or authorized representative thereof, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance, any substances or parameters at any location.

III. COMPLIANCE RESPONSIBILITIES

A. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give the director advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance.

B. **Penalties for Violations of Permit Conditions.** The Montana Water Quality Act provides that any person who violates a permit condition of the Act is subject to civil or criminal penalties not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates permit conditions of the Act is subject to a fine of not more than $50,000 per day of violation, or by imprisonment for not more than 2 years, or both, for subsequent convictions. MCA 75-5-611(a) also provides for administrative penalties not to exceed $10,000 for each day of violation and up to a maximum not to exceed $100,000 for any related series of violations. Except as provided in permit conditions on Part III.G of this permit, "Bypass of Treatment Facilities" and Part III.H of this permit, "Upset Conditions", nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. **Need to Halt or Reduce Activity not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
D. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures.

F. **Removed Substances.** Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Any sludges removed from the facility shall be disposed of in accordance with 40 CFR 503, 258 or other applicable rule.

G. **Bypass of Treatment Facilities:**

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Part III.G.2 and III.G.3 of this Permit.

2. Notice:

   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 60 days before the date of the bypass.

   b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.I of this permit, Twenty-four Hour Reporting.

3. Prohibition of bypass.

   a. Bypass is prohibited and the Department may take enforcement action against a permittee for a bypass, unless:

      (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

      (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This
condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The permittee submitted notices as required under Part III.G.2 of this permit.

b. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in Part III.G.3 of this permit.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of Part III.H.2 of this permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e., the Permittee will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limitations).

2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An upset occurred and that the permittee can identify the cause(s) of the upset;

   b. The permitted facility was at the time being properly operated;

   c. The permittee submitted notice of the upset as required under Part II.I of this permit, Twenty-four Hour Notice of Noncompliance Reporting; and

   d. The permittee complied with any remedial measures required under Part III.D of this permit, Duty to Mitigate.

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.
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I. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. **Changes in Discharge of Toxic Substances.** Notification shall be provided to the Department as soon as the permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
   
   a. One hundred micrograms per liter (100 μg/L);
   
   b. Two hundred micrograms per liter (200 μg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 μg/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
   
   c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
   
   d. The level established by the Department in accordance with 40 CFR 122.44(f).

   The required notification shall be that required by Section II.I.1 of this permit.

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

   a. Five hundred micrograms per liter (500 μg/L);
   
   b. One milligram per liter (1 mg/L) for antimony;
   
   c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or
   
   d. The level established by the Department in accordance with 40 CFR 122.44(f).
IV. GENERAL REQUIREMENTS

A. Planned Changes. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

1. The alteration or addition could significantly change the nature or increase the quantity of pollutant discharged. This notification applies to pollutants which are not subject to effluent limitations in the permit; or,

2. There are any planned substantial changes to the existing sewage sludge management practices of storage and disposal. The permittee shall give the Department notice of any planned changes at least 80 days prior to their implementation.

B. Anticipated Noncompliance. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

C. Permit Actions. This permit may be revoked, modified and reissued, or terminated for cause. The filing of a request by the permittee for a permit revocation, modification and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application should be submitted at least 180 days before the expiration date of this permit.

E. Duty to Provide Information. The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit with a narrative explanation of the circumstances of the omission or incorrect submittal and why they weren't supplied earlier.

F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it shall promptly submit such facts or information.

G. Signatory Requirements. All applications, reports or information submitted to the Department shall be signed and certified.
1. All permit applications shall be signed as follows:
   a. For a corporation: by a responsible corporate officer;
   b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
   c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
   a. The authorization is made in writing by a person described above and submitted to the Department, and,
   b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

3. Changes to authorization. If an authorization under Part IV.G.2 of this permit is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part IV.G.2 of this permit must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all Exhibits were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
PART IV
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Permit No.: MT-0030066

H. Penalties for Falsification of Reports. The Montana Water Quality Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than $25,000 per violation, or by imprisonment for not more than six months per violation, or by both.

I. Availability of Reports. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department and the Director. As required by the Clean Water Act, permit applications, permits and effluent data shall not be considered confidential.

J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.

K. Property or Water Rights. The issuance of this permit does not convey any property or water rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. Transfers. This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies the Department at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them;

3. The Department does not notify the existing permittee and the proposed new permittee of his or her intent to revoke or modify and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part IV.M.2 of this permit; and

4. Required annual and application fees have been paid.
N. **Fees.** The permittee is required to submit payment of an annual fee as set forth in ARM 17.30.201. If the permittee fails to pay the annual fee within 90 days after the due date for the payment, the Department may:

1. Impose an additional assessment consisting of 15% of the fee plus interest on the required fee computed at the rate established under 15-31-510(3), MCA, or

2. Suspend the processing of the application for a permit or authorization or, if the nonpayment involves an annual permit fee, suspend the permit, certificate or authorization for which the fee is required. The Department may lift suspension at any time up to one year after the suspension occurs if the holder has paid all outstanding fees, including all penalties, assessments and interest imposed under this sub-section. Suspensions are limited to one year, after which the permit will be terminated.

O. **Reopener Provisions.** This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements if one or more of the following events occurs:

1. **Water Quality Standards:** The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.

2. **Water Quality Standards are Exceeded:** If it is found that water quality standards or trigger values in the receiving stream are exceeded either for parameters included in the permit or others, the department may modify the effluent limits or water management plan.

3. **TMDL or Wasteload Allocation:** TMDL requirements or a wasteload allocation is developed and approved by the Department and/or EPA for incorporation in this permit.

4. **Water Quality Management Plan:** A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than contained in this permit.

5. **Toxic Pollutants:** A toxic standard or prohibition is established under Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit.
EXHIBIT 1
COLUMBIA FALLS ALUMINUM COMPANY
GROUNDWATER MONITORING LOCATIONS & PROPOSED MIXING ZONE BOUNDARIES
SCALE 1" = 1200'

[Diagram showing groundwater monitoring locations and proposed mixing zone boundaries]
EXHIBIT 4
STATEMENT OF BASIS

PERMITTEE: Columbia Falls Aluminum Company
LOCATION: Columbia Falls, Montana
PERMIT NUMBER: MT-0030066
RECEIVING WATERS Flathead River

A. Description of proposed discharge

The facility is an aluminum reduction plant that produces aluminum ingots from aluminum oxide ore. The discharges having effluent limits consist of paste plant briquette cooling water, emissions scrubber water, cooling water from direct chill casting and sewage treatment plant effluent. These discharges, together with discharges of cooling water, air compressor and conditioner condensates, boiler effluent, wash water and storm water, report to a set of two percolation ponds located north and northwest of the plant and a set of three percolation ponds located south of the plant near the Flathead River. The ground water beneath the plant affected by current and past waste disposal is also identified as an outfall in the permit. In addition to pond seepage, the discharges to ground water include solid waste landfill leachate and storm water. The ground water is hydrologically connected to surface water in the Flathead River. The permit identifies a source-specific ground water mixing zone for fluoride (F) and cyanide (CN) and a standard surface water mixing zone for CN. The permit contains ground water and surface water monitoring requirements.

The two north percolation ponds consist of an eastern solids settling pond and an infiltration pond located 1,500 feet to the west (west pond). The solids settling pond receives a mixed stream of paste plant briquette cooling water at 540,000 gallons per day (gpd) and scrubber water from wet air emissions control at 51,840 gpd. The mixed discharge enters the settling pond at its southwest corner. A discharge of compressor cooling water enters the southeast corner of the settling pond at a rate of 1.8 million gpd. The mixed stream of paste plant discharges contains semi-volatile organic compounds (Semi-VOC) as by-products of carbon paste and briquette manufacture. The total process water discharge is 2,391,840 gpd. This rate is increased to an average discharge of 2.4 million gpd by plant storm water runoff routed to the ponds. The total discharge increases with storm intensity. Most of the percolation to ground water occurs through the bottom of the northwestern pond.

A series of three south percolation ponds receive ingot cooling water, sewage treatment plant effluent and storm water for a total of from 1.5 to 2.0 million gpd. The sewage treatment effluent discharge averages 100,000 gpd. The ingot cooling discharge ranges from 1.5 to 2.0 million gallons per day. Self-monitoring of the Flathead River is required upstream and downstream of the ponds.

Columbia Falls Aluminum Company (CFAC) operated a solid waste landfill for the disposal of spent carbon cathode material during the late 1970's. This landfill was closed in 1981. Ground water monitoring within CFAC property detected elevated levels of CN and F that were traced to the closed landfill. Under the conditions of a previous MPDES permit CFAC recontoured the surface of the landfill and synthetically capped and revegetated the closed landfill to reduce precipitation infiltration and contaminant leaching. Ground water affected by the landfill exceeds human health standards for CN and F. The ground water discharges to the Flathead River along a 7,500-foot reach adjacent to CFAC property. A portion of the ground water discharge to surface water is in the form
of discrete seeps along the riverbank. The seep discharges cause surface water CN standards to be exceeded. The permit delineates a source-specific ground water mixing zone for CN and F and a standard surface water mixing zones for CN. They are illustrated in Exhibits 1 and 2.

The permit requires ambient ground water monitoring and monitoring adjacent to and down gradient of the landfill to verify the effectiveness of the landfill cap in reducing the leachate volume and to track the reduction in ground water CN and F concentrations from the landfill to the Flathead River. The permit also requires ambient surface water monitoring and surface water monitoring in and down-gradient of the surface water mixing zone.

The conditions of this permit apply to the following five discharge points and 15 monitoring points:

002 Outfall 002 is paste plant briquette cooling water from the coke and coal tar pitch mixer and extruder discharging from the end of the main briquette cooling belt. The concentrations of aluminum, antimony, fluoride and nickel in the discharge are adjusted by subtracting the corresponding ambient concentration measured at monitoring point W02 (net credit). The discharge is monitored in the tank at the end of the main quenching belt.

The flow of Outfall 002 is combined with a discharge of compressor cooling water discharging through the compressor cooling water release line within the compressor house portion of the plant. The combined flow of Outfall 002 and the compressor cooling discharge is approximately 2.4 million gallons per day.

004 Outfall 004 is contact cooling water from direct chill casting of aluminum ingots. The discharge reports to three percolation ponds located approximately 1,000 feet south of the plant near the Flathead River. The flow rate ranges from 1.5 to 2.0 million gallons per day. Effluent quality is monitored in three casting pits within the plant. One of the three pits is sampled each month on a rotational schedule. Flow volume is continuously measured on four intake pipes to the ingot cooling process. The concentrations of aluminum, antimony, fluoride and nickel in the effluent are adjusted by subtracting the corresponding ambient concentrations measured at monitoring point W02 (net credit).

005 Outfall 005 is the sewage treatment plant outfall discharging to the ingot cooling water pipeline that extends from the plant to the south percolation ponds. The flow rate is approximately 100,000 gallons per day. The discharge is monitored as it enters and leaves the sewage treatment plant located 400 feet south of the southwest corner of the main plant building.

006 Outfall 006 is affected ground water flowing beneath the plant site and discharging to surface water in the Flathead River. The ground water receives wastewater from the north pond, south ponds, west pond, plant drywells, landfills used for historical waste disposal practices, Quonset building septic system, outdoor vehicle wash water, head tank overflow, head tank cleaning water, production well testing and maintenance discharges, lawn irrigation and dust control discharges.
The north, south and west ponds receive wastewater from outfalls 002, 004 and 005 in addition to storm water, paste plant ball mill cooling water, motor and fan bearing non-contact cooling water, air conditioner condensate and air conditioner drying tower condensate, air compressor condensate blowdown and compressor non-contact cooling water, discharges from the masonry shop, battery shop, and garage, discharges from steam cleaning sumps in the garage and pin crane shed, discharges from casting mold steam cleaning and testing, discharges from rectifier non-contact cooling and oil separator sump, discharges from the fire hydrant bleed system and discharges from other non-contact equipment cooling.

The permitted-by-rule Class V injection wells (drywells) receive storm water, non-contact cooling water from the electromelt process, laboratory instruments, heat pumps and fire pump engine, fire hydrant bleed system, blowdown from nine package boiler plants and softener regeneration effluent.

Area ground water is monitored in ground water wells as specified in the monitoring point descriptions below. Surface water monitoring of Outfall 006 occurs within the surface water mixing zone at monitoring point RIV-2 and at the downstream edge of the surface water mixing zone at monitoring point RIV-M.

**RIV-1**
Monitoring point RIV-1 is the Flathead River upstream of the south percolation ponds, 1,800 feet east of production well PW-6. The measuring point monitors ambient Flathead River water quality upstream of outfalls 004, 005 and 006.

**RIV-2**
Monitoring point RIV-2 is along the north bank of the Flathead River approximately 2,500 feet west of well PW-6 downstream of the south percolation ponds. The measuring point monitors Flathead River water quality within the surface water mixing zone.

**RIV-M**
Monitoring point RIV-M is along the north bank of the Flathead River downstream of the south percolation ponds, approximately 4,600 feet west of production well PW-6. The measuring point monitors Flathead River water quality at the down-gradient edge of the surface water mixing zone.

**W00**
Monitoring point W00 is a ground water monitoring well labeled **CF-MW-2** located 200 feet north of the paste plant building and 300 feet south of the solids settling pond receiving flow from Outfall 002. Monitoring serves to measure the effect on ground water quality of capping the closed west landfill. The well is 51 feet deep; the typical static water level (SWL) is 38 feet below ground surface (bgs);

**W01**
Monitoring point W01 is a water supply well labeled **PW-7** located 1,800 feet south of the plant. Monitoring of the well serves to measure ground water quality down-gradient of the ground water mixing zone and down-gradient of the south percolation ponds receiving flow from Outfalls 004, 005 and 006. The well is 73 feet deep; the typical SWL is 10 feet below ground surface (bgs);
W02 Monitoring point W02 is a ground water monitoring well labeled CF-MW-1 located 2,700 feet northwest of the closed west landfill. The well serves to measure ambient ground water concentrations of limited parameters that are subtracted from outfall concentrations at Outfalls 002, 004 and 006. The well is 155 feet deep; the typical SWL is 97 feet bgs;

W03 Monitoring point W03 is a ground water monitoring well labeled TW-20 located 500 feet west-southwest of the closed west landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 92 feet deep; the typical SWL is 73 feet bgs;

W04 Monitoring point W04 is a ground water monitoring well labeled TW-21 located 400 feet south of the closed landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 94 feet deep; the typical SWL is 72 feet bgs;

W05 Monitoring point W05 is a ground water monitoring well labeled TW-15 located 750 feet south of the closed west landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 105 feet deep; the typical SWL is 70 feet bgs;

W06 Monitoring point W06 is a ground water monitoring well labeled TW-18 located 600 feet south of the closed west landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 90 feet deep; the typical SWL is 63 feet below ground surface (bgs);

W07 Monitoring point W07 is a ground water monitoring well labeled TW-19 located 3,800 feet southeast of the closed west landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 114 feet deep; the typical SWL is 92 feet bgs.

W08 Monitoring point W08 is a ground water monitoring well labeled TW-2 located 2,800 feet southwest of the closed west landfill. The well serves to measure ground water quality within the ground water mixing zone for Outfall 006. The well is 60 feet deep; the typical SWL is 46 feet bgs;

W09 Monitoring point W09 is a water supply well labeled PW-5 located 4,600 feet southeast of the closed west landfill. The well serves to measure ground water quality outside the boundary of the ground water mixing zone for Outfall 006. The well is 171 feet deep; the typical SWL is 105 feet bgs;

W10 Monitoring point W10 is a nested well pair installed immediately down-gradient of the northwest percolation pond, and outside of the southwest corner of the pond exclusion fence. The deeper well (TW-22) is 60 feet deep and has a typical SWL of 27 feet bgs; the shallow
well (TW-23) is 24.5 feet deep and has a typical SWL of 23 feet bgs. The wells serve to measure ground water quality down-gradient of the north percolation ponds receiving flow from Outfall 002 and are outside of the ground water mixing zone.

W11  Monitoring point W11 is a well installed approximately 60 feet southwest of the closed landfill. The well, labeled TW-17, serves to monitor ground water quality within the ground water mixing zone for Outfall 006. The well is 90 feet deep; the typical SWL is 63 feet bgs.

Outfall 002 is treated by solids settling and cooling in a primary pond and filtration in a secondary percolation pond. Outfall 004 is treated by settling and percolation through a series of three ponds adjacent to the Flathead River. Outfall 005, a sewage treatment plant effluent, is treated by solids removal, aeration and chlorination in a package waste water treatment plant. Outfall 006 receives an unquantified degree of treatment as dissolved constituents are attenuated in the aquifer materials. The discharge is diluted by both ground water and surface water entering from up-gradient of the respective mixing zones.

B.  Effluent Limitations

1.  Table 1.  Outfall 002 (Main briquette quenching belt).

<table>
<thead>
<tr>
<th>Effluent Characteristics</th>
<th>Net Daily Maximum (Kg/day)</th>
<th>Net Monthly Average (Kg/day)</th>
<th>Rational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene</td>
<td>0.003</td>
<td>0.001</td>
<td>BAT (40 CFR 421.23 (b))</td>
</tr>
<tr>
<td>Antimony</td>
<td>0.189</td>
<td>0.066</td>
<td></td>
</tr>
<tr>
<td>Nickel</td>
<td>0.054</td>
<td>0.028</td>
<td></td>
</tr>
<tr>
<td>Aluminum</td>
<td>0.60</td>
<td>0.207</td>
<td></td>
</tr>
<tr>
<td>Fluoride</td>
<td>5.845</td>
<td>2.016</td>
<td></td>
</tr>
</tbody>
</table>

2.  Table 2.  Discharge Point 004 (Direct chill casting).

<table>
<thead>
<tr>
<th>Effluent Characteristics</th>
<th>Net Daily Maximum (Kg/day)</th>
<th>Net Monthly Average (Kg/day)</th>
<th>Rational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene</td>
<td>No Discharge</td>
<td>No Discharge</td>
<td>BAT (40 CFR 421.23 (q))</td>
</tr>
<tr>
<td>Antimony</td>
<td>1.579</td>
<td>0.530</td>
<td></td>
</tr>
<tr>
<td>Nickel</td>
<td>0.450</td>
<td>0.228</td>
<td></td>
</tr>
<tr>
<td>Aluminum</td>
<td>5.0</td>
<td>1.671</td>
<td></td>
</tr>
<tr>
<td>Fluoride</td>
<td>48.696</td>
<td>16.282</td>
<td></td>
</tr>
</tbody>
</table>

The Federal Code of Regulations specify production-based, daily maximum and monthly average limits for regulated pollutants, in units of milligrams per kilogram (or pounds per
million pounds) of product for Outfalls 002 and 004. These limits are multiplied by daily CFAC production figures to obtain an amount, in units of kilograms per day, for each regulated pollutant that can be legally discharged. The published daily maximum limit for each parameter is multiplied by a CFAC production figure of pounds of product produced per day to yield a limit in pounds (or Kg) of pollutant per day. Analytical results of discharge monitoring, reported in units of mg/L are multiplied by daily flow volume to obtain the daily mass of a pollutant discharged.

3. Table 3. Discharge point 005 (Sewage treatment plant).

<table>
<thead>
<tr>
<th>Effluent Characteristics</th>
<th>30-day Average</th>
<th>7-day Average</th>
<th>Rational</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD (mg/L)</td>
<td>30.0</td>
<td>45.0</td>
<td>National Secondary Standards (40 CFR 133.102)</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>30.0</td>
<td>45.0</td>
<td></td>
</tr>
</tbody>
</table>

The pH of the discharge from Outfall 005 shall not be less than 6.0 or greater than 9.0.

4. Outfall 006 is affected ground water flowing beneath the plant site. The local ground water contains F and CN in excess of human health standards of 4.0 mg/L F and 0.20 mg/L CN. The principal source of the ground water F is probably the former sludge pond located north of the plant. The principal source of the ground water CN is a former solid waste landfill located north of the former fluoride sludge pond. The chronic aquatic life standard for CN is periodically exceeded in the river. CFAC has applied to the Department for a ground water mixing zone for F and CN and a surface water mixing zone for CN. There are no specific limits placed on Outfall 006 because the concentrations of F and CN in ground water cannot be controlled by current plant operations. A synthetic cap was placed on the closed landfill in 1994 to prevent percolation of precipitation through its contents and into the underlying ground water. The standards for F and CN that have been exceeded in Outfall 006 are due principally to the effects of past waste disposal practices rather than effects of the other outfalls identified in the permit.

Outfalls 002 through 005 report to percolation ponds prior to their discharge to ground water. The seepage discharges from the ponds are diluted by ground water flow that ultimately reaches the Flathead River. CFAC has estimated the rate of ground water flow to the river at 270,000 gallons per day. The seven-day, 10-year low flow for the Flathead River at Columbia Falls (USGS Station Number 12363000) is approximately 700 million gallons per day, approximately 2,600 times the daily volume of the ground water discharge. The distribution of CN concentrations in the backwater area of the river shows that mixing of the groundwater with the flow of the river is not instantaneous. However, the monitoring record at CFAC does not confirm that standards for parameters other than F and CN can reasonably be expected to be exceeded.

No positive detections for benzo(a)pyrene (BAP) have occurred in ground water down-gradient of the ponds receiving Outfall 002. Filtered samples from Outfall 002 does not
contain detectable concentrations of BAP; and BAP has never been detected in samples from the river. The Department concludes, therefore, that there is no reasonable potential for a level of BAP in excess of the 0.2 part per billion (ppb) human health standard to occur in either ground water or the river as a result of the CFAC discharge.

Antimony, a regulated parameter for a primary aluminum smelter, has not been detected in Outfalls 002 and 004. Antimony has never been detected in samples from the river. There is no reasonable potential for the human health standard of 6.0 ppb antimony to be exceeded in the river due to the discharge.

A mean annual maximum nickel concentration of 0.01 mg/L was measured in Outfalls 002 and 004. Again, the large dilution volume provided by the other outfalls, ground water and surface water precludes the possibility of a nickel concentration in the river exceeding the 0.160 mg/L chronic aquatic life standard.

A mean annual maximum fluoride concentrations measured in Outfalls 002 and 004 were 0.48 and 1.29 mg/L respectively. Since none of the annual maxima exceeded the human health standard of 4.0 mg/L, there is no reasonable potential for the F standard to be exceeded in the river as a result of the discharges. Ground water F concentrations ranged from 85.7 mg/L in monitoring well W11 (TW-17) near the former F sludge pond to 1.13 mg/L in production well W01 (PW-7) near the Flathead River. The large reduction in ground water F across the plant property illustrates the available dilution and attenuation capacities.

The mean annual maximum aluminum concentrations measured in Outfalls 002 and 004 were 0.05 and 1.26 mg/L respectively. The applicable chronic aquatic life standard for aluminum is 0.087 mg/L. River samples contained an Al concentration of 0.016 mg/L both above and below the south percolation ponds receiving Outfall 004. The large volume available for dilution prevents an aluminum concentration in the river that exceeds the chronic aquatic life standard.

C. Self Monitoring Requirements

1. Table 4. Outfall 002.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (gpd)</td>
<td>Monthly</td>
<td>Continuous</td>
</tr>
<tr>
<td>Antimony (mg/L)</td>
<td>Annually</td>
<td>Composite</td>
</tr>
<tr>
<td>Aluminum (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
</tbody>
</table>

7
2. Table 5. Outfall 004.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (gpd)</td>
<td>Monthly</td>
<td>Continuous</td>
</tr>
<tr>
<td>Benzo(a)pyrene (mg/L)</td>
<td>Annually</td>
<td>Composite</td>
</tr>
<tr>
<td>Antimony (mg/L)</td>
<td>Annually</td>
<td>Composite</td>
</tr>
<tr>
<td>Aluminum (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride (mg/L)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
</tbody>
</table>

3. Table 6. Outfall 005.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (gpd)</td>
<td>Monthly</td>
<td>Continuous</td>
</tr>
<tr>
<td>BOD (mg/L)</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH (Standard Units)</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>TSS (mg/L)</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
</tbody>
</table>

4. Table 7. Monitoring points RIV-1, RIV-2 and RIV-M.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature (°F)</td>
<td>Semi-annually</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>pH (Standard Units)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
</tbody>
</table>
5. Table 8. Monitoring points W00 through W11.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static Water Level (feet)</td>
<td>Semi-annually</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Specific Conductance (µmhos/cm)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>pH (Standard Units)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
</tbody>
</table>

6. Table 9. Metal parameters for monitoring point W02.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel (mg/L)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Analysis for constituents in samples of the discharges and ground water samples shall be for dissolved concentrations after filtration through a 0.45 micron membrane filter. Aluminum analysis of samples from the discharges, ground water and surface water monitoring points is for dissolved concentrations per Department Circular WQB-7. The requirement for analysis for dissolved concentrations assumes that sedimentation in the north and south percolation ponds and attenuation in the aquifer materials removes pollutants absorbed to particulates prior to their discharge to the receiving ground water.

Monthly monitoring of Outfalls 002, 004 and 005 is deemed sufficient to detect non-compliance given the month-to-month variability of past analytical results. Antimony has not been detected in past monitoring of Outfalls 002 and 004. Therefore only annual monitoring is required in this permit. Benzo(a)pyrene has not been detected in past monitoring of Outfall 004 and so monitoring is required only annually. Composite sampling of the discharge is required to account for variability that may occur within any 24 hours. Semi-annual ground water sampling is deemed sufficient to characterize Outfall 006 and to detect long-term trends in surface and ground water bodies not subject to short-term variations in plant process wastewaters. The net credit allowed for Outfalls 002 and 004 is calculated by subtracting the ambient concentrations of aluminum, fluoride, antimony and nickel measured at monitoring point W02 from the corresponding concentrations in the discharges. The semi-annual results from W02 will be used to adjust the discharge values obtained during the following six monthly monitoring events for the outfalls. The stable quality of
ambient ground water is the justification for semi-annual sampling of W02.

The “totalizing” flow recorder on Outfall 005 gives figures for cumulative discharge volume that are divided by the number of days between readings to obtain discharge values in gallons per day.

C. PAST DISCHARGE DATA

Analysis of the discharge for regulated parameters has occurred since the first issuance of an MPDES permit to CFAC in 1994. The monitoring record is on file in the Permit Compliance System database. The large discharge volume has caused aluminum and nickel load limits to be exceeded although aluminum and nickel were undetectable in the discharge when the method detection limit was reported as the effluent concentration. Monitoring for total recoverable aluminum and nickel concentrations and benzo(a)pyrene analysis of unfiltered samples has caused limit violations for Outfalls 002 and 004.

The quality of Outfall 006 has been documented by information contained in the permit renewal application, ground water monitoring under the previous Montana Ground Water Pollution Control System (MGWPCS) and MPDES permits and periodic inspection sampling of ground water seeps discharging to surface water along the north bank of the Flathead River. The human health standard for CN is 0.20 mg/L. The most recently measured CN concentrations in the wells within the proposed mixing zone ranged from 31.3 mg/L adjacent to the closed west landfill to 0.055 mg/L in a plant production well near the river. This range reflects the CN concentration gradient within the proposed source-specific ground water mixing zone.

Surface water monitoring has occurred at two monitoring points located upstream (RIV-1) and downstream (RIV-2) of the south percolation ponds. Both the acute (0.022 mg/L) and chronic (0.0052 mg/L) aquatic life standards for CN were exceeded during 1996 and 1997 at monitoring point RIV-2 downstream of the south percolation ponds. No other aquatic life standards have been exceeded for the parameters limited in the permit. There is no known aggregate toxic effect of CN with any other constituents in the discharge entering surface water and, therefore, whole effluent toxicity testing is not required. The south percolation ponds are constructed on a large gravel deposit adjacent to the Flathead River channel. Monitoring point RIV-2 is located along the bank of a backwater channel immediately downstream of the gravel bar on which the ponds are built. At low river flows the backwater channel is more isolated from the main channel than at high flows. Ground water discharges continuously to the backwater channel as discrete riverbank seeps as well as more diffuse flow. Dilution of the ground water discharge containing elevated CN is minimal at low river flow and CN standards have been exceeded in the backwater channel. At high river flows the backwater channel receives flow from the main channel, the riverbank seeps are at times below the water line and CN cannot be detected at RIV-2. The past CN detections in excess of surface water standards has prompted CFAC to apply to the Department for a standard surface water mixing zone.
D. WASTEWATER TREATMENT AND MIXING

Wastewater Outfalls 002, 004 and 005 report to percolation ponds where suspended solids are removed by settling. Primary treatment of the discharges is justification for basing effluent limits on dissolved concentrations. The discharge of Outfall 004 to the south percolation ponds also reduces the temperature of the ingot cooling water prior to its seepage into surface water. Outfall 006 probably receives some treatment due to CN attenuation in the aquifer medium in addition to dilution between the closed west landfill and the Flathead River.

CFAC has applied to the Department for a standard surface water mixing zone and a source-specific ground water mixing zone. The areal extent of the mixing zones is illustrated in Exhibits 1 and 2. The ground water mixing zone is for the parameters CN and F. The surface water mixing zone is for CN only. Both of these parameters are introduced into ground water from past waste disposal practices. Spent carbon potliner containing CN and F was routinely disposed of in a solid waste landfill until the landfill was closed in 1981. The percolation of precipitation through the landfill has leached CN and F into the underlying ground water. CFAC also operated a fluoride sludge pond located south and adjacent to the closed west landfill. The former sludge pond is also a probable source of F to ground water.

A synthetic cap was installed over the regraded surface of the closed west landfill in 1994 to minimize the percolation of precipitation through the buried spent pot liner. Monitoring wells have been installed along the flow path from the landfill to the Flathead River.

The mixing zone application is reviewed against general considerations and specific requirements contained in the administrative rules governing mixing zones. The Tables 1 through 4 identify the applicable rule, summarize the rule requirement and state the Department's finding regarding the mixing zones applied for by CFAC.
<table>
<thead>
<tr>
<th>Applicable Regulation</th>
<th>Requirement</th>
<th>Department Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARM 17.30.505 (1)</td>
<td>Determine applicability, size, configuration and location</td>
<td>The size and locations are illustrated in Exhibits 1 and 2 for CN and F in ground water and CN in surface water.</td>
</tr>
<tr>
<td>ARM 17.30.505 (1) (a)</td>
<td>Determine applicable parameters</td>
<td>Ground Water: CN and F Surface water: CN</td>
</tr>
<tr>
<td>ARM 17.30.505 (1) (b)</td>
<td>Non-significant for new or increased sources</td>
<td>The discharges are not new or increased sources.</td>
</tr>
<tr>
<td>ARM 17.30.505 (1) (c)</td>
<td>Mixing zones for existing sources designated in permit renewal if no uses affected.</td>
<td>The discharges are an existing source and the mixing zones are being designated in the renewal of MPDES permit MT-030066.</td>
</tr>
<tr>
<td>ARM 17.30.505 (1)(d)</td>
<td>Cleaner than natural unnecessary</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ARM 17.30.505 (1) (e)</td>
<td>Concentrations in the mixing zone will be calculated unless monitoring justified by potential harm to uses.</td>
<td>Ground and surface water mixing zone concentrations are measured at established monitoring points within each mixing zone. Monitoring in ground water is needed to track the effectiveness of the landfill cap in reducing ground water CN. Surface water mixing zone monitoring is needed to ensure compliance at its down-gradient edge and track the concentrations in the backwater channel during low flows.</td>
</tr>
<tr>
<td>ARM 17.30.505 (1) (f)</td>
<td>Department may impose mixing zone conditions as necessary</td>
<td>The Department has imposed monitoring in both surface and ground water mixing zones.</td>
</tr>
<tr>
<td>ARM 17.30.505 (2)</td>
<td>Limitations will be modified and apply at end-of-pipe, if uses threatened or impaired</td>
<td>A water quality assessment completed by CFAC does not identify threatened or impaired uses.</td>
</tr>
<tr>
<td>Applicable Regulation</td>
<td>Requirement</td>
<td>Department Finding</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>ARM 17.30.506 (1)</td>
<td>Applicant must provide information as requested</td>
<td>Section 3.10 of the application.</td>
</tr>
<tr>
<td>ARM 17.30.506 (2)(a)</td>
<td>Biologically important areas</td>
<td>The surface mixing zone does not include a nursery or spawning area.</td>
</tr>
<tr>
<td>ARM 17.30.506 (2)(b)</td>
<td>Presence of a drinking water well</td>
<td>The mixing zone contains no drinking supplies.</td>
</tr>
<tr>
<td>ARM 17.30.506 (2)(c)</td>
<td>Attraction to the plume</td>
<td>No evidence of attraction to CN concentration in the backwater channel.</td>
</tr>
<tr>
<td>ARM 17.30.506 (2)(d)</td>
<td>Toxicity/Persistence of pollutant</td>
<td>CN is not persistent in surface water due to photodegradation and volatilization; the bioaccumulation factor for CN is 1.</td>
</tr>
<tr>
<td>ARM 17.30.506 (2)(e)</td>
<td>Inhibit migration</td>
<td>The mixing zone would have no effect on fish migration in the Flathead River.</td>
</tr>
<tr>
<td>ARM 17.30.506 (2)(f)</td>
<td>Cumulative effects of multiple mixing zones</td>
<td>There are no other mixing zones in the area.</td>
</tr>
<tr>
<td>ARM 17.30.506 (2)(g)</td>
<td>Movement of pollutant in aquifer not accurately predicted</td>
<td>The movement and CN concentration gradient can be inferred from the ground water monitoring record.</td>
</tr>
<tr>
<td>ARM 17.30.506 (2)(h)</td>
<td>Mixing zone may extend to surface water and surface water mixing zone restrictions apply</td>
<td>Surface water restrictions apply to the surface water portion of mixing zone.</td>
</tr>
<tr>
<td>ARM 17.30.506 (2)(i)</td>
<td>Discharges to intermittent/ephemeral streams during no flow must meet “natural conditions”</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
Table 13. Specific Restrictions for Surface Water Mixing Zones (ARM 17.30.507).

<table>
<thead>
<tr>
<th>Applicable Regulation</th>
<th>Requirement</th>
<th>Department Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARM 17.30.507 (1) (b)</td>
<td>Acute aquatic life standards not exceeded within any portion of mixing zone, unless the department specifically finds that allowing minimal initial mixing will not threaten or impair existing beneficial uses.</td>
<td>Acute standards are exceeded. Propagation of aquatic life is the existing beneficial use conceivably affected by the CN concentration. The portion of the Flathead River in question is a fish migration route only. The area exceeding the acute CN standard extends for a length of 150 feet and a width of several feet depending on flow. This limited extent will not inhibit fish migration.</td>
</tr>
<tr>
<td>ARM 17.30.507 (2)</td>
<td>Discharge to wetlands not granted a mixing zone</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>ARM 17.30.507 (3)</td>
<td>Discharge to surface water first passing through ground water; surface water mixing zone begins at the point of the most upstream point of discharge to surface water; no standard mixing zone for discharges extending downstream for a distance greater than 10 stream widths.</td>
<td>Surface mixing zone begins where discharge from ground water first results in an exceedence of standards in surface water near monitoring point RIV-2; CN has not been detected at the proposed down-gradient mixing zone edge that is less than 10 river widths at the 7Q10 flow.</td>
</tr>
</tbody>
</table>
Table 14. Restrictions for Source-Specific Mixing Zones (ARM 17.30.518).

<table>
<thead>
<tr>
<th>Applicable Regulation</th>
<th>Requirement</th>
<th>Department Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARM 17.30.518 (2)</td>
<td>Granted only after compliance with 506, 507 and 75-5-303 MCA.</td>
<td>The mixing zone application complies with statutory and regulatory requirements.</td>
</tr>
<tr>
<td>ARM 17.30.518 (3)</td>
<td>Lake restrictions</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>ARM 17.30.518 (4) and ARM 17.30.518 (5)</td>
<td>75-5-301 MCA compliance, 506 directed discussion Quantity, toxicity, persistence Flow rate and volume Mixing zone pollutant concentration Boundaries Use impacts Monitoring Contingency plan</td>
<td>Discussion provided in Sections 3.0 and 2.0 of the mixing zone application.</td>
</tr>
<tr>
<td>ARM 17.30.518 (4) (j) and ARM 17.30.518 (5) (l)</td>
<td>Smallest practicable size and minimum effect on uses discussion</td>
<td>The extent of each mixing zone encompasses only areas where CN or F standards are exceeded in ground water. The area of the surface water mixing zone is less than that allowed by ARM 17.30.507 (3) and extends to the first safely accessible sampling point.</td>
</tr>
</tbody>
</table>

E. WATER QUALITY STANDARDS DISCUSSION

Ground water beneath the CFAC plant property is Class I, as assessed by the specific conductance measured in samples from monitoring wells. The ground water within the mixing zone does not, however, support use as public or private drinking water supplies because of CN and F concentrations. Treatment for CN and F removal would be required to support culinary and food processing uses. Uses for irrigation, livestock watering and commercial and industrial are supported with treatment. The discharges from the CFAC facility are not a new or increased source as defined by ARM 17.30.702 (16) and the non-degradation standard does not apply. Secondary and human health standards apply to concentrations of dissolved substances in Class I ground waters.

The area of the aquifer in which standards are exceeded has been delineated through ground water sampling and analysis. The aquifer is unconfined and discharges to surface water in the Flathead River.
The Flathead River in the area of the CFAC plant is classified as B-1 (ARM 17.30.608 (1)). Waters classified as B-1 are suitable for drinking, culinary and food processing purposes after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; agricultural and industrial water supply. The Flathead River reach adjacent to the CFAC property is not listed in Montana’s “303d list” as a waterbody in need of development of a Total Maximum Daily Load (TMDL).

The acute aquatic life standard for CN (0.0052 mg/L) is occasionally exceeded in surface water during low flow in the Flathead River. The affected area of the river is restricted to approximately 1500 feet along the north bank adjacent to CFAC property that receives the discharge from contaminated ground water seeps.

F. INFORMATION SOURCES

While developing the effluent limitations, monitoring requirements for the draft permit, the following information sources were used and hereby referenced:

(1) MPDES Permit No. MT 0030066, effective date of May 1, 1994, expiration date of February 28, 1999, and the accompanying Statement of Basis.

(2) Consolidated MPDES Permit Application Form 1 and Short Form 2C, dated July 31, 1998.

(3) Discharge Monitoring Reports to June, 1998.


(6) 40 CFR Part 133 - Secondary Treatment Regulation

(7) 40 CFR Part 136 - Guidelines for Establishing Test Procedures for the Analysis of Pollutants

(8) 40 CFR Part 503 - Standards for the Use and Disposal of Sewage Sludge

(9) ARM Title 17, Chapter 30, Sub-chapter 5 - Mixing Zones in Surface and Ground Water

(10) ARM Title 17, Chapter 30, Sub-chapter 6 - Surface Water Quality Standards

(11) ARM Title 17, Chapter 30, Sub-chapter 7 - Nondegradation of Water Quality

(12) ARM Title 17, Chapter 30, Sub-chapter 13 - Montana Pollutant Discharge Elimination System (MPDES) Standards
(13) ARM Title 17, Chapter 30, Sub-chapter 2 - Permit Fee Rules


(16) Department MPDES permit files related to the Columbia Falls Aluminum Company, MT-0030066.


Prepared by: Timothy Byron                  Date: 11-12-98
SCALE 1" = 1200'

PROPOSED MIXING ZONE BOUNDARIES
GROUNDWATER MONITORING LOCATIONS
COLUMBIA FALLS ALUMINUM COMPANY

EXHIBIT 1
COLUMBIA FALLS ALUMINUM COMPANY

SURFACE WATER MONITORING LOCATIONS & PROPOSED MIXING ZONE BOUNDARIES

EXHIBIT 2

SCALE 1" = 1200'

MATCH LINE

SURFACE WATER MONITORING ZONE BOUNDARY
DEPARTMENT OF ENVIRONMENTAL QUALITY  
Metcalf Building, 1520 East Sixth Ave.  
P.O. Box 200901  
Helena, Montana 59620-0901  
(406)444-4323  

ENVIRONMENTAL ASSESSMENT (EA)  

Division/Bureau:  
Permitting and Compliance Division/ Water Protection Bureau.  

Project or Application:  
Columbia Falls Aluminum Company, Montana Pollutant Discharge Elimination System (MPDES) permit reissuance.  

Description of Project:  
The facility is an aluminum reduction plant that produces aluminum ingots from aluminum oxide ore. The regulated discharges having effluent limits consist of paste plant briquette cooling water, emissions scrubber water, cooling water from direct chill casting and sewage treatment plant effluent. These discharges, along with discharges of cooling water, air compressor and conditioner condensates, boiler effluent, wash water and stormwater, report to a set of two percolation ponds located north and northwest of the plant and a set of three percolation ponds located south of the plant near the Flathead River. The ground water beneath the plant affected by current and past waste disposal is also identified as an outfall in the permit. In addition to pond seepage, the discharges to ground water include solid waste landfill leachate and stormwater. The ground water is hydrologically connected to surface water in the Flathead River. The permit identifies a source-specific ground water mixing zones for fluoride (F) and cyanide (CN) and a standard surface water mixing zone for CN. The permit contains ground water and surface water monitoring requirements.  

The two north percolation ponds consist of an eastern solids settling pond and an infiltration pond located 1,500 feet to the west (west pond). The solids settling pond receives a mixed stream of paste plant briquette cooling water at 540,000 gallons per day (gpd) and scrubber water from wet air emissions control at 51,840 gpd. The mixed discharge enters the settling pond at its southeast corner. A discharge of compressor cooling water enters the southeast corner of the settling pond at a rate of 1.8 million gpd. The mixed stream of paste plant discharges contains semi-volatile organic compounds (Semi-VOC) as by-products of carbon paste and briquette manufacture. The total process water discharge is 2,391,840 gpd. This rate is increased to an average discharge of 2.5 million gpd by plant stormwater runoff routed to the ponds. The total discharge increases with storm intensity. Most of the percolation to ground water occurs through the bottom of the northwestern pond.
A series of three south percolation ponds receive ingot cooling water, sewage treatment plant effluent and stormwater for a total of from 1.5 to 2.0 million gpd. The sewage treatment effluent discharge averages 100,000 gpd. Self-monitoring of the Flathead River is required upstream and downstream of the ponds.

Columbia Falls Aluminum Company (CFAC) operated a solid waste landfill for the disposal of spent carbon cathode material during the late 1970's. This landfill was closed in 1981. Ground water monitoring within CFAC property detected elevated levels of CN and F that were traced to the closed landfill. Under the conditions of a previous Montana Pollutant Discharge Elimination System (MPDES) permit CFAC recontoured the surface of the landfill and synthetically capped and revegetated the closed landfill to reduce precipitation infiltration and contaminant leaching. Ground water affected by the landfill exceeds human health standards for CN and F. The ground water discharges to the Flathead River along a two-mile reach adjacent to CFAC property. A portion of the ground water discharge to surface water is in the form of discrete seeps along the riverbank. The seep discharges cause surface water CN standards to be exceeded. The permit delineates a source-specific ground water mixing zone for CN and F and a standard surface water mixing zones for CN. They are illustrated in Exhibits 1 and 2 of the permit.

The permit requires ambient ground water monitoring and monitoring adjacent to and down gradient of the landfill to verify the effectiveness of the landfill cap in reducing the leachate volume and to track the reduction in ground water CN and F concentrations from the landfill to the Flathead River. The permit also requires ambient surface water monitoring and surface water monitoring in and at the down-gradient edge of the surface water mixing zone.

**Purpose of Proposal:**

The purpose of the proposal is to reissue the permit that applies effluent limitations on the waste water discharges from CFAC.

### POTENTIAL IMPACT ON PHYSICAL ENVIRONMENT

<table>
<thead>
<tr>
<th>Major</th>
<th>Moderate</th>
<th>Minor</th>
<th>None</th>
<th>Unknown</th>
<th>Attached Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Terrestrial and aquatic life and habits</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Water quality, quantity, and distribution</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Geology and soil quality, stability, and moisture</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4. Vegetation cover, quantity, and quality</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Aesthetics</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>6. Air quality</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Unique endangered, fragile, or limited environmental resource</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Demands on environmental resource of water, air, and energy</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Historical and archaeological sites</td>
<td>X</td>
<td></td>
<td></td>
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</tbody>
</table>

**Cumulative and Secondary Impacts:** There are no identifiable secondary or cumulative impacts
POTENTIAL IMPACTS ON HUMAN ENVIRONMENT

<table>
<thead>
<tr>
<th>Major</th>
<th>Moderate</th>
<th>Minor</th>
<th>None</th>
<th>Unknown</th>
<th>Attached Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<tr>
<td>2.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cumulative and secondary impacts: No secondary or cumulative impacts were identified.

Description and analysis of reasonable alternatives whenever alternatives are reasonably available and prudent to consider: The discharge alternative that was considered was the complete elimination of the north percolation ponds and the combination of all three discharges to the south percolation ponds. This alternative was abandoned due to costs.

A listing and appropriate evaluation of mitigation, stipulations and other controls enforceable by the agency or another government agency: The effluent limitations and monitoring schedule for the discharges are as given in the following tables. The limitations and monitoring requirements apply to the outfalls, surface water monitoring points on the Flathead River and ground water monitoring wells.

Effluent Limitations

1. Discharge point 002 (Main briquette quenching belt).

<table>
<thead>
<tr>
<th>Effluent Characteristics</th>
<th>Net Daily Maximum (Kg/day)</th>
<th>Net Monthly Average (Kg/day)</th>
<th>Rational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene</td>
<td>0.003</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>Antimony</td>
<td>0.189</td>
<td>0.066</td>
<td>BAT</td>
</tr>
<tr>
<td>Nickel</td>
<td>0.054</td>
<td>0.028</td>
<td>(40 CFR 421.23 (b))</td>
</tr>
<tr>
<td>Aluminum</td>
<td>0.60</td>
<td>0.207</td>
<td></td>
</tr>
<tr>
<td>Fluoride</td>
<td>5.845</td>
<td>2.016</td>
<td></td>
</tr>
</tbody>
</table>
2. Discharge Point 004 (Direct chill casting).

<table>
<thead>
<tr>
<th>Effluent Characteristics</th>
<th>Net Daily Maximum (Kg/day)</th>
<th>Net Mean Maximum (Kg/day)</th>
<th>Rational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene</td>
<td>No Discharge</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Antimony</td>
<td>1.579</td>
<td>0.530</td>
<td>BAT (40 CFR 421.23 (q))</td>
</tr>
<tr>
<td>Nickel</td>
<td>0.450</td>
<td>0.228</td>
<td></td>
</tr>
<tr>
<td>Aluminum</td>
<td>5.0</td>
<td>1.671</td>
<td></td>
</tr>
<tr>
<td>Fluoride</td>
<td>48.696</td>
<td>16.282</td>
<td></td>
</tr>
</tbody>
</table>

3. Discharge point 005 (Sewage treatment plant).

<table>
<thead>
<tr>
<th>Effluent Characteristics</th>
<th>30-day Average</th>
<th>7-day Average</th>
<th>Rational</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD (mg/l)</td>
<td>30.0</td>
<td>45.0</td>
<td>National Secondary Standards</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)(mg/l)</td>
<td>30.0</td>
<td>45.0</td>
<td>(40 CFR 133.102)</td>
</tr>
</tbody>
</table>

The pH of the discharge from Outfall 005 shall not be less that 6.0 or greater than 9.0.

Self Monitoring Requirements

1. Discharge point 002.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (gpd)</td>
<td>Monthly</td>
<td>Continuous</td>
</tr>
<tr>
<td>Antimony (mg/l)</td>
<td>Annually</td>
<td>Composite</td>
</tr>
<tr>
<td>Aluminum (mg/l)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel (mg/l)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride (mg/l)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene (mg/l)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
</tbody>
</table>
2. Discharge point 004.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (gpd)</td>
<td>Monthly</td>
<td>Continuous</td>
</tr>
<tr>
<td>Benzo(a)pyrene (mg/l)</td>
<td>Annually</td>
<td>Composite</td>
</tr>
<tr>
<td>Antimony (mg/l)</td>
<td>Annually</td>
<td>Composite</td>
</tr>
<tr>
<td>Aluminum (mg/l)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel (mg/l)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride (mg/l)</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
</tbody>
</table>

3. Discharge point 005.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (gpd)</td>
<td>Monthly</td>
<td>Continuous</td>
</tr>
<tr>
<td>BOD (mg/l)</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH (Standard Units)</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>TSS (mg/l)</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
</tbody>
</table>

4. Monitoring points RIV-1, RIV-2 and RIV-M.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature (°F)</td>
<td>Semi-annually</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum (mg/l)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>pH (Standard Units)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide (mg/l)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride (mg/l)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
</tbody>
</table>
5. Monitoring points W00 through W11.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static Water Level</td>
<td>Semi-annually</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>(feet)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Conductance</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>(μmhos/cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH (Standard Units)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide (mg/l)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride (mg/l)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
</tbody>
</table>

6. Metal parameters for monitoring point W02.

<table>
<thead>
<tr>
<th>Parameter/Units</th>
<th>Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimony (mg/l)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Aluminum (mg/l)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel (mg/l)</td>
<td>Semi-annually</td>
<td>Grab</td>
</tr>
</tbody>
</table>

**Recommendation:** The recommendation is to reissue the MPDES permit to CFAC with the effluent limitations and monitoring requirements described above.

**If an EIS is needed, and if appropriate, explain the reasons for preparing the EA:** An environmental impact statement is not required to identify the affect of the proposed discharge on the environment and select appropriate permit conditions.

**If an EIS is not required, explain why the EA is an appropriate level of analysis:** An environmental assessment is an appropriate level of analysis because the proposed discharge can be effectively controlled by applying the effluent limitations based on the best available technology and maintaining an effective cap over the closed west landfill. The effluent limitations combined with monitoring requirements would improve ground water quality over time and prevent increases in detectable quantities of CN and F in the surface water quality of the Flathead River. The permit modification would not, therefore, qualify as a major state action affecting the environment.

**EA prepared by:** Tim Byron

**Date:** 11-12-98
EXHIBIT 5
Columbia Falls Aluminum Company
2000 Aluminum Drive
Columbia Falls, MT 59912
(406) 892-8211
(406) 892-8201 fax

July 30, 2003

James M. Castro, Ph.D.
Water Quality Specialist
Permitting and Compliance Division
Montana Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620

Re: MPDES Permit Renewal Application

Dear Mr. Castro:

Enclosed is CFAC’s application for renewal of MPDES Permit MT-0030066 and a check in the amount of $10,000 for the permitting fee. Completed Form 1 and Form 2C are included in the application package, along with supporting information regarding the quantity and quality of discharge from the outfalls, and water quality within the surface water and groundwater mixing zones granted in the existing MPDES Permit. In applying for renewal of this MPDES Permit, CFAC is also requesting continued authorization for the surface and groundwater mixing zones. Also, incorporated by reference are all materials contained in MDEQ’s CFAC files.

CFAC requests in the renewed permit that inlet credits be allowed for D002 and D004 based on water quality as it enters the paste plant (for D002) and the casting plant (D004). CFAC proposes to collect monthly inlet water samples at these two locations from drinking water fountains. If MDEQ is in agreement with this, CFAC will begin sampling and analyzing drinking fountain water samples, on a monthly basis, from each location. The data will be submitted to MDEQ for use in preparing the final MPDES permit.

CFAC requests in the renewed permit that the effluent limitations be based on anticipated return to historic production levels at the facility. Historic and current production capacity at CFAC consists of five potlines producing a little more than 1 million pounds of aluminum per day (based on 1993 - 1998 actual production data). During the most recent five-year permit cycle, production has varied from full capacity (five potlines operating) to complete shutdown (no potlines operating). These recent production changes are the result of fluctuating aluminum prices and greatly increased electrical costs. Currently, CFAC operates 1 potline. However, it is anticipated that production will increase in the future as the aluminum market strengthens and electrical costs stabilize. A proposed effluent limitation matrix based on various levels of production is presented in Attachment C to the application.

Based on a conversation between you and Scott Mason of Land & Water Consulting, CFAC is sampling D005 (sewage treatment plant) for analysis of additional chemical parameters (metals and organic chemicals). This information will be provided to you as soon as it is available.

EXHIBIT 5
We appreciate your assistance as we move forward to renew our MPDES permit. Please call me if you have questions regarding the attached.

Sincerely,

Stephen Knight
Vice President and General Manager

enclosures

cc: Cathy Laughner, Esq
Scott Mason – Land & Water Consulting
Steve Wright
EXHIBIT 6
October 28, 2003

Steve D. Wright, P.E.
Environmental and Laboratory Manager
Columbia Falls Aluminum Company
2000 Aluminum Drive
Columbia Falls, MT 59912

Re: Application for Renewal, Montana Pollution Discharge Elimination System (MPDES)
Permit No. MT0030066

Dear Mr. Wright:

I have received the missing analytical data for Outfall 005 required for EPA Form 2C, Part V.
CFAC's renewal application for the above permit is now substantially complete. The Depart-
ment will be evaluating the application in the coming weeks.

If, during the process of drafting the permit, we need any supplemental information, we will
contact you. I am the permit writer assigned to work on the permit renewal. If you have any
questions, please do not hesitate to call me.

Sincerely,

James M. Castro, Ph.D.
Water Quality Specialist
Permitting and Compliance Division
Water Protection Bureau
(406) 444-5344 or e-mail at jcastro@state.mt.us

cc: Scott Mason
 Land and Water Consulting, Inc.
 P.O. Box 8027
 Kalispell, MT 59904
May 2, 2013

Steven Wright  
Environmental & Laboratory Manager  
Columbia Falls Aluminum Company  
2000 Aluminum Drive  
Columbia Falls, MT  59912

RE: Montana Pollutant Discharge Elimination System (MPDES) Permit Renewal  
Request for Updated Information for Columbia Falls Aluminum Company, MPDES  
Permit # MT0030066

Dear Mr. Wright:

Thank you for meeting with me and providing a tour of the Columbia Falls Aluminum Company (CFAC) facility on Tuesday, April 23rd, 2013. It was very informative, and will be valuable to me during the MPDES permit renewal process that is underway.

As you know, the CFAC renewal application was submitted on August 4, 2003, which the Department of Environmental Quality (DEQ) deemed substantially complete on October 28, 2003. CFAC’s MPDES permit has remained administratively extended since the previous permit’s expiration date of January 31, 2004.

DEQ has been catching up on a permit backlog and I have begun work to renew the CFAC permit. However, the data provided in the renewal application is now 10 years old. As we discussed during my visit, although CFAC has not had any production since October 2009, I am requesting that you update DEQ Form 1 and EPA Form 2C with the critical information to the best of your ability, including the following:

1. **Outfall Identification.** As defined under Administrative Rules of Montana (ARM) 17.30.201(1)(k) "outfall" means a disposal system through which effluent or waste leaves the facility or site. My review indicates that three of the four outfalls included in the 2003 renewal application (002, 004, and 005) should actually be identified as internal outfalls, or internal monitoring points for technology-based effluent limits (TBELs), since they combine with other non-regulated wastewater for settling and infiltration in the north and south ponds prior to leaving the facility. I propose to maintain the TBELs and associated monitoring for these points as internal monitoring points with this renewal.

After reviewing the documentation and visiting the site, I believe that the north ponds and south ponds systems should be identified as the primary outfalls (Outfall 007 and Outfall 008, respectively). These areas allow the effluent to infiltrate into the ground water, which is regulated as state water, before discharging into the Flathead River. Based on the 1998 mixing zone study and your 2003 request to maintain the mixing
zones, water quality-based effluent limits will be developed at the two pond areas, to be protective of the Flathead River.

The remaining issue is the designation of any additional discharges that should be considered outfalls. Outfall 006 is not a regulated outfall as it is currently described and needs to be reconfigured. DEQ issues MPDES permits for ‘point sources discharging pollutants into state waters,’ as per ARM 17.30.1301. Relevant definitions under ARM 17.30.1304 include:

(22) "Discharge of a pollutant" and "discharge of pollutants" each means any addition of any pollutant or combination of pollutants to state waters from any point source. This definition includes additions of pollutants into water of the state from: surface runoff which is collected or channelled by man; discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other person which do not lead to a treatment works.

(51) "Point source” means any discernible, confined, or discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged.

(52) "Pollutant" means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural wastes discharged into water. The terms "sewage," "industrial waste," and "other wastes" as defined in 75-5-103, MCA, are interpreted as having the same meaning as pollutant.

Since the ground water monitoring of wells proximate to the capped landfills at CFAC continue to show elevated cyanide and fluoride levels, CFAC may decide to request MPDES permit coverage of the landfill (it is CFAC’s responsibility to identify all outfalls). If so, you will need to identify monitoring location(s) for documenting on-going compliance with future WQBELs.

In the 2003 renewal application, CFAC indicated that boiler blow down and noncontact cooling water may discharge to ground water separately. There could also be storm water discharge associated with industrial activity. Please review the facility’s current configuration to identify all discharges to ground water that do not go through the north ponds or south ponds. After review, modify the permit application as appropriate, including identification of discrete outfalls.

2. **Average Flow.** Please consider the following in updating the average discharge flow estimates in Form 2C Part II.B:

- Include all average gallons per day contributions to the north pond and south pond, as indicated in the attached water balance (see Attachment #1). The average flows for 002, 004 and 005 will comprise part of this estimate. Please note that the water balance should include the maximum monthly average [highest flow rate (mgd) on a 30-day average basis] for the period of record.
Since water use varies depending upon production rates, including the average number of operational lines for the reported flows would be useful.

Outfall 005 is a package sewage treatment plant. As such, there should have been an average daily design flow for the unit, which is what we typically use to develop effluent limits from wastewater treatment plants. If the design flow is available, please include this figure along with the actual daily discharge.

3. Production estimates. Please consider the following in updating the production estimates provided in Form 2C Part III (to be used for the internal monitoring points 002 and 004):

- Form 2C requests a summary of the actual production for these industrial processes. Per ARM 17.30.1345(2)(b), the production used in developing limits is based on ‘a reasonable measure of actual production of the facility.’ DEQ tries to use the past three (3) to five (5) years of facility data to calculate the expected production rate that would apply during the term of the proposed permit; however, since CFAC has not had “normal” levels of production for four years, I propose to use the five years previous to the shutdown.

- Both the maximum daily and the highest monthly average production figures for the period of record are needed in order to develop maximum daily and maximum monthly TBELs.

- Please note the number of production lines that correspond with the above production data. DEQ is authorized to establish alternate permit limits per ARM 17.30.1345(3) and (4).

4. Effluent Characteristics. The previous permit required CFAC to monitor for and report the effluent quality as ‘net’ [except for benzo(a)pyrene] and ‘dissolved’ [metals]. However, Part V of Form 2C requests information on the actual effluent quality (not net) and total recoverable metals (not dissolved, other than aluminum).

Please review the effluent information previously submitted on Form 2C Part V and provide a correction or update for any parameter that has better data. It is not necessary to retype the entire form - either provide the corrections on the 2003 forms with red pen mark-up, or provide a table that summarizes the corrections. Please indicate the year(s) of any corrected data – if possible provide data since 2003.

Enclosed is an application packet, including DEQ Form 1 and EPA Form 2C, for you to fill out and return to the Water Protection Bureau at the following address:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena MT 59620-0901
Please refer Part IV of your permit for additional information on permit renewal requirements. The correct signature is an important part of the application. I am asking that you submit the updated renewal application information by \textbf{June 15, 2013}; if this is not enough time please provide a request for a reasonable deadline, in writing.

If you have questions or comments, you can reach me at (406) 444-3927 or by email at cweaver@mt.gov.

Sincerely,

Christine A. Weaver
Environmental Science Specialist
Water Protection Bureau

Enclosures: Attachment #1 – Rough Water Balance
DEQ Form 1 and EPA Form 2C
EXHIBIT 8
July 26, 2013

Christine Weaver
Environmental Science Specialist
Water Protection Bureau
Montana Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Re: MPDES Permit Renewal MT0030066
    Submittal of Revised Application

Dear Ms Weaver:

As you requested, enclosed is an updated MPDES renewal application for Columbia Falls Aluminum Company. Please contact me if questions arise.

Sincerely,

[Signature]
Steve Wright
Environmental Manager

cc: Doug Parker – Hydrometrics
    Scott Mason - Hydrometrics
LIST OF FIGURES

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FIGURE 2C-1. WATER FLOW LINE DRAWING OF SOURCES AND DISCHARGES .......................................................... IN FORM 2C

FIGURE 2C-2. OUTFALLS AND MIXING ZONE BOUNDARIES .................... IN FORM 2C

FIGURE 2E-1. WATER FLOW LINE DRAWING OF SOURCES AND DISCHARGES .......................................................... IN FORM 2C

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TABLE 2C-2. SURFACE WATER MONITORING DATA 2005 – 2012 ..................IN FORM 2C

TABLE 2C-3. OUTFALL 002, 004 AND 005 MONITORING DATA 2005–2009 ......................................................................................................................................IN FORM 2C

LIST OF ATTACHMENTS

FORM 1

FORM 2C

ATTACHMENT 2C-A. OUTFALL DESIGNATION AND LOCATION

ATTACHMENT 2C-B. LIST OF OUTFALL SOURCES AND TREATMENT

ATTACHMENT 2C-C. DESCRIPTION OF OUTFALL MONITORING DATA AND BASIS FOR FORM 2C ITEM V

ATTACHMENT 2C-D. MSDS - NALCO 2548

FORM 2E
MONTANA POLLUTANT DISCHARGE ELIMINATION
SYSTEM APLICATION FOR
RENEWAL OF PERMIT NO. MT-0030066
COLUMBIA FALLS ALUMINUM COMPANY

SUMMARY

Columbia Falls Aluminum Company (CFAC) has prepared updated information and a revised application for renewal of MPDES permit # MT-0030066 at the request of the Montana Department of Environmental Quality (DEQ). This application supplements the original application submitted in 1998 and a renewal application submitted by CFAC in 2003. The original permit was effective February 1, 1999. DEQ required that the original permit include discharge to groundwater connected to surface water and groundwater flowing through the plant site and receiving wastewater from percolation ponds, drywells landfills, outdoor vehicle wash water, headtank cleaning and overflow, well testing and maintenance, irrigation and dust control discharges. The current permit requires process water monitoring, groundwater monitoring and surface water monitoring of the groundwater discharge to the Flathead River (Outfall 006) within the mixing zone established by the permit. Outfalls 002 (briquette cooling water), 004 aluminum ingot contact cooling water, and 005 (sewage treatment plant) are monitored as are a number of groundwater wells in the plant site.

CFAC operates five Vertical Stud Soderberg potlines at the Columbia Falls plant. Each potline has 120 individual cells that produce aluminum by the Hall-Heroult process. Annual operating capacity is approximately 185,000 tons of Aluminum, based on an average current efficiency of 90.5%. The Hall-Heroult process consists of passing an electric current through aluminum oxide ore, or alumina (Al$_2$O$_3$), dissolved in molten cryolite. The reduction process
is accomplished in a Vertical Stud Soderberg style pot. Soderberg technology describes the type of consumable carbon anode used in the process. The cells or “pots” are housed in buildings called potrooms; two potrooms are connected electrically in series to form one potline. CFAC has 10 potrooms that comprise the five potlines.

Alumina is fed into a molten bath of cryolite, and heated to about 950°C. Through the electrochemical process, electricity passes from the anode to the cathode, causing the aluminum to be reduced. The aluminum metal sinks below the cryolite bath to form a molten aluminum “pad.” The evolved oxygen atoms bond with the carbon in the anode of the cell to form carbon monoxide and carbon dioxide. Other emissions from the process include both particulate fluoride and gaseous hydrogen fluoride as well as hydrocarbon emissions containing polycyclic organic matter. The aluminum metal is siphoned from the pot every 48 hours and transported to the Casting Department, where it is cast into ingots of various sizes, shapes and alloys.

As of July 2013, the aluminum plant is in care and maintenance status, but the facility has the capacity to operate five potlines capable of producing an average of 1,022,046 pounds of aluminum per day (maximum 1,356,340 lbs/day). The plant is configured to run any combination of the five potlines each producing an average of 204,409 lbs/day resulting in varying production. Since 2003, CFAC operated between one and three potlines prior to ceasing production in October 2009 due to economic and power supply issues. This application is submitted with the assumption that production could restart at any time and could utilize up to full production from the five potlines.

There are a number of waste water sources and potential waste water sources on the plant site (Figure 1). Most waste water from the plant is collected in a system of pipes and manholes (also called storm drains) that route water to percolation ponds or smaller drywells on the plant site (Figure 2C-1). Discussion with Montana DEQ has resulted in a modification of the number of outfalls and the outfall configuration for the current application. All process water discharges are grouped by the piping configuration such that each pipeline reporting to a percolation pond or drywell is designated an outfall (Figure 2C-1). Additionally, process water from designated production activities (contact briquette cooling and ingot cooling) and
the sewage treatment plant are designated as separate internal outfalls (as they are in the current permit). Since groundwater flowing through the plant site conveys water percolated from the ponds, dry wells and possibly from the historic landfills and discharges to the river as discernible discrete seeps in addition to the more diffuse local groundwater flow system; CFAC feels that a separate outfall for the groundwater discharge to the hydrologically connected surface water requires a separate outfall (006). A map of the outfall locations is provided as Figure 2C-2.

Outfalls 007 and 010 are combined sources that include boiler blowdown water, outfall 011 consists entirely of boiler blowdown discharge to a dry well. An anti-scalant is added to boiler water. The anti-scalant contains sodium and potassium bisulfite; a MSDS sheet for the anti-scalant used by CFAC is attached (Attachment 2C-D). Outfall 013 results from the periodic cleaning and chlorination of the water supply headtank when sampling results indicate elevated levels of coliform bacteria. The 250,000 gallon tank is shock chlorinated and then drained; the drainage discharges to the ground and to groundwater.

This application consists of updated FORM 1, FORM 2C and FORM 2E with a number of attachments (see Table of Contents). FORM 2C addresses outfalls 002, 004, 005, 007, 008, 009, 010, 011 and 013. FORM 2E is intended to cover outfalls 006 and 012. Water quality data from the last five years of production (2005-2009) was used where available to update Form 2C Section V. Where newer data was not available the information provided in the 2003 application is considered the most applicable. Not all of the data, calculations or backup information provided in the 2003 application is repeated in this up-dated renewal application, and reference to the 2003 application is necessary for a complete evaluation of the application and site data.

Several sources identified in the 2003 renewal and are not included in this version as they do not seem to require MPDES coverage. These include: lawn irrigation water, dust abatement water, air conditioner condensate discharged directly to the ground and not co-mingled with process water and fire hydrant bleed water that is discharged to the North Ponds seasonally to
prevent line freezing. Figure 1 shows the plant site and identified waste water sources, which are also shown schematically on the line drawing Figure 2C-1.

CFAC is requesting renewal of both surface water and groundwater mixing zones as included in the present permit. Details on the mixing zones are included in the 2003 submittal.
EXHIBIT 9
BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

IN THE MATTER OF:
COLUMBIA FALLS ALUMINUM
COMPANY’S (CFAC) APPEAL OF
DEQ’S MODIFICATIONS OF
MONTANA POLLUTANT DISCHARGE
ELIMINATION SYSTEM PERMIT NO.
MT0030066, COLUMBIA FALLS,
FLATHEAD COUNTY, MT.

Case Nos. BER 2014-06 WQ

DECLARATION OF STEVE WRIGHT

State of Montana )
County of Flathead )

Steve Wright, under penalty of perjury, deposes and states:

I am over the age of 18. I am competent to testify in this matter. The statements set forth
in this Declaration are those that I would make if called to testify in this matter, and are made
upon my personal knowledge:

1. I am the Vice President, Environmental Management of Columbia Falls
   Aluminum Company (“CFAC”).

2. On or about July 30, 2003, on behalf of CFAC, I submitted a renewal application
to the Montana Department of Environmental Quality (“MDEQ”) for CFAC’s MPDES Permit
No. MT0030066.

3. On or about October 28, 2003, MDEQ notified CFAC that the renewal application
   was substantially complete.
4. On or about May 2, 2013, I received a letter from Christine Weaver at MDEQ notifying CFAC that Ms. Weaver had begun working to renew CFAC’s MPDES Permit, and that MDEQ needed CFAC to update some of the information that was contained in the 2003 permit renewal application. MDEQ did not request any information regarding CFAC’s request that MDEQ reauthorize the surface water and groundwater mixing zones that had been included in CFAC’s 1999 MPDES permit.

5. On July 26, 2013, on behalf of CFAC, I submitted a renewal application to the MDEQ for CFAC’s MPDES Permit No. MT0030066.

3. At no time after I submitted the renewal application did I receive a request from MDEQ to provide information regarding the surface water and groundwater mixing zones that CFAC has expressly requested be continued in the renewed MPDES permit.

DATED this 4th day of November, 2015.

Steve Wright
Vice President, Environmental Management
Columbia Falls Aluminum Company
EXHIBIT 10
Major Industrial
Permit No.: MT0030066

MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

AUTHORIZATION TO DISCHARGE UNDER THE
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Montana Water Quality Act, Title 75, Chapter 5, Montana Code Annotated (MCA) and the Federal Water Pollution Control Act (the “Clean Water Act”), 33 U.S.C. § 1251 et seq.,

Columbia Falls Aluminum Company, LLC

is authorized to discharge from its Columbia Falls Aluminum Company

located at 2000 Aluminum Drive, Columbia Falls, MT

to receiving waters named, ground water discharging to the Flathead River

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein. Authorization for discharge is limited to those outfalls specifically listed in the permit.

This permit shall become effective: {on the date of issuance}.

This permit and the authorization to discharge shall expire at midnight, {5 years after issuance}.

FOR THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

DRAFT

______________________________
Bob Habeck, Chief
Water Protection Bureau
Permitting & Compliance Division

Issuance Date: ____________________
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## V. DEFINITIONS

...
### I. EFFLUENT LIMITATIONS, MONITORING REQUIREMENTS & OTHER CONDITIONS

#### A. Description of Discharge Points and Mixing Zones

The authorization to discharge provided under this permit is limited to those outfalls specially designated below as discharge locations. Discharges at any location not authorized under an MPDES permit is a violation of the Montana Water Quality Act and could subject the person(s) responsible for such discharge to penalties under the Act. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within a reasonable time from first learning of an unauthorized discharge could subject such person to criminal penalties as provided under Section 75-5-632 of the Montana Water Quality Act.

<table>
<thead>
<tr>
<th>Outfall</th>
<th>Description</th>
<th>Located at:</th>
</tr>
</thead>
<tbody>
<tr>
<td>002 - Anode Paste Plant Briquette Cooling Water (Internal Monitoring Point)</td>
<td>Location: Internal monitoring point at tank after end of the main briquette cooling belt, prior to dilution.</td>
<td>48°23’43.9”N latitude, -114°8’9.9’’W longitude</td>
</tr>
<tr>
<td>Mixing Zone: None</td>
<td>Treatment Works: 0.525 million gallons per day (mgd) average flow. No treatment.</td>
<td></td>
</tr>
<tr>
<td>004 - Aluminum Casting Contact Chilling Water (Internal Monitoring Point)</td>
<td>Location: Internal monitoring point at one of three casting pits, prior to dilution.</td>
<td>48°23’34.5”N latitude, -114°8’5.3’’W longitude</td>
</tr>
<tr>
<td>Mixing Zone: None</td>
<td>Treatment Works: 1.6 mgd average flow. No treatment.</td>
<td></td>
</tr>
<tr>
<td>005 - Domestic Sewage Treatment (Internal Monitoring Point)</td>
<td>Location: Internal monitoring point at end of package sewage treatment plant, prior to dilution.</td>
<td>48°23’24.9”N latitude, -114°8’18.1’’W longitude</td>
</tr>
<tr>
<td>Mixing Zone: None</td>
<td>Treatment Works: 0.062 mgd average flow. Solids removal, aeration, chlorination.</td>
<td></td>
</tr>
<tr>
<td>006 – Ground Water Seep</td>
<td>Location: Daylighting of ground water at discrete seep which discharges to Flathead River.</td>
<td>48°23’22”N latitude, -114°8’29’’W longitude</td>
</tr>
<tr>
<td>007 – North Ponds</td>
<td>Location: At the end of the pipe/ditch discharging into the North Ponds, which ultimately discharges to the Flathead River.</td>
<td>48°23’47.0”N latitude, -114°8’14.1’’W longitude</td>
</tr>
</tbody>
</table>
### Outfall Description

<table>
<thead>
<tr>
<th>Outfall</th>
<th>Description</th>
<th>Located at:</th>
</tr>
</thead>
<tbody>
<tr>
<td>008 – North Ponds</td>
<td>Location: At the end of the pipe/ditch discharging into the North Ponds, which ultimately discharges to the Flathead River.</td>
<td>48°23'46.8&quot;N latitude, -114°8'4.5&quot;W longitude</td>
</tr>
<tr>
<td></td>
<td>Mixing Zone: Granted chronic dilution of 10%, no acute dilution.</td>
<td>Treatment Works: 0.009 mgd. No treatment.</td>
</tr>
<tr>
<td>009 – South Ponds</td>
<td>Location: At the end of the pipe/ditch discharging into the South Ponds, which ultimately discharges to the Flathead River.</td>
<td>48°23'20.3&quot;N latitude, -114°8'19.3&quot;W longitude</td>
</tr>
<tr>
<td></td>
<td>Mixing Zone: Granted chronic dilution of 10%, acute dilution only for ammonia and chlorine.</td>
<td>Treatment Works: 2.5 mgd. No treatment other than the sewage treatment plant (Outfall 005).</td>
</tr>
<tr>
<td>010 – West Pond</td>
<td>Location: At the end of the pipe/ditch discharging into the West Pond, which ultimately discharges to the Flathead River.</td>
<td>48°23'38.0&quot;N latitude, -114°8'26.0&quot;W longitude</td>
</tr>
<tr>
<td></td>
<td>Mixing Zone: Granted chronic dilution of 10%, no acute dilution.</td>
<td>Treatment Works: 0.00012 mgd. No treatment.</td>
</tr>
<tr>
<td>011 – Dry Wells</td>
<td>Location: At the end of the pipe/ditch discharging into dry wells, which ultimately discharge to the Flathead River.</td>
<td>48°23'43.7&quot;N latitude, -114°8'6.0&quot;W longitude</td>
</tr>
<tr>
<td></td>
<td>Mixing Zone: Granted chronic dilution of 10%, no acute dilution.</td>
<td>Treatment Works: 0.00004 mgd. No treatment.</td>
</tr>
<tr>
<td>012 – Dry Well</td>
<td>Location: At the end of the pipe/ditch discharging into a dry well, which ultimately discharges to the Flathead River.</td>
<td>48°23'34.2&quot;N latitude, -114°8'16.6&quot;W longitude</td>
</tr>
<tr>
<td></td>
<td>Mixing Zone: Granted chronic dilution of 10%, no acute dilution.</td>
<td>Treatment Works: 0.014 mgd. No treatment.</td>
</tr>
<tr>
<td>013 – Head Tank Cleaning</td>
<td>Location: At the end of the pipe discharging to the ground, which ultimately discharges to the Flathead River.</td>
<td>48°23'28.9&quot;N latitude, -114°7'37.6&quot;W longitude</td>
</tr>
<tr>
<td></td>
<td>Mixing Zone: Granted chronic dilution of 10%, acute dilution of 1%.</td>
<td>Treatment Works: 0.0005 mgd. No treatment.</td>
</tr>
</tbody>
</table>
B. Effluent Limitations

**Outfall 002 - Anode Casting Internal Monitoring Point**

The quality of effluent discharged to Outfall 002 shall, as a minimum, meet the limitations as set forth below, depending upon the number of lines in production.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Production – 5 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.001</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.207</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.066</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.065</td>
<td>0.028</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>2.01</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1.846</td>
<td>695</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
<tr>
<td><strong>4 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00088</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.165</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.053</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.065</td>
<td>0.022</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>1.61</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1.477</td>
<td>556</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
<tr>
<td><strong>3 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00066</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.124</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.039</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.065</td>
<td>0.017</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>1.21</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1.107</td>
<td>417</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
<tr>
<td><strong>2 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00044</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.083</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.026</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.065</td>
<td>0.011</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>0.806</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>738</td>
<td>278</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
<tr>
<td><strong>1 Potline</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00022</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.041</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.013</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.065</td>
<td>0.0056</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>0.403</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>369</td>
<td>139</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>
As the facility is in shutdown mode at the time of renewal, the effluent limits for Outfall 002 are ‘0.’ Any time production changes the facility must provide a 30-day advance notice to DEQ. At that time, the effluent limits for the anode casting plant corresponding to the appropriate level of production will be effective.

**Outfall 004 – Aluminum Chilling Internal Monitoring Point**

The quality of effluent discharged to Outfall 004 shall, as a minimum, meet the limitations as set forth below for the T-Bar Casting line and the Sow Casting line, depending upon the number of lines in production.

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benzo(a)pyrene (34247)</strong></td>
<td>kg/day</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aluminum, Total Recoverable (01104)</strong></td>
<td>kg/day</td>
<td>5.00</td>
<td>1.67</td>
</tr>
<tr>
<td><strong>Antimony, Total Recoverable (01268)</strong></td>
<td>kg/day</td>
<td>1.58</td>
<td>0.53</td>
</tr>
<tr>
<td><strong>Nickel, Total Recoverable (01074)</strong></td>
<td>kg/day</td>
<td>0.45</td>
<td>0.23</td>
</tr>
<tr>
<td><strong>Fluoride (00949)</strong></td>
<td>kg/day</td>
<td>48.65</td>
<td>16.27</td>
</tr>
<tr>
<td><strong>Total Suspended Solids (TSS) (51530)</strong></td>
<td>kg/day</td>
<td>1,846</td>
<td>695</td>
</tr>
<tr>
<td><strong>pH (00400)</strong></td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>

4 Potlines

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benzo(a)pyrene (34247)</strong></td>
<td>kg/day</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aluminum, Total Recoverable (01104)</strong></td>
<td>kg/day</td>
<td>4.00</td>
<td>1.34</td>
</tr>
<tr>
<td><strong>Antimony, Total Recoverable (01268)</strong></td>
<td>kg/day</td>
<td>1.26</td>
<td>0.42</td>
</tr>
<tr>
<td><strong>Nickel, Total Recoverable (01074)</strong></td>
<td>kg/day</td>
<td>0.36</td>
<td>0.18</td>
</tr>
<tr>
<td><strong>Fluoride (00949)</strong></td>
<td>kg/day</td>
<td>38.92</td>
<td>13.01</td>
</tr>
<tr>
<td><strong>Total Suspended Solids (TSS) (51530)</strong></td>
<td>kg/day</td>
<td>1,477</td>
<td>556</td>
</tr>
<tr>
<td><strong>pH (00400)</strong></td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>

3 Potlines

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benzo(a)pyrene (34247)</strong></td>
<td>kg/day</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aluminum, Total Recoverable (01104)</strong></td>
<td>kg/day</td>
<td>3.00</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Antimony, Total Recoverable (01268)</strong></td>
<td>kg/day</td>
<td>0.95</td>
<td>0.32</td>
</tr>
<tr>
<td><strong>Nickel, Total Recoverable (01074)</strong></td>
<td>kg/day</td>
<td>0.27</td>
<td>0.14</td>
</tr>
<tr>
<td><strong>Fluoride (00949)</strong></td>
<td>kg/day</td>
<td>29.19</td>
<td>9.76</td>
</tr>
<tr>
<td><strong>Total Suspended Solids (TSS) (51530)</strong></td>
<td>kg/day</td>
<td>1,107</td>
<td>417</td>
</tr>
<tr>
<td><strong>pH (00400)</strong></td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>

2 Potlines

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benzo(a)pyrene (34247)</strong></td>
<td>kg/day</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aluminum, Total Recoverable (01104)</strong></td>
<td>kg/day</td>
<td>2.00</td>
<td>0.67</td>
</tr>
<tr>
<td><strong>Antimony, Total Recoverable (01268)</strong></td>
<td>kg/day</td>
<td>0.63</td>
<td>0.21</td>
</tr>
<tr>
<td><strong>Nickel, Total Recoverable (01074)</strong></td>
<td>kg/day</td>
<td>0.18</td>
<td>0.091</td>
</tr>
<tr>
<td><strong>Fluoride (00949)</strong></td>
<td>kg/day</td>
<td>19.46</td>
<td>6.51</td>
</tr>
<tr>
<td><strong>Total Suspended Solids (TSS) (51530)</strong></td>
<td>kg/day</td>
<td>738</td>
<td>278</td>
</tr>
<tr>
<td><strong>pH (00400)</strong></td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>
As the facility is in shutdown mode at the time of renewal, the effluent limits for Outfall 004 are ‘0.’ Any time production changes the facility must provide a 30-day advance notice to DEQ. At that time, the effluent limits corresponding to the appropriate level of production will be effective. A total of no more than five casting lines (both T-bar and sow) may be in operation on any day.

**Outfall 005 – Sewage Treatment Plant**

Effective immediately, the following limits apply after the sewage treatment plant:
Outfall 006 – Ground Water Seep
Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 006 at the ground water seep prior to discharge into the Flathead River:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Daily Max</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>143</td>
<td>71</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>22</td>
<td>11</td>
</tr>
</tbody>
</table>

In addition, there shall be no acute toxicity in the effluent discharged by the facility from Outfall 006.

Outfall 007 – North Ponds
Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 007 at the end of the pipe prior to discharge into the North Pond system:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Daily Max</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>152</td>
<td>49</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>22</td>
<td>11</td>
</tr>
</tbody>
</table>

Outfall 009 – South Ponds
Effective immediately and lasting the duration of this permit, other than ammonia which is effective January 1, 2017, the following effluent limits will apply to Outfall 009 at the end of the pipe prior to discharge into the South Pond system:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Daily Max</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>118</td>
<td>78</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>19</td>
<td>9.5</td>
</tr>
<tr>
<td>Ammonia (1)</td>
<td>mg/L</td>
<td>13.5</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Footnote:

Outfall 013 – Head Tank Cleaning
Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 013 at the end of the pipe prior to discharge onto the ground: TRC will be limited to <0.1 mg/L.
C. Monitoring Requirements

1. Effluent Monitoring Requirements

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

All analytical procedures must comply with the specifications of 40 CFR Part 136 and the analysis must meet any Required Reporting Values (RRVs) listed in Circular DEQ-7 unless otherwise specified. Samples shall be collected, preserved and analyzed in accordance with approved procedures listed in 40 CFR 136.

### Outfall 002 - Anode Casting Internal Monitoring Point

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Monthly</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Quarterly</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Monitoring required only during periods of discharge.
### Outfall 004 – Aluminum Chilling Internal Monitoring Point

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Total</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Recoverable</td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Antimony, Total</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Recoverable</td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Nickel, Total</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Recoverable</td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Monthly</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Quarterly</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Monitoring required only during periods of discharge.

### Outfall 005 – Sewage Treatment Plant

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>5-Day Biochemical Oxygen Demand (BOD₅)</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Monthly</td>
<td>Instantaneous</td>
</tr>
</tbody>
</table>
### Outfall 006 – Ground Water Seep

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous (2)</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily (2)</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>WET – Two Species</td>
<td>Pass/Fail</td>
<td>Quarterly (3)</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Monitoring required immediately upon the effective date of this permit except for flow volume and frequency.
2. By no later than September 1, 2015, the permittee will install necessary flow monitoring equipment and continuously monitor the flow from the ground water seep.
3. Sampling is required starting the first full calendar quarter following the effective date of the permit. If the results for four consecutive quarters of testing indicate no acute toxicity, the permittee may request a reduction to quarterly acute toxicity testing on only one species on an alternating basis.

### Outfall 007 – North Ponds

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 007 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.
### Outfall 008 – North Ponds

**Outfall 008 North Ponds - Summary of Monitoring Requirements**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>TSS</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

**Footnotes:**
1. Effective immediately, the discharge flow rate for Outfall 008 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

### Outfall 009 – South Ponds

**Outfall 009 South Ponds - Summary of Monitoring Requirements**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Chlorine, Total Residual</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td><em>E. coli</em> bacteria</td>
<td>cfu/100 mL</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nitrate + Nitrite</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

**Footnotes:**
1. Effective immediately, the discharge flow rate for Outfall 009 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.
**Outfall 010 – West Pond**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Iron, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 010 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

**Outfall 011 – Dry Wells**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Iron, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate from Outfall 011 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.
# Outfall 012 – Dry Well

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

**Footnotes:**
1. Effective immediately, the discharge flow rate from Outfall 012 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

# Outfall 013 – Head Tank Cleaning

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Residual Chlorine (TRC)</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
</tbody>
</table>

Unless flow-proportioned sampling is requested in writing, composite samples shall, as a minimum, be composed of four or more discrete aliquots (samples) of equal volume and time collected in a 24 hour period. The aliquots shall be combined in a single container for analysis (simple composite). The time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours.

2. **Upstream Monitoring Requirements**

The permittee shall monitor the following parameters from a monitoring site upstream of any expected influence from the process wastewater or ground water. The analysis must meet the RRVs as listed in the most recent Circular DEQ-7.
### Flathead River Upstream of Facility - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Temperature</td>
<td>deg C</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nitrate + Nitrite</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
</tbody>
</table>

3. **Whole Effluent Toxicity (WET) Monitoring at Outfall 006– Acute Toxicity**

Starting in the first calendar quarter following the effective date of the permit, the permittee shall, at least once each quarter conduct an acute static replacement toxicity test on a grab sample of discharge from the ground water seep at Outfall 006. Testing will employ two species per quarter and will consist of five (5) effluent concentrations (100, 50, 25, 12.5, 6.25 percent effluent) and a control. Dilution water and the control shall consist of the receiving water.

The static toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Methods for Measuring the Acute Toxicity of Effluent to Freshwater and Marine Organisms*, EPA-600/4-90/027 and the *Region VIII EPA NPDES Acute Test Conditions-Static Renewal Whole Effluent Toxicity*. The permittee shall conduct an acute 48-hour static renewal toxicity test using *Ceriodaphnia sp.* and an acute 96-hour static renewal toxicity test using fathead minnows (*Pimephales promelas*). The control of pH in the toxicity test utilizing CO₂ enriched atmospheres is allowed to prevent rising pH drift. The target pH selected must represent the pH value of the receiving water at the time of sample collection.

Acute toxicity occurs when 50 percent or more mortality is observed for either species at any effluent concentration. If more than 10 percent control mortality occurs, the test is considered invalid and shall be repeated until satisfactory
control survival is achieved, unless a specific individual exception is granted by DEQ. This exception may be granted if less than 10 percent mortality was observed at the dilutions containing high effluent concentrations.

If acute toxicity occurs in a routine test, an additional test shall be conducted within 14 days of the date of the initial sample. Should acute toxicity occur in the second test, testing shall occur once a month until further notified by DEQ. In all cases, the results of all toxicity tests must be submitted to DEQ in accordance with Part II of this permit. Further, should acute toxicity occur in a routine test and is confirmed as persistent by the additional test, a TIE-TRE shall be undertaken by the permittee as required by Part I.D.1.

The quarterly WET results from the laboratory shall be reported along with the Discharge Monitoring Report (DMR) form submitted for the end of the reporting calendar quarter (e.g., whole effluent results for the reporting quarter ending March 31 shall be reported with the March DMR due April 28th with the remaining quarterly reports submitted with the June, September, and December DMR’s). The format for the laboratory report shall be consistent with the latest revision of Region VIII Guidance for Acute Whole Effluent Reporting, and shall include all chemical and physical data as specified.

If the results for four consecutive quarters of testing indicate no acute toxicity, the permittee may request a reduction to quarterly acute toxicity testing on only one species on an alternating basis. DEQ may approve or deny the request based on the results and other available information without an additional public notice. If the request is approved, the test procedures are to be the same as specified above for the test species.
D. Special Conditions

1. Toxicity Reduction Evaluation / Toxicity Identification Evaluation

Should acute toxicity be detected in the required resample, a TIE-TRE shall be undertaken by the permittee to establish the cause of the toxicity, locate the source(s) of the toxicity, and develop control or treatment for the toxicity. Failure to initiate or conduct an adequate TIE-TRE, or delays in the conduct of such tests, shall not be considered a justification for noncompliance with the whole effluent toxicity limits contained in Part I.B of this permit. A TRE plan needs to be submitted to DEQ within 45 days after confirmation of the continuance of effluent toxicity (resample).

2. Storm Water Management

Storm water effluent quality is typically managed through the implementation of Storm Water Pollution Prevention Plans (SWPPPs) and Best Management Practices (BMPs) and, where necessary, effluent monitoring requirements. The permittee shall operate the facility in accordance with a current SWPPP. The SWPPP shall be updated as soon as possible but no later than January 1, 2015.

a. The SWPPP and associated documentation, as well as BMPs developed and implemented, must be accomplished using good standard engineering practices.

b. The SWPPP must be retained onsite.

c. The SWPPP must be signed in accordance with the signatory requirements stated in the renewed MPDES permit Part IV.G.

d. The SWPPP must be made available upon request of DEQ staff, such as during inspections.

e. The permittee must develop and maintain the SWPPP in accordance with the “Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity,” MPDES MTR000000, Part 3.1.

The permittee must notify DEQ after the SWPPP has been updated, by no later than January 28, 2015.
E. Compliance Schedule

1. Upstream Monitoring.

Within thirty (30) days of the effective date of this permit, the permittee shall submit both latitude/longitude coordinates and a diagram of the upstream sampling location to DEQ. The submittal shall include a discussion on how the permittee has ensured the monitoring will be representative of the background concentration in Flathead River without any influence from their site.

2. Outfall 006 Ground Water Seep.

Monitoring of the ground water seep flow rate will become effective September 1, 2015. Until this date, CFAC shall submit to DEQ:

- a plan of action within six (6) months from the effective date of this permit, and
- a report by no later than January 28, 2015, describing the actions taken in 2014 and planned in 2015. If necessary, an updated plan of action shall be included with this report.

3. Ammonia.

The Outfall 009 ammonia effluent limits will become effective January 1, 2017. Until this date, the permittee shall submit an annual report dated no later than the 28th of January following each year, describing the actions taken in the previous year and proposed for the upcoming year, to ensure compliance with the new limits.
II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

A. Representative Sampling
Samples taken in compliance with the monitoring requirements established under Part I of the permit shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.

B. Monitoring Procedures
Monitoring must be conducted according to test procedures approved under Part 136, Title 40 of the Code of Federal Regulations, unless other test procedures have been specified in this permit. All flow-measuring and flow-recording devices used in obtaining data submitted in self-monitoring reports must indicate values within 10 percent of the actual flow being measured.

C. Penalties for Tampering
The Montana Water Quality Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than six months, or by both.

D. Reporting of Monitoring Results
Monitoring results must be reported on a Discharge Monitoring Report (DMR) EPA form 3320-1. Monitoring results must be submitted in either electronic or paper format and be postmarked no later than the 28th day of the month following the end of the monitoring period. Whole effluent toxicity (biomonitoring) results must be reported with copies of the laboratory analysis report on forms from the most recent version of EPA Region VIII’s “Guidance for Whole Effluent Reporting.” If no discharge occurs during the reporting period, “no discharge” must be reported on the report form.

Legible copies of these, and all other reports required herein, must be signed and certified in accordance with Part IV.G ‘Signatory Requirements’ of this permit and submitted to DEQ at the following address:

    Montana Department of Environmental Quality
    Water Protection Bureau
    PO Box 200901
    Helena, Montana 59620-0901
    Phone: (406) 444-3080

E. Compliance Schedules
Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit must be submitted to DEQ in either electronic or paper format and be postmarked no later than 14 days following each schedule date unless otherwise specified in the permit.
F. Additional Monitoring by the Permittee
If the permittee monitors any pollutant more frequently than required by this permit, using approved analytical methods as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated.

G. Records Contents
Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
2. The initials or name(s) of the individual(s) who performed the sampling or measurements;
3. The date(s) analyses were performed;
4. The time analyses were initiated;
5. The initials or name(s) of individual(s) who performed the analyses;
6. References and written procedures, when available, for the analytical techniques or methods used; and
7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

H. Retention of Records
The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of DEQ at any time. Data collected on site, copies of Discharge Monitoring Reports, and a copy of this MPDES permit must be maintained on site during the duration of activity at the permitted location.

I. Twenty-four Hour Notice of Noncompliance Reporting
1. The permittee shall report any serious incidents of noncompliance as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the Water Protection Bureau at (406) 444-3080 or the Office of Disaster and Emergency Services at (406) 324-4777. The following examples are considered serious incidents:
   a. Any noncompliance which may seriously endanger health or the environment;
   b. Any unanticipated bypass which exceeds any effluent limitation in the permit (See Part III.G of this permit, "Bypass of Treatment Facilities"); or
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c. Any upset which exceeds any effluent limitation in the permit (see Part III.H of this permit, "Upset Conditions").

2. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
   a. a description of the noncompliance and its cause;
   b. the period of noncompliance, including exact dates and times;
   c. the estimated time noncompliance is expected to continue if it has not been corrected; and
   d. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3. DEQ may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Water Protection Bureau, by phone, (406) 444-3080.

4. Reports shall be submitted to the addresses in Part II.D of this permit, "Reporting of Monitoring Results".

J. Other Noncompliance Reporting
Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D of this permit are submitted. The reports shall contain the information listed in Part II.I.2 of this permit.

K. Inspection and Entry
The permittee shall allow the head of DEQ or the Director, or an authorized representative thereof, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance, any substances or parameters at any location.
III. **COMPLIANCE RESPONSIBILITIES**

A. **Duty to Comply**
   The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give DEQ or the Regional Administrator advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance.

B. **Penalties for Violations of Permit Conditions**
   The Montana Water Quality Act provides that any person who violates a permit condition of the Act is subject to civil or criminal penalties not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates permit conditions of the Act is subject to a fine of not more than $50,000 per day of violation, or by imprisonment for not more than 2 years, or both, for subsequent convictions. MCA 75-5-611(a) also provides for administrative penalties not to exceed $10,000 for each day of violation and up to a maximum not to exceed $100,000 for any related series of violations. Except as provided in permit conditions on Part III.G of this permit, “Bypass of Treatment Facilities” and Part III.H of this permit, “Upset Conditions”, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. **Need to Halt or Reduce Activity not a Defense**
   It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. **Duty to Mitigate**
   The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. **Proper Operation and Maintenance**
   The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.
F. Removed Substances
Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard.

G. Bypass of Treatment Facilities

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III.G.2 and III.G.3 of this permit.

2. Notice:
   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
   b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.I of this permit, “Twenty-four Hour Reporting”.

3. Prohibition of bypass:
   a. Bypass is prohibited and DEQ may take enforcement action against a permittee for a bypass, unless:
      1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
      2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
      3) The permittee submitted notices as required under Part III.G.2 of this permit.
   b. DEQ may approve an anticipated bypass, after considering its adverse effects, if DEQ determines that it will meet the three conditions listed above in Part III.G.3.a of this permit.
H. Upset Conditions

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of Part III.H.2 of this permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e. Permittees will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limitations).

2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
   
   a. An upset occurred and that the permittee can identify the cause(s) of the upset;
   
   b. The permitted facility was at the time being properly operated;
   
   c. The permittee submitted notice of the upset as required under Part II.I of this permit, “Twenty-four Hour Notice of Noncompliance Reporting”; and
   
   d. The permittee complied with any remedial measures required under Part III.D of this permit, "Duty to Mitigate”.

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

I. Toxic Pollutants

The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. Changes in Discharge of Toxic Substances

Notification shall be provided to DEQ as soon as the permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:

   a. One hundred micrograms per liter (100 µg/L);
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b. Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

d. The level established by DEQ in accordance with 40 CFR 122.44(f).

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:

a. Five hundred micrograms per liter (500 µg/L);

b. One milligram per liter (1 mg/L) for antimony;

c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

d. The level established by DEQ in accordance with 40 CFR 122.44(f).
IV. GENERAL REQUIREMENTS

A. Planned Changes
The permittee shall give notice to DEQ as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutant discharged. This notification applies to pollutants which are not subject to effluent limitations in the permit.

B. Anticipated Noncompliance
The permittee shall give advance notice to DEQ of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

C. Permit Actions
This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

D. Duty to Reapply
If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application must be submitted at least 180 days before the expiration date of this permit.

E. Duty to Provide Information
The permittee shall furnish to DEQ, within a reasonable time, any information which DEQ may request to determine whether cause exists for revoking, modifying and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to DEQ, upon request, copies of records required to be kept by this permit.

F. Other Information
When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to DEQ, it shall promptly submit such facts or information with a narrative explanation of the circumstances of the omission or incorrect submittal and why they weren’t supplied earlier.

G. Signatory Requirements
All applications, reports or information submitted to DEQ or the EPA shall be signed and certified.

1. All permit applications shall be signed as follows:
   a. For a corporation: by a responsible corporate officer;
b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;  
c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by DEQ shall be signed by a person described above or by a duly authorized representative of that person. A person is considered a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to DEQ; and  
b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or an individual occupying a named position.)

3. Changes to authorization. If an authorization under Part IV.G.2 of this permit is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part IV.G.2 of this permit must be submitted to DEQ prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

H. Penalties for Falsification of Reports
The Montana Water Quality Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring
reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more that $25,000 per violation, or by imprisonment for not more than six months per violation, or by both.

I. **Availability of Reports**
Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of DEQ. As required by the Clean Water Act, permit applications, permits and effluent data shall not be considered confidential.

J. **Oil and Hazardous Substance Liability**
Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.

K. **Property or Water Rights**
The issuance of this permit does not convey any property or water rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. **Severability**
The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. **Transfers**
This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies DEQ at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them;

3. DEQ does not notify the existing permittee and the proposed new permittee of an intent to revoke or modify and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part IV.M.2 of this permit; and

4. Required annual and application fees have been paid.
N. **Fees**

The permittee is required to submit payment of an annual fee as set forth in ARM 17.30.201. If the permittee fails to pay the annual fee within 90 days after the due date for the payment, DEQ may:

1. Impose an additional assessment computed at the rate established under ARM 17.30.201; and,

2. Suspend the processing of the application for a permit or authorization or, if the nonpayment involves an annual permit fee, suspend the permit, certificate or authorization for which the fee is required. DEQ may lift suspension at any time up to one year after the suspension occurs if the holder has paid all outstanding fees, including all penalties, assessments and interest imposed under this subsection. Suspensions are limited to one year, after which the permit will be terminated.

O. **Reopener Provisions**

This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements if one or more of the following events occurs:

1. **Water Quality Standards:** The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.

2. **Water Quality Standards are Exceeded:** If it is found that water quality standards or trigger values in the receiving stream are exceeded either for parameters included in the permit or others, DEQ may modify the effluent limits or water management plan.

3. **TMDL or Wasteload Allocation:** TMDL requirements or a wasteload allocation is developed and approved by DEQ and/or EPA for incorporation in this permit.

4. **Water Quality Management Plan:** A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than contained in this permit.

5. **Toxic Pollutants:** A toxic standard or prohibition is established under Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit.

6. **Toxicity Limitation:** Change in the whole effluent protocol, or any other conditions related to the control of toxicants have taken place, or if one or more of the following events have occurred:
a. Toxicity was detected late in the life of the permit near or past the deadline for compliance.

b. The TRE/TIE results indicated that compliance with the toxic limits will require an implementation schedule past the date for compliance.

c. The TRE/TIE results indicated that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits.

d. Following the implementation of numerical controls on toxicants, a modified whole effluent protocol is needed to compensate for those toxicants that are controlled numerically.

e. The TRE/TIE revealed other unique conditions or characteristics which, in the opinion of DEQ, justify the incorporation of unanticipated special conditions in the permit.
V. DEFINITIONS

1. “Act” means the Montana Water Quality Act, Title 75, chapter 5, MCA.

2. “Administrator” means the administrator of the United States Environmental Protection Agency.

3. “Acute Toxicity” occurs when 50 percent or more mortality is observed for either species (See Part I.C of this permit) at any effluent concentration. Mortality in the control must simultaneously be 10 percent or less for the effluent results to be considered valid.

4. “Arithmetic Mean” or “Arithmetic Average” for any set of related values means the summation of the individual values divided by the number of individual values.

5. “Average Monthly Limitation” means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

6. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

7. “Chronic Toxicity” means when the survival, growth, or reproduction, as applicable, for either test species, at the effluent dilution(s) designated in this permit (see Part I.C.), is significantly less (at the 95 percent confidence level) than that observed for the control specimens.

8. “Composite samples” means a sample composed of two or more discrete aliquots (samples). The aggregate sample will reflect the average quality of the water or wastewater in the compositing or sample period. Composite sample may be composed of constant volume aliquots collected at regular intervals (simple composite) or flow proportioned.

9. “Daily Discharge” means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the day.

10. "Daily Maximum Limit" means the maximum allowable discharge of a pollutant during a calendar day. Expressed as units of mass, the daily discharge is cumulative mass discharged over the course of the day. Expressed as a concentration, it is the arithmetic average of all measurements taken that day.
11. "Department" means the Montana Department of Environmental Quality (DEQ). Established by 2-15-3501, MCA.

12. "Director" means the Director of the Montana Department of Environmental Quality.

13. “Discharge” means the injection, deposit, dumping, spilling, leaking, placing, or failing to remove any pollutant so that it or any constituent thereof may enter into state waters, including ground water.


16. "Grab Sample” means a sample which is taken from a waste stream on a one-time basis without consideration of flow rate of the effluent or without consideration for time.

17. “Instantaneous Maximum Limit” means the maximum allowable concentration of a pollutant determined from the analysis of any discrete or composite sample collected, independent of the flow rate and the duration of the sampling event.

18. "Instantaneous Measurement”, for monitoring requirements, means a single reading, observation, or measurement.

19. “Minimum Level” (ML) of quantitation means the lowest level at which the entire analytical system gives a recognizable signal and acceptable calibration point for the analyte, as determined by the procedure set forth at 40 CFR 136. In most cases the ML is equivalent to the Required Reporting Value (RRV) unless otherwise specified in the permit. (ARM 17.30.702(22))

19. "Mixing zone" means a limited area of a surface water body or aquifer where initial dilution of a discharge takes place and where certain water quality standards may be exceeded.

20. "Nondegradation" means the prevention of a significant change in water quality that lowers the quality of high-quality water for one or more parameters. Also, the prohibition of any increase in discharge that exceeds the limits established under or determined from a permit or approval issued by DEQ prior to April 29, 1993.

21. “Regional Administrator” means the administrator of Region VIII of EPA, which has jurisdiction over federal water pollution control activities in the state of Montana.

22. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be
expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

23. “TIE” means a toxicity identification evaluation.

24. "TMDL" means the total maximum daily load limitation of a parameter, representing the estimated assimilative capacity for a water body before other designated uses are adversely affected. Mathematically, it is the sum of wasteload allocations for point sources, load allocations for non-point and natural background sources, and a margin of safety.

25. “TRE” means a toxicity reduction evaluation.

26. "TSS" means the pollutant parameter total suspended solids.

27. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ)
PERMITTING and COMPLIANCE DIVISION
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM
(MPDES)
Fact Sheet

Permittee: Columbia Falls Aluminum Company, LLC
Permit No.: MT0030066
Receiving Water: Flathead River

Facility Information:
Name Columbia Falls Aluminum Company
Location 2000 Aluminum Drive, Columbia Falls
Flathead County
Facility Contact: Steve Wright, Environmental & Laboratory Manager
Address 2000 Aluminum Drive
City/State Columbia Falls, MT 59912
Phone (406) 892-8211
Email: swright@cfaluminum.com

Fee Information:
Major/Minor: Major Industrial
Number of Outfalls 11 (for fee determination only)
Outfall – Type 002 – Anode Paste Plant Briquette Cooling Water (ELG)
004 – Aluminum Casting Contact Chilling Water (ELG)
005 – Domestic Sewage Treatment (TBEL)
006 – Ground Water Seep (process wastewater, non-process wastewater, noncontact cooling water, stormwater, and contaminated ground water discharges)
007 – North Pond (includes 002 process wastewater, non-process wastewater, non-contact cooling water)
008 – North Pond (includes non-process wastewater, non-contact cooling water, and stormwater)
009 – South Pond (includes 004 & 005 process wastewater, non-process wastewater, and non-contact cooling water)
010 – West Pond (non-process wastewater, stormwater)
011 – Dry Well
012 – Dry Well
013 – Ground (non-process wastewater)
I. **Permit Status**

This Fact Sheet identifies the legal requirements and technical rationale for the renewal of Montana Pollutant Discharge Elimination System (MPDES) permit number MT0030066 for Columbia Falls Aluminum Company (CFAC, also referred to as ‘the facility’). The owner/operator of CFAC is the Columbia Falls Aluminum Company, LLC (also referred to as ‘the permittee’). Glencore AG is CFAC’s parent company.

The initial permit application for wastewater discharged from the CFAC facility was for discharges to ground water, submitted by ARCO in 1983. The ground water discharge permit was issued in September 1984. Subsequently, in 1993 CFAC submitted an MPDES permit application as a result of a ground water seep downgradient from the facility that was found discharging to the Flathead River in 1991. The initial MPDES permit was issued in May 1994.

The most recent MPDES permit for the CFAC facility became effective on February 1, 1999, and expired at midnight, January 31, 2004. On August 4, 2003, CFAC submitted a permit renewal application, including the applicable fees, Form 1, Form 2C, and mixing zone information. Supplemental information was requested on August 18, 2003, and received on October 24, 2003. DEQ sent a letter on October 28, 2003, that deemed the application substantially complete. The existing MPDES permit was administratively continued until such time as the permit is renewed, as per Administrative Rules of Montana (ARM) 17.30.1313.

During spring 2013, DEQ determined that an updated permit application was required for this renewal, since the previous application was submitted in 2003 and thus outdated. CFAC submitted an updated application on July 29, 2013, with corrections made to several Form 2C Item V forms sent by email on August 8, 2013.
II. Facility Information

A. Facility Description

The permittee owns and operates an aluminum reduction plant that electrolytically reduces alumina ore (aluminum oxide, \( \text{Al}_2\text{O}_3 \)) to produce aluminum ingots. Aluminum was first produced at this facility in 1955. Between 2003 and 2009, CFAC operated between one and three out of their five potlines. In October 2009 the facility temporarily shut down. Although the facility is currently not operating and is in shutdown mode, it is possible that CFAC will initiate operations during this permit term. Tiered production-based limits have been included to account for production up to the maximum capacity.

Each of the five aluminum potlines has 120 individual pots (see Figure 1). Annual operating capacity is approximately 185,000 tons of aluminum, using the Hall-Heroult process. This electrochemical reduction process consists of passing an electric current through aluminum oxide dissolved in molten cryolite (sodium-aluminum fluoride) in a Soderberg-style pot.

Consumable carbon anodes (anode briquettes) used in the Soderberg process are produced at CFAC from petroleum coke and coal tar pitch. Coke is pulverized by ball mills prior to being mixed with heated pitch. The mixture is extruded into a water quench bath, and then transported by conveyor to individual storage locations. From the storage locations, the anode briquettes are loaded into trucks and fed into the process.

Unreacted alumina is brought by rail to unloading and storage silo systems. From those locations, the alumina is conveyed to silos prior to being injected into the Alcoa A398 reactors. The reacted alumina is then fed to storage silos, and ultimately to trucks that feed the reacted ore to the pots once every three hours. The reacted alumina is fed into a molten bath of cryolite, and heated to about 1740°F (949°C). Through the electrochemical process, electricity passes from the anode to the cathode, causing the aluminum to be reduced. The aluminum metal sinks below the cryolite bath to form a molten aluminum “pad.”

When operational, each of the five potlines produces a daily average of 204,409 pounds (92,718 kilograms (kg)) of aluminum. Aluminum metal is siphoned from the pot every 48 hours. The molten aluminum can either be sent directly to the casting department, or fluxed and alloyed prior to casting.

In the casting department, the metal first goes to one of six casting furnaces, followed by casting. CFAC can cast bulk aluminum intended for re-melting either as T-bar or sow cast (large shapes weighing 700 to 2000 pounds). There are six casting pits for T-bar and sheet ingots, and one sow casting line. T-bar and sow can be re-melted to produce extrusions or cast into ingots or billets, which are then pressed or rolled to form sheet, plate, foil, wire, rod, and bar. The T-ingots and sheet ingots from casting are then sent to saws for cutting to length.

Outfalls

DEQ assesses a fee for each outfall [ARM 17.30.201(6)(a)]. An "outfall" is a disposal system through which effluent or waste leaves the facility or site [ARM 17.30.201(2)]. CFAC has eleven permitted outfalls for fee purposes. Of these, three are internal monitoring points designed to demonstrate compliance with Technology-based Effluent Limits (TBELs), including two processes with federal Effluent Limitation Guidelines (ELGs).
Table 1 summarizes key information about each of the proposed outfalls (also see Figure 2). Average daily flows are based on full production, as estimated from data from 1993 through 1998 (July 2013 renewal application).

<table>
<thead>
<tr>
<th>Outfall</th>
<th>Receiving Water</th>
<th>Source Description</th>
<th>Average Flow (gpd)</th>
<th>Monitoring Lat/Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>006</td>
<td>Flathead River via Ground Water Seep</td>
<td>Wastewater discharged through ground water via discreet ground water seep.</td>
<td>unk</td>
<td>48°23’22”N / -114°8’29”W</td>
</tr>
<tr>
<td>007</td>
<td>Flathead River via Ground Water from North Ponds</td>
<td>ELG: Anode Paste Plant Briquette Cooling Water</td>
<td>525,000</td>
<td>48°23’47.0”N / -114°8’14.1”W</td>
</tr>
<tr>
<td>002 (internal)</td>
<td>Noncontact Cooling Water (NCCW)</td>
<td>1,280,000</td>
<td>48°23’43.9”N / -114°8’9.9”W</td>
<td></td>
</tr>
<tr>
<td>007</td>
<td>Flathead River via Ground Water from North Ponds</td>
<td>Non-process wastewater (Masonry Shop)</td>
<td>200</td>
<td>48°23’46.8”N / -114°8’4.5”W</td>
</tr>
<tr>
<td>008</td>
<td>Flathead River via Ground Water from North Ponds</td>
<td>Boiler blowdown (lab)</td>
<td>40</td>
<td>48°23’46.8”N / -114°8’4.5”W</td>
</tr>
<tr>
<td>009</td>
<td>Flathead River via Ground Water from South Ponds</td>
<td>ELG: Aluminum Casting Contact Chilling Water</td>
<td>1,600,000</td>
<td>48°23’20.3”N / -114°8’19.3”W</td>
</tr>
<tr>
<td>004 (internal)</td>
<td>TBEL: Sewage Treatment Plant</td>
<td>62,000</td>
<td>48°23’34.5”N / -114°8’5.3”W</td>
<td></td>
</tr>
<tr>
<td>005 (internal)</td>
<td>NCCW (rectifier and other equipment)</td>
<td>834,200</td>
<td>48°23’24.9”N / -114°8’18.1”W</td>
<td></td>
</tr>
<tr>
<td>009</td>
<td>Flathead River via Ground Water from South Ponds</td>
<td>Process wastewater (Casting Mold Cleaning &amp; Steam Cleaning)</td>
<td>400</td>
<td>48°23’34.5”N / -114°8’5.3”W</td>
</tr>
<tr>
<td>009</td>
<td>Flathead River via Ground Water from South Ponds</td>
<td>Non-process wastewater (Fabrication Shop Steam Cleaning)</td>
<td>40</td>
<td>48°23’34.5”N / -114°8’5.3”W</td>
</tr>
<tr>
<td>010</td>
<td>Flathead River via Ground Water from West Pond</td>
<td>Storm water</td>
<td>40</td>
<td>48°23’38.0”N / -114°8’26.0”W</td>
</tr>
<tr>
<td>011</td>
<td>Flathead River via Ground Water from Dry Wells</td>
<td>Storm water – parking lot</td>
<td>360</td>
<td>48°23’38.0”N / -114°8’26.0”W</td>
</tr>
<tr>
<td>012</td>
<td>Flathead River via Ground Water from Dry Well</td>
<td>NCCW (Electromelt Furnace)</td>
<td>13,600</td>
<td>48°23’34.2”N / -114°8’16.6”W</td>
</tr>
<tr>
<td>013</td>
<td>Flathead River via Ground Water</td>
<td>Non process waste water (Head Tank Cleaning – Chlorinated Water)</td>
<td>500</td>
<td>48°23’28.9”N / -114°7’37.6”W</td>
</tr>
</tbody>
</table>
DEQ issues permits for point sources discharging pollutants into state waters (ARM 17.30.1301).

A point source is any discernible, confined, or discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged [ARM 17.30.1304(51)].

Discharging pollutants means the addition of any pollutant or combination of pollutants to state waters from any point source. This definition includes additions of pollutants into water of the state from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other person which do not lead to a treatment works [ARM 17.30.1304(22)].

The outfall information in this permit renewal includes a characterization of each discharge source (as defined by 40 Code of Federal Regulations (CFR) 401.11, except as noted):

- **noncontact cooling water** means water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product or finished product.

- **blowdown** means the minimum discharge of recirculating water for the purpose of discharging materials contained in the water, the further buildup of which would cause concentration in amounts exceeding limits established by best engineering practice.

- **process waste water** means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product.

- **storm water** means storm water runoff, snow melt runoff, and surface runoff and drainage [40 CFR 122.26(b)(13)].

- **storm water discharge associated with industrial activity** means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant . . . the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at part 401 of this chapter); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas . . . [40 CFR 122.26(b)(14)].
The following describes each of the CFAC outfalls (including the three internal monitoring points) as point sources permitted under this renewal. The previous permit required that CFAC monitor only Outfalls 002, 004, and 005. Limited data on the ground water quality leading to the ground water seep at Outfall 006 was also provided. Lastly, CFAC provided information on the other outfalls (Outfalls 007 – 013) for this permit renewal based on engineering estimation.

**Outfall 002 – Anode Briquette Quenching (Internal Monitoring Point)**

The discharge of anode paste plant briquette quenching water from the coke and coal tar pitch mixer and extruder is regulated under an Effluent Limit Guideline (ELG), as will be discussed in Part III. The internal monitoring point for this regulated discharge, identified as Outfall 002, is the tank after the end of the main briquette cooling belt, prior to dilution with any wastewater that is not covered under this ELG.

The only production for this process over the past six years was partial operation from March 2008 to October 2009 before shutting down in 2009. The discharge flow reported in the 2013 updated Application Form 2C Part V was based on the most recent five years of production (January 2005 – September 2009), in million gallons per day (mgd):

- Average daily flow: 0.329 mgd.
- Maximum daily flow: 0.602 mgd.

In addition, CFAC has reported that the average flow for full production is 0.525 mgd based on operation in the 1990’s.

The anode briquette quenching flow combines with noncontact cooling water, non-process wastewater, and boiler blowdown to discharge through Outfall 007 at the North Ponds. Water quality-based effluent limits (WQBELs) for the comingled discharge will be monitored at Outfall 007 prior to discharge into the North Pond, since the end of the pipe is the last point of control.

**Outfall 004 – Casting Ingot Contact Quenching (Internal Monitoring Point)**

The discharge of aluminum casting contact cooling water from direct chill casting of aluminum ingots (T-bar and sow casting lines) is regulated under an ELG, as will be discussed in Part III. The internal monitoring point for this regulated discharge, identified as Outfall 004, is one of three casting pits, prior to dilution with any wastewater that is not covered under this ELG. There are two different types of casting included in this outfall:

- **T-bar casting lines**: contact water is used to cool a mold. The cooling water flows on the aluminum ingot and into one of three pits that are monitored on a rotating basis.

- **Sow casting line**: installed during the fall of 2006 in the existing cast house to produce sow ingots. Sow molds are transported on a rail system to a molten aluminum pouring station. The sows are filled with molten aluminum and then cooled through a combination of air cooling and water cooling. Water is sprayed on the molds and sows to facilitate cooling. A trough, located under the sow line, collects waste cooling water. The trough carries the water to one of the three existing casting pits (T-bar casting pit for lines #3/#4).

The only production for these processes over the past six years was partial operation from March 2008 to October 2009 before shutting down in 2009. The discharge flow reported in the 2013 updated Application Form 2C was based on the most recent five years of production (January 2005 – September 2009):
• Average daily flow: 0.326 mgd.
• Maximum daily flow: 0.740 mgd.

In addition, CFAC has reported that the average flow for full production is 1.6 mgd based on information from the 1990’s.

The discharge from 004 (T-bar and sow casting lines) combines with 005, noncontact cooling water, non-process wastewater, and stormwater to discharge through Outfall 009 at the South Ponds. WQBELs of the comiled discharge will be monitored at Outfall 009 prior to discharge into the South Ponds, since the end of the pipe is the last point of control.

**Outfall 005 – Sewage Treatment Plant (Internal Monitoring Point)**

The sewage treatment plant treats wastewater from sanitary and domestic uses and from the laboratory (sinks, noncontact cooling water, and non-solvent wastewater). Wastewater treatment consists of solids removal, aeration, and chlorination in a package wastewater treatment plant. The discharge from the sewage treatment plant has TBEL limits, as discussed in Part III. The internal monitoring point for this discharge is at the end of the package treatment plant, prior to dilution with other wastewater.

The sewage treatment facility has continued to operate even though production has ceased. The discharge flow as reported in the 2013 updated Application Form 2C was:

• Average daily flow: 0.055 mgd.
• Maximum daily flow: 0.095 mgd.

In addition, CFAC has reported that the average flow for full production is 0.062 mgd based on operation in the 1990’s.

The regulated flow from 005 combines with 004, noncontact cooling water, non-process wastewater, and stormwater to discharge through Outfall 009 at the South Ponds. WQBELs of the comiled discharge will be monitored at Outfall 009 prior to discharge into the South Ponds, since the end of the pipe is the last point of control.

**Outfall 006 – Ground Water Seep to Flathead River**

CFAC first applied for MPDES permit coverage in 1993 as a result of a 1991 Environmental Protection Agency (EPA) inspection that found a ground water seep discharging to the Flathead River. Outfall 006 has been maintained in permit renewals since that time. Furthermore, both the 2003 and the updated 2013 renewal applications requested continued MPDES coverage. In the 2013 updated application, CFAC identified the sources that contribute pollutants to the ground water seep in Form 2E Section I. These point sources, included with newly identified outfall numbers in this renewal, are as follows:

• North Pond System (Outfalls 007 & 008);
• South Pond System (Outfall 009);
• West Pond (Outfall 010);
• Drywells (Outfalls 011 and 012); and
• Site Ground Water.
CFAC provided an estimated ground water seep discharge rate of 270,000 gpd; however, this figure is the total facility ground water flow rate calculated in the 1998 Mixing Zone study (see Part IV.B of this Fact Sheet).

**Outfall 007 – North Ponds**

CFAC estimates that Outfall 007 includes the following average daily contributions from various sources at full production:

- 0.5250 mgd anode briquette quenching (Outfall 002 - ELG)
- 1.2500 mgd noncontact cooling water from the compressor house
- 0.0300 mgd noncontact cooling water from paste plant ball mill
- 0.0002 mgd non-process wastewater (masonry shop)
- <0.0001 mgd boiler blowdown (lab)
- 1.8053 mgd combined.

The outfall has no treatment prior to discharging to the first of the two North Ponds. As the ponds are not lined, the wastewater can percolate into ground waters which are hydraulically connected to the Flathead River. WQBELs for the combined discharge will be monitored at Outfall 007 prior to discharge into the North Pond, since the end of the pipe is the last point of control.

**Outfall 008 – North Ponds**

CFAC estimates that Outfall 008, the second outfall to the first of two North Ponds, includes the following average daily contributions from various sources at full production:

- 0.004 mgd non-contact cooling water
- <0.001 mgd non-process wastewater (battery shop, garage, garage steam cleaning, pin crane steam cleaning)
- 0.004 mgd unregulated (air conditioner condensate)
- Unknown production area stormwater
- 0.009 mgd combined, plus stormwater

The outfall has no treatment prior to discharging to the first of two North Ponds. As the ponds are not lined, the wastewater can percolate into ground waters which are hydraulically connected to the Flathead River. WQBELs of the combined discharge will be monitored at Outfall 008 prior to discharge into the North Pond, since the end of the pipe is the last point of control.

**Outfall 009 – South Ponds**

CFAC estimates that Outfall 009 includes the following average daily contributions from various sources at full production:

- 1.6000 mgd contact ingot contact quenching (Outfall 004 - TBEL)
- 0.0620 mgd sewage treatment plant (Outfall 005 – TBEL)
- 0.8300 mgd non-contact cooling water from rectifier
- 0.0040 mgd non-contact cooling water from other equipment
- 0.0004 mgd process wastewater (casting mold cleaning & steam cleaning)
- <0.0001 mgd non-process wastewater (fabrication shop steam clean, 40 gpd)
- Unknown production area stormwater
- 2.4965 mgd combined, plus stormwater
The combined discharge is pumped to three percolation ponds located approximately 1,000 feet south of the plant near the Flathead River (South Ponds). Other than treatment for two of the sources (the sewage treatment plant and an oil/water separator for the rectifier yard stormwater), the outfall has no treatment prior to discharging to the first of the three South Ponds. As the ponds are not lined, the wastewater can percolate into ground waters which are hydraulically connected to the Flathead River. WQBELs of the comingled discharge will be monitored at Outfall 009 prior to discharge into the South Ponds, since the end of the pipe is the last point of control.

**Outfall 010 – West Pond**

This pond is located to the west of the main parking area; percolation ground water to discharge to the Flathead River. CFAC estimates that Outfall 010 includes the following average daily contributions from various sources at full production:

- 0.0001 mgd boiler blowdown (fabrication shop, warehouse, and changehouse)
- Unknown parking lot stormwater
- 0.0001 mgd, plus stormwater

As the pond is not lined, wastewater will percolate into state ground waters which are hydraulically connected to the Flathead River. Any monitoring required for this combined flow will be at the discharge into the pond, identified as Outfall 010.

**Outfall 011 – Dry Well**

This dry well, located north of the main plant, receives approximately 40 gpd paste plant boiler blowdown.

**Outfall 012 – Dry Well**

This dry well, located west of the main plant, receives approximately 13,600 gpd noncontact cooling water from the electromelt furnace.

**Outfall 013 – Head Tank Cleaning**

CFAC periodically (approximately once per year) cleans out the head tank (main water supply holding tank) with chlorinated water. The spent rinse water is discharged to the ground at 500 gpd.

**B. Effluent Characteristics**

Effluent data in Table 2 (Outfall 002) and Table 3 (Outfall 004) are obtained from facility Discharge Monitoring Reports (DMRs) for the period of record (POR) January 1, 2005 through October 2009 (production ceased as of November 2009). Effluent data in Table 4 (Outfall 005) for the sewage treatment plant are obtained from the DMRs for the POR January 2008 through May 2013). Lastly, monitoring data from the ground water seep is summarized in Table 5.

There was no other available monitoring data, other than the ground water and Flathead River samples which are addressed in Part IV.B of this Fact Sheet (WQBELs). There is no available data for Outfalls 007 – 013, since they are newly identified as outfalls and are not operating.
Outfall 002 – Anode Briquette Quenching Effluent Characteristics

The previous permit required CFAC to monitor anode quenching effluent at the tank after the end of the main anode briquette cooling belt. Data was reported on DMRs under Outfall 002-A. CFAC discharged for less than two years of the most recent six years (2008 – 2009), so data from the five most recent production years (2005 – 2009) are summarized in Table 2. CFAC was required to monitor Outfall 002 monthly for flow, benzo(a)pyrene, aluminum, nickel, and fluoride, and annually for antimony under their previous permit.

Other than benzo(a)pyrene, the analysis was required to be reported for net dissolved concentrations. Therefore, DMR concentrations for permitted parameters, as shown in Table 2, were reported by CFAC as “net dissolved” by subtracting the corresponding ambient concentration measured at monitoring well W02. In addition, Table 2 includes gross, dissolved metals information from Item V on the 2013 application update under the Maximum Value column.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Previous Permit Limits</th>
<th>Minimum DMR Value</th>
<th>Average DMR Value Monthly/Daily</th>
<th>Maximum DMR Value</th>
<th>No. DMR Reports</th>
<th>Maximum Values 2013 Applic (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effluent Flow Rate (3)</td>
<td>gal/day</td>
<td>NA (2)</td>
<td>10,226/63,400</td>
<td>144,705/312,351</td>
<td>581,314/601,933</td>
<td>58</td>
<td>329,000 / 602,000</td>
</tr>
<tr>
<td>Benzo(a)pyrene (3)</td>
<td>µg/L</td>
<td>NA (2)</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>58</td>
<td>&lt; 0.1</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>0.001/0.003</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>58</td>
<td>&lt; 0.00023</td>
</tr>
<tr>
<td>Aluminum (4)</td>
<td>µg/L</td>
<td>NA (2)</td>
<td>ND</td>
<td>ND</td>
<td>100</td>
<td>58</td>
<td>&lt; 200</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>0.207/0.600</td>
<td>0</td>
<td>0</td>
<td>0.04/ 0.08</td>
<td>58</td>
<td>&lt; 0.23</td>
</tr>
<tr>
<td>Antimony (4)</td>
<td>µg/L</td>
<td>NA (2)</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>4</td>
<td>&lt; 3</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>0.066/0.189</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>&lt; 0.005</td>
</tr>
<tr>
<td>Nickel (4)</td>
<td>µg/L</td>
<td>NA (2)</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>58</td>
<td>&lt; 20</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>0.028/0.054</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>58</td>
<td>&lt; 0.02</td>
</tr>
<tr>
<td>Fluoride (4)</td>
<td>µg/L</td>
<td>NA (2)</td>
<td>ND</td>
<td>260</td>
<td>860</td>
<td>58</td>
<td>1,140</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>2.016/5.845</td>
<td>0</td>
<td>0.11 / 0.31</td>
<td>0.86/ 1.56</td>
<td>58</td>
<td>2.07</td>
</tr>
<tr>
<td>Copper</td>
<td>µg/L</td>
<td>NA</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cyanide (CN)</td>
<td>µg/L</td>
<td>NA</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>0</td>
<td>27</td>
</tr>
</tbody>
</table>

Footnotes: ND = nondetect, NA = not applicable.
1. Data supplied as part of 2013 renewal application update, including package received July 29, 2013 and follow-up application material emailed on August 7, 2013. Based on 2013 Application Table 2C-3 other than copper and cyanide. Gross -- not net figures. Metals are dissolved.
2. No limit in previous permit, reporting only.
4. Net average monthly / net maximum daily. The previous permit required CFAC to monitor as net dissolved (Well #W02 dissolved concentration minus effluent dissolved concentration) in order to mimic the settling and infiltration from the North Ponds.
Outfall 004 – Casting Contact Chilling Effluent Characteristics

The previous permit required CFAC to monitor contact casting chilling at one of three casting pits on a rotating basis. Data was reported on DMRs under Outfall 004-A. CFAC discharged for less than two years of the most recent six years (2008 – 2009), so data from the five most recent production years are summarized in Table 3. CFAC was required to monitor monthly for flow, aluminum, nickel, and fluoride, and annually for benzo(a)pyrene and antimony.

Other than benzo(a)pyrene, the analysis was required to be reported for net dissolved concentrations. Therefore, DMR concentrations for permitted parameters, as shown in Table 3, were reported by CFAC as “net dissolved” by subtracting the corresponding ambient concentration measured at monitoring well W02. In addition, Table 3 includes gross, dissolved metals information from Item V on the 2013 application update under the Maximum Value column.

| Table 3: Outfall 004 Effluent Characteristics – January 2005 to shutdown (October 2009) |
|---------------------------------|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Parameter                      | Units                           | Previous Permit Limits | Minimum DMR Value | Average DMR Value | Maximum DMR Value | No. DMR Reports | Maximum Values 2013 Applic (1) |
|--------------------------------|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Effluent Flow Rate             | gal/day                         | NA (2)          | 10,421          | 326,015         | 740,020         | 58              | 326,000 / 740,000 (3) |
| Benzo(a)pyrene (3)             | µg/L                            | NA (2)          | --              | --              | --              | 4               | <0.1            |
|                                | kg/day                          | No discharge    | 0               | 0               | 0               | 4               | <0.00023        |
| Aluminum (4)                   | µg/L                            | NA              | ND              | 54              | 180             | 58              | 280             |
|                                | kg/day                          | 1.671/5.0       | 0               | 0.055           | 0.30            | 58              | 0.5             |
| Antimony (4)                   | µg/L                            | NA (2)          | ND              | ND              | ND              | 4               | <3              |
|                                | kg/day                          | 0.530/1.579     | 0               | 0               | 0               | 4               | <0.0068         |
| Nickel (4)                     | µg/L                            | NA (2)          | ND              | ND              | ND              | 58              | <20             |
|                                | kg/day                          | 0.228/0.450     | 0               | 0               | 0               | 58              | <0.06           |
| Fluoride (4)                   | µg/L                            | NA (2)          | ND              | 460             | 3,110           | 58              | 3,210           |
|                                | kg/day                          | 16.282/48.696   | 0               | 0.37            | 2.4             | 58              | 3.0             |
| Zinc                           | µg/L                            | NA              | --              | --              | --              | 0               | <10             |
| Cyanide (CN)                   | µg/L                            | NA              | --              | --              | --              | 0               | <27             |

Footnotes: ND = nondetect, NA = not applicable.

1. Data supplied as part of 2013 renewal application update, including package received July 29, 2013 and follow-up application material emailed on August 7, 2013. Based on 2013 Application Table 2C-3 other than copper and cyanide. Gross -- not net figures. Metals are dissolved.

2. No limit in previous permit, reporting only.


4. Net average monthly / net maximum daily. The previous permit required CFAC to monitor as net dissolved (Well #W02 dissolved concentration minus effluent dissolved concentration) in order to mimic the settling and infiltration from the North Ponds.
Outfall 005 – Sewage Treatment Plant Effluent Characteristics

The previous permit required CFAC to monitor the sewage treatment plant effluent monthly, from a location after treatment. Data was reported on DMRs under Outfall 005-A.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Previous Permit Limits</th>
<th>Minimum Value</th>
<th>Average Value</th>
<th>Maximum Value</th>
<th>No. Sample Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effluent Flow Rate</td>
<td>gal/day</td>
<td>NA (1)</td>
<td>12</td>
<td>55,000 (2)</td>
<td>94,562</td>
<td>98</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>mg/L</td>
<td>30/45 (3)</td>
<td>&lt;1.0</td>
<td>5.1</td>
<td>27</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>NA (4)</td>
<td>1.5</td>
<td>7.2</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>5-Day Biochemical Oxygen Demand (BOD₅)</td>
<td>mg/L</td>
<td>30/45 (3)</td>
<td>&lt;1.0</td>
<td>6.7</td>
<td>29</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>NA (4)</td>
<td>2.1</td>
<td>9.3</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>6.0 – 9.0</td>
<td>6.8</td>
<td>7.6</td>
<td>8.1</td>
<td>98</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg/L</td>
<td>NA (4)</td>
<td>--</td>
<td>--</td>
<td>4.96</td>
<td>1</td>
</tr>
<tr>
<td>Nitrogen, Total as N</td>
<td>mg/L</td>
<td>NA (4)</td>
<td>--</td>
<td>--</td>
<td>2.2</td>
<td>1</td>
</tr>
<tr>
<td>Phosphorus, Total as P</td>
<td>mg/L</td>
<td>NA (4)</td>
<td>--</td>
<td>--</td>
<td>0.96</td>
<td>1</td>
</tr>
</tbody>
</table>

Footnotes:
1. No limit in previous permit, reporting only.
2. The average flow was inconsistent since the facility was shut down in 2009. The average flow prior to shutdown was approximately 55,000 gpd.
3. Monthly / 30-day average limits.
4. No limit in previous permit, renewal application data, only.

Outfall 006 – Ground Water Seep Effluent Characteristics

As part of the updated 2013 application, CFAC provided effluent quality information on the discharge from Outfall 006 in Form 2E Section J, as presented in the following table:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Maximum</th>
<th>Average</th>
<th># Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>7.37 – 8.12</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>Fluoride (F)</td>
<td>µg/L</td>
<td>4,780</td>
<td>3,120</td>
<td>18</td>
</tr>
<tr>
<td>Cyanide (CN)</td>
<td>µg/L</td>
<td>170</td>
<td>100</td>
<td>22</td>
</tr>
<tr>
<td>Aluminum</td>
<td>µg/L</td>
<td>170</td>
<td>--</td>
<td>1</td>
</tr>
</tbody>
</table>

Additional Outfalls

As part of this permit renewal, CFAC also provided estimates of pollutant concentrations at the other outfalls (Outfalls 007 – 011 and Outfall 013) on Form 2C Part V. The figures provided for the other outfalls were engineering estimates because there is no opportunity to obtain monitoring data as long as the plant is shut down.
C. Compliance History

Data and information submitted to or collected by DEQ indicate that the permittee has failed to comply with existing permit requirements as follows:

- Failure to submit DMR information for Outfalls 002, 004, and 005 in August 2007; and
- Failure to report pH for Outfall 005 for June 2011 and July 2011.

DEQ conducted a compliance evaluation inspection on August 13, 2010. The inspector confirmed that the facility was in operational shutdown. No violations were noted.
III. Technology-based Effluent Limits (TBELs)

Clean Water Act (CWA) section 402(a)(1) [33 U.S.C. 1342(a)(1)] and the federal regulations at 40 CFR 125.3(a) and 40 CFR 122.44 require that MPDES permits contain TBELs that implement the technology-based treatment requirements specified in the CWA, when applicable. ARM 17.30.1203(1) also requires that all permits contain, at a minimum, applicable technology-based controls. These technology-based requirements may be national technology standards established by EPA or, in some cases, standards established by the permit writer on a case-by-case basis.

For discharges from permittees other than publicly-owned treatment works (POTWs), EPA promulgates national technology standards of performance for both existing and new sources at 40 CFR Subchapter N. These effluent limitations guidelines (ELGs) and standards are commonly referred to as “effluent guidelines.” The Board of Environmental Review (Board) pursuant to 75-5-304(1), MCA, has adopted effluent standards, toxic effluent standards and new source performance standards in ARM 17.30.1203, 1206 and 1207, respectively, based on the applicable federal regulation.

Pursuant to section 402(a)(2) of the federal CWA [33 U.S.C. 1342(a)(2)], where EPA has not established effluent guidelines that are applicable to a particular class or category of industrial discharger or to a specific discharge, the permit writer establishes applicable technology-based treatment requirements on a case-by-case basis using best professional judgment (BPJ). Regulations for establishing these case-by-case requirements using BPJ are given in 40 CFR 125.3 and ARM 17.30.1203. ARM 17.30.1203(5)(b) grants DEQ authority to impose technology-based treatment requirements on a case-by-case basis using BPJ, using the appropriate factors listed in ARM 17.30.1203(6).

As specified in ARM 17.30.1345(1), permit effluent limits must be established for each outfall or discharge point of the permitted facility, except:

- **Best Management Practices (BMPs) where limits are infeasible** [ARM 17.30.1344 and 40 CFR 122.44(k)]. BMPs may be imposed to control or abate pollutions, including when numeric effluent limitation are infeasible and when the practices are reasonably necessary to achieve effluent limitation or standards or to carry out the purposes and intent of the CWA.
- **Limits on internal waste streams** [ARM 17.30.1345(10)]. Effluent limits for discharges of pollutants may be imposed on internal waste streams before mixing with other waste streams or cooling water streams when permit effluent limits imposed at the point of discharge are impractical or infeasible [ARM 17.30.1345(10)(a)].

A. Applicable Technology Standards

The following evaluates the applicable TBELs for each of the sources contributing wastewater.

**Outfalls 002 & 004 Primary Aluminum Smelting (Internal Monitoring Points):**

EPA has promulgated effluent guidelines in 40 CFR 421, Subpart B for facilities in the Nonferrous Metals Manufacturing Point Source Category – Primary Aluminum Smelting. These effluent guidelines are found at §§ 421.20 – 421.27. This part applies to facilities producing primary metals from ore concentrates … the applicability of this part to alloying or casting of nonferrous metals is limited to alloying or casting of hot metal directly from the
nonferrous metals manufacturing process without cooling. The effluent guidelines under 40 CFR 421 address the following processes conducted at the facility:

- 002 - Anode Briquette Quenching
- 004 - Direct Chill Casting Contact Cooling

**Outfall 002 - Applicable Effluent Guidelines**

Anode paste plant briquette cooling water from the coke and coal tar pitch mixer and extruder discharging from the end of the main anode briquette cooling belt are addressed by:

- 40 CFR 421.22 (Best practicable treatment control technology (BPT)), and
- 40 CFR 421.23(b) (Best available technology economically achievable (BAT)).

DEQ has determined, based on the information given in the discharger’s permit application, that the source of discharge from Outfall 002 does not meet the definition of a new source and that New Source Performance Standards (NSPS) are not applicable.

Table 6 summarizes the applicable BPT effluent guidelines in 40 CFR 421.22.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units (1,2)</th>
<th>Maximum Daily Limitation</th>
<th>Maximum Monthly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoride (F)</td>
<td>kg/kkg of product</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>kg/kkg of product</td>
<td>3.0</td>
<td>1.5</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>(1)</td>
<td>(1)</td>
</tr>
</tbody>
</table>

Footnotes:
1. The pH of the effluent must remain between 6.0 – 9.0 s.u. at all times.
2. Unit of product is production of hot aluminum metal, in kg/kkg of product OR lbs/1000 lbs of product.

Table 7 summarizes the applicable BAT effluent guidelines in 40 CFR 421.23(b).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units (1)</th>
<th>Maximum Daily Limitation</th>
<th>Maximum Monthly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene</td>
<td>mg/kg of anodes cast</td>
<td>0.007</td>
<td>0.003</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (TR)</td>
<td>mg/kg of anodes cast</td>
<td>1.277</td>
<td>0.566</td>
</tr>
<tr>
<td>Antimony, TR</td>
<td>mg/kg of anodes cast</td>
<td>0.403</td>
<td>0.180</td>
</tr>
<tr>
<td>Nickel, TR</td>
<td>mg/kg of anodes cast</td>
<td>0.115</td>
<td>0.077</td>
</tr>
<tr>
<td>Fluoride (F)</td>
<td>mg/kg of anodes cast</td>
<td>12.440</td>
<td>5.518</td>
</tr>
</tbody>
</table>

Footnotes:
1. Unit of product is production of anodes cast in mg/kg of product OR lbs/million lbs of product.
Outfall 004 - Applicable Effluent Guidelines

Contact cooling water from casting of aluminum ingots (T-bar casting lines and sow casting line) is addressed as follows:

- For the existing T-bar casting lines, 40 CFR 421.22 (BPT) and 40 CFR 421.23(q) (BAT) are applicable. DEQ has determined that the source of discharge from the T-bar casting line does not meet the definition of a new source and that NSPS are not applicable.

- For the new sow casting line, NSPS are applicable. The discharger notified DEQ in September 2006 of the installation of a new sow casting line in the existing casting house to produce sow ingots. Since the line was constructed after March 8, 1984 (the new source date for this Primary Aluminum Smelting Subcategory) the sow casting line cooling water is subject to 40 CFR 421.24(k) NSPS.

Table 8 summarizes the BPT effluent guidelines in 40 CFR 421.22 applicable to the T-bar casting lines.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Maximum Daily Limitation</th>
<th>Maximum Monthly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoride (F)</td>
<td>kg/kkg of product</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>kg/kkg of product</td>
<td>3.0</td>
<td>1.5</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>(1)</td>
<td>(1)</td>
</tr>
</tbody>
</table>

Footnotes:
1. Within the range of 6.0 to 9.0 at all times.
2. Product means hot aluminum metal, in kg/kkg of product OR lbs/1000 lbs of product.

Table 9 summarizes the BAT effluent guidelines in 40 CFR 421.23(q) that are applicable to the T-bar casting lines.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Maximum Daily Limitation</th>
<th>Maximum Monthly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene</td>
<td>mg/kg of aluminum product (1)</td>
<td>No Discharge</td>
<td>No Discharge</td>
</tr>
<tr>
<td>Aluminum, TR</td>
<td>mg/kg of aluminum product (1)</td>
<td>8.120</td>
<td>3.602</td>
</tr>
<tr>
<td>Antimony, TR</td>
<td>mg/kg of aluminum product (1)</td>
<td>2.565</td>
<td>1.143</td>
</tr>
<tr>
<td>Nickel, TR</td>
<td>mg/kg of aluminum product (1)</td>
<td>0.731</td>
<td>0.492</td>
</tr>
<tr>
<td>Fluoride (F)</td>
<td>mg/kg of aluminum product (1)</td>
<td>79.080</td>
<td>35.090</td>
</tr>
</tbody>
</table>

Footnotes:
1. Product means hot aluminum metal, in mg/kg of product OR lbs/million lbs of product.
Table 10 summarizes the NSPS effluent guidelines in 40 CFR 421.24(k) that are applicable to the sow casting line.

<table>
<thead>
<tr>
<th>Parameter and Code</th>
<th>Units</th>
<th>Maximum Daily Limitation</th>
<th>Maximum Monthly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene</td>
<td>mg/kg of aluminum product (^{(1)})</td>
<td>No Discharge</td>
<td>No Discharge</td>
</tr>
<tr>
<td>Aluminum, TR</td>
<td>mg/kg of aluminum product (^{(1)})</td>
<td>8.120</td>
<td>3.602</td>
</tr>
<tr>
<td>Antimony, TR</td>
<td>mg/kg of aluminum product (^{(1)})</td>
<td>2.565</td>
<td>1.143</td>
</tr>
<tr>
<td>Nickel, TR</td>
<td>mg/kg of aluminum product (^{(1)})</td>
<td>0.731</td>
<td>0.492</td>
</tr>
<tr>
<td>Fluoride (F)</td>
<td>mg/kg of aluminum product (^{(1)})</td>
<td>79.080</td>
<td>35.090</td>
</tr>
<tr>
<td>Oil and Grease</td>
<td>mg/kg of aluminum product (^{(1)})</td>
<td>13.290</td>
<td>13.290</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS)</td>
<td>mg/kg of aluminum product (^{(1)})</td>
<td>19.940</td>
<td>15.950</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>((^{\circ}))</td>
<td>((^{\circ}))</td>
</tr>
</tbody>
</table>

Footnotes:
1. Product means hot aluminum metal, in mg/kg of product OR lbs/million lbs of product.
2. The pH shall be maintained within the range of 7.0 to 10.0 at all times except for those situations when this waste is discharged separately and without commingling with any other wastewater in which case the pH shall be within the range of 6.0 to 10.0 at all times.

**Outfall 005 – Sewage Treatment Plant (Internal Monitoring Point):**

The sewage treatment plant at CFAC receives water from sanitary and domestic sources and the laboratory (laboratory sinks, non-contact cooling water, and non-solvent wastewater).

Secondary treatment, or the equivalent, is the basis for the standards for POTWs in 40 CFR 133. Since the on-site sewage treatment plant at CFAC provides treatment equivalent to a POTW, DEQ has determined using BPJ that the National Secondary Standards for BOD\(_5\) and TSS (concentration-based) and pH apply. Because CFAC’s sewage treatment plant does not exclusively treat domestic wastes and may be more dilute than municipal sources, DEQ determined that the % removal for BOD\(_5\) and TSS do not apply.

ARM 17.30.1345(8)(a) [40 CFR 122.45(f)(1)] requires that effluent limits must be expressed in terms of mass (mass/time), except when applicable standards and limitations are expressed in other units of measure. Since the applicable standards are concentration-based, mass-based effluent limits are not necessary.

Therefore, the proposed effluent limits for Outfall 005 (internal monitoring point) remain the same from the previous permit.

**Outfall 006 – Ground Water Seep:**

Except for the site ground water, all point sources discharging pollutants which contribute to the ground water seep have appropriate TBELs developed at the immediate site of discharge. No additional TBELs are necessary for this outfall.
Outfalls 007 – 012:

ELGs have not been promulgated under Subchapter N for the various sources of wastewater for Outfalls 007 – 012, including noncontact cooling water, boiler blowdown, shop sumps (both process and non-process wastewater), and storm water.

- Noncontact cooling water (NCCW) – CFAC does not add anti-scalant or other chemicals, and therefore there should be no pollutants beyond the intake water contaminants and heat. Thermal discharges are subject to technology-based requirements in Sections 301(b) of the federal Clean Water Act. However, since the NCCW is discharged to the ground prior to reaching surface water there are not expected to be any thermal effects.

- Boiler blowdown will contain NALCO or similar boiler chemicals that contain sulfites or other materials not listed on Circular DEQ-7 and heat. However, since the boiler blowdown is discharged to the ground prior to reaching surface water there are not expected to be any thermal effects.

- Shops (masonry, garage, and battery shops) - CFAC does not add chemicals; however, incidental spills and oil & grease may be present.

- Steam cleaning (garage, pin crane) - CFAC does not add chemicals; however incidental chemicals including oil & grease may be present from cleaning.

- Casting mold cleaning & steam cleaning - CFAC does not add chemicals; however incidental chemicals including oil & grease may be present from cleaning.

Based on the above review, BPJ is no additional treatment for these sources.

Outfall 013 – Head Tank Cleaning Water

There is no ELG for disposal of disinfected water; therefore, BPJ applies. DEQ will include the following TBEL, based on effluent limits for similar disinfection processes and the fact that the effluent is first discharged to the ground: TRC will be limited to <0.1 mg/L.

TBEL Changes from 1999 Permit

Net Limitations

In order to receive an adjustment of TBELs to reflect credit for pollutants in intake water, the permittee must request the adjustment and either the applicable effluent guidelines must provide that they shall be applied on a net basis [§122.45(g)(1)(i) and ARM 17.30.1345(9)(a)(i)] or the permittee must demonstrate that the control system it proposes or uses to meet applicable TBELs and standards would, if properly installed and operated, meet the limitations and standards in the absence of pollutants in the intake waters [§122.45(g)(1)(ii) and ARM 17.30.1345(9)(a)(ii)]. In addition, credit is granted only if the permittee demonstrates that the intake water is drawn from the same body of water into which the discharge is made. DEQ may waive this requirement if it finds that no environmental degradation will result [§122.45(g)(4) and ARM 17.30.1345(9)(d)].

The 1999 permit expressed TBELs calculated from the effluent guidelines as net limitations, based on credit from monitoring well W02. This well is approximately 3600 feet north of the North Ponds. As part of this renewal, CFAC requested inlet credits be continued for 002 and 004, but requested DEQ consider representative samples of the water supply, rather than W02, for calculating credits. However, DEQ finds that CFAC failed to meet the following criteria under §122.45(g) and ARM 17.30.1345(9)(a):
• The applicable effluent guidelines in 40 CFR Part 421 do not specifically provide for net limitations; and
• CFAC has not demonstrated that the control system it uses would meet the limitations and standards in the absence of pollutants in the intake waters.

Therefore, this permit renewal does not include net limitations.

**Metals**

All permit effluent limitations, standards or prohibitions for a metal must be expressed as *total recoverable metal* as defined in 40 CFR 136, unless: 1) the applicable effluent standard or limitation has been expressed in another form; 2) in establishing permit limits on a case-by-case basis under 40 CFR 125.3 (ARM 17.30.1203) it is necessary to express the limit on the metal in the dissolved form; or 3) the approved method for the metal only measures the dissolved form (e.g. hexavalent chromium) [ARM 17.30.1345(5)].

CFAC has TBELs for the following metals, which will all be changed from dissolved to total recoverable: aluminum, antimony, and nickel.

**Unit of Production**

ARM 17.30.1345(2)(b) requires that any permit limitations, standards, or other prohibitions which are based on units of production (or other measure of operation) be based on a reasonable measure of actual production of the facility and not on the designed production capacity.

The permit may include a condition establishing alternative permit limitation, standards, or prohibitions based upon anticipated increased or decreased production levels, however, these alternate limits may not exceed maximum production capacity. In calculating alternative permit limitations, the permit must satisfy the requirements of ARM 17.30.1345(4).

For this permit renewal, the maximum daily production values were used for calculating maximum daily limits, and the reported maximum monthly averages were used for calculating average monthly effluent limits.

**002 and 004 - Production Data**

The tables below summarizes the average daily production values used to determine the reasonable measure of actual production needed to calculate TBELs from:

- 002 - Main Briquette Quenching Belt contributing to the discharge from Outfall 002; and
- 004 - Aluminum Casting Contact Cooling contributing to the discharge from Outfall 004.

CFAC production capabilities correspond to the number of potlines in operation. CFAC provided the estimated production levels corresponding to the number of potlines potentially in operation, up to maximum production capabilities (i.e., 5 potlines). The anode briquette daily maximum production rate is the same for a one potline operation as for a five potline operation, because the number of operational days per month can be varied and anode briquettes inventoried, to supply the potlines with briquettes.
Table 11: Anode Production [40 CFR 421.23(b)]

<table>
<thead>
<tr>
<th>Production Level (# operational potlines)</th>
<th>Operation, Product, or Material</th>
<th>Units</th>
<th>Daily Maximum</th>
<th>Maximum Monthly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Anode Briquette</td>
<td>kg</td>
<td>469,468</td>
<td>365,051</td>
</tr>
<tr>
<td>4</td>
<td>Anode Briquette</td>
<td>kg</td>
<td>469,468</td>
<td>292,041</td>
</tr>
<tr>
<td>3</td>
<td>Anode Briquette</td>
<td>kg</td>
<td>469,468</td>
<td>219,031</td>
</tr>
<tr>
<td>2</td>
<td>Anode Briquette</td>
<td>kg</td>
<td>469,468</td>
<td>146,020</td>
</tr>
<tr>
<td>1</td>
<td>Anode Briquette</td>
<td>kg</td>
<td>469,468</td>
<td>73,010</td>
</tr>
</tbody>
</table>

Table 12: Aluminum Production with T-Bar Casting [40 CFR 421.22 and 421.23(q)]

<table>
<thead>
<tr>
<th>Production Level (# operational potlines)</th>
<th>Operation, Product, or Material</th>
<th>Units</th>
<th>Daily Maximum</th>
<th>Maximum Monthly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Aluminum</td>
<td>kg</td>
<td>615,225</td>
<td>463,590</td>
</tr>
<tr>
<td>4</td>
<td>Aluminum</td>
<td>kg</td>
<td>492,180</td>
<td>370,872</td>
</tr>
<tr>
<td>3</td>
<td>Aluminum</td>
<td>kg</td>
<td>369,135</td>
<td>278,154</td>
</tr>
<tr>
<td>2</td>
<td>Aluminum</td>
<td>kg</td>
<td>246,090</td>
<td>185,436</td>
</tr>
<tr>
<td>1</td>
<td>Aluminum</td>
<td>kg</td>
<td>123,045</td>
<td>92,718</td>
</tr>
</tbody>
</table>

Table 13: Aluminum Production with Sow Casting [40 CFR 421.24(k)]

<table>
<thead>
<tr>
<th>Production Level (# operational potlines)</th>
<th>Operation, Product, or Material</th>
<th>Units</th>
<th>Daily Maximum</th>
<th>Maximum Monthly Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>Aluminum</td>
<td>kg</td>
<td>307,613</td>
<td>231,795</td>
</tr>
</tbody>
</table>

The facility is currently in shut down mode and has not operated since October 2009. The permittee anticipates that daily production will resume during the term of the permit. To accommodate an increase in production, DEQ has calculated tiered TBELs that will become effective when production initiates and additional operating potlines are added to production, ranging from one potline up to the maximum production capability of five potlines. Maximum production capability has been established by using actual production data from previous operations during which the facility was operating at full capacity.

B. Proposed TBELs

*Outfall 002:* Table 14 provides the proposed effluent limits for Outfall 002, at the end of the anode process, prior to dilution from any other wastewater or stormwater.
<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max.</th>
<th>Monthly Ave.</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Production – 5 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.001</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.207</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.066</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.028</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>2.01</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,846</td>
<td>695</td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td><strong>4 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00088</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.165</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.053</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.022</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>1.61</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,477</td>
<td>556</td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td><strong>3 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00066</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.124</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.039</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.017</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>1.21</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,107</td>
<td>417</td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td><strong>2 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00044</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.083</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.026</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.011</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>0.806</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>738</td>
<td>278</td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td><strong>1 Potline</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00022</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.041</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.013</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.0056</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>0.403</td>
<td>BAT [40 CFR 421.23(b)]</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>369</td>
<td>139</td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
<td>BPT [40 CFR 421.22]</td>
</tr>
</tbody>
</table>
Outfall 004: Tables 15 and 16 provide the proposed casting effluent limits for aluminum casting (T-Bar and Sow) at the end of each process, prior to dilution from any other wastewater or stormwater:

### Table 15: TBELs for Outfall 004 (T-Bar Casting)

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Maximum Limitation</th>
<th>Ave. Monthly Limitation</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Production – 5 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td>BAT [40 CFR 421.23(q)]</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>5.00</td>
<td>1.67</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>1.58</td>
<td>0.53</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.45</td>
<td>0.23</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>48.65</td>
<td>16.27</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1.846</td>
<td>695</td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td>BPT [40 CFR 421.22]</td>
<td></td>
</tr>
<tr>
<td><strong>4 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td>BAT [40 CFR 421.23(q)]</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>4.00</td>
<td>1.34</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>1.26</td>
<td>0.42</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.36</td>
<td>0.18</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>38.92</td>
<td>13.01</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1.477</td>
<td>556</td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td>BPT [40 CFR 421.22]</td>
<td></td>
</tr>
<tr>
<td><strong>3 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td>BAT [40 CFR 421.23(q)]</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>3.00</td>
<td>1.00</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.95</td>
<td>0.32</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.27</td>
<td>0.14</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>29.19</td>
<td>9.76</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1.107</td>
<td>417</td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td>BPT [40 CFR 421.22]</td>
<td></td>
</tr>
<tr>
<td><strong>2 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td>BAT [40 CFR 421.23(q)]</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>2.00</td>
<td>0.67</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.63</td>
<td>0.21</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.18</td>
<td>0.091</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>19.46</td>
<td>6.51</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>738</td>
<td>278</td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td>BPT [40 CFR 421.22]</td>
<td></td>
</tr>
<tr>
<td><strong>1 Potline</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td>BAT [40 CFR 421.23(q)]</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>1.00</td>
<td>0.33</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.32</td>
<td>0.11</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.09</td>
<td>0.046</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>9.73</td>
<td>3.25</td>
<td>BAT [40 CFR 421.23(q)]</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>369</td>
<td>139</td>
<td>BPT [40 CFR 421.22]</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td>BPT [40 CFR 421.22]</td>
<td></td>
</tr>
</tbody>
</table>
### Table 16: TBELs for Outfall 004 (Sow Casting)

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max. Limitation</th>
<th>Ave. Monthly Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 Potlines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td></td>
<td>No Discharge</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>2.50</td>
<td>0.84</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.79</td>
<td>0.27</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.23</td>
<td>0.11</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>24.33</td>
<td>8.13</td>
</tr>
<tr>
<td>Oil and Grease (00182)</td>
<td>kg/day</td>
<td>4.09</td>
<td>3.08</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>6.13</td>
<td>3.70</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td></td>
<td>(1)</td>
</tr>
</tbody>
</table>

Footnotes:
1. The pH shall be maintained within the range of 7.0 to 10.0 at all times except for those situations when this waste is discharged separately and without commingling with any other wastewater in which case the pH shall be within the range of 6.0 to 10.0 at all times.

**Outfall 005:** The following TBELs apply after the sewage treatment plant, prior to confluence with discharge from Outfall 004 and other waste water streams.

### Table 17: Outfall 005 – Sewage Treatment Plant Effluent Limits

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Average Weekly Limitation(^1)</th>
<th>Average Monthly Limitation(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-day Biochemical Oxygen Demand (BOD(_5)) (00310)</td>
<td>mg/L</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>mg/L</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 to 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>

Footnotes:
1. See Definitions and Abbreviations in the permit for an explanation of terms.

**Outfall 013:** The following TBEL applies: TRC will be limited to <0.1 mg/L.
IV. Water Quality-Based Effluent Limits (WQBELs)

A. Scope and Authority

Permits are required to include WQBELs when technology-based effluent limits are not adequate to protect state water quality standards (40 CFR 122.44 and ARM 17.30.1344). ARM 17.30.637(2) states that no wastes may be discharged that can reasonably be expected to violate any state water quality standards. Montana water quality standards (ARM 17.30.601 et seq.) define both water use classifications for all state waters and numeric and narrative standards that protect those designated uses. In addition, dischargers are also subject to the mixing zone rules (ARM 17.30.501 et seq.) and Montana’s nondegradation policy (ARM 17.30.701 et seq.).

The purpose of this section is to provide a basis and rationale for the proposed effluent limitations on the CFAC discharges to protect designated uses of the receiving water based on Montana water quality standards.

B. Receiving Water

CFAC comprises approximately 600 acres, bounded to the north by Teakettle Mountains and the south by the Flathead River. The administrative record indicates that the initial facility wastewater permit was for discharge to ground water. Subsequently, in 1993 CFAC applied for MPDES surface water permit coverage for ground water seeps to the Flathead River (D006). The MPDES permit was issued in 1994 and renewed in 1999. In this permitting action, DEQ is again renewing the surface water MPDES permit for discharges to the Flathead River that enter through the ground water.

Ground water

The 1994 MPDES permit included a requirement for CFAC to investigate the site hydrology. As a result, CFAC hired Hydrometrics to conduct a study, which was submitted with their 1998 MPDES permit renewal application as “Attachment A. Application for Groundwater and Surface Water Mixing Zones, August 1998” (“1998 Mixing Zone Study”). The study concluded that CFAC sits atop glacially-derived sedimentary material, with localized areas of recent alluvial deposits. Bedrock is deep (from 70 to greater than 300 feet below the ground surface). Ground water was determined to flow roughly from the north to the south towards the Flathead River.

The 1998 mixing zone study provided hydrogeologic information from two on-site wells – TW-16 (Western portion) and TW-19 (Eastern portion). The study found that the ground water characteristics were widely variable from the western portion to the eastern portion (see Table 18). Part IV.D. contains a further discussion on the ground water flow.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Units</th>
<th>Western Portion TW-16</th>
<th>Eastern Portion TW-19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic Conductivity (K)</td>
<td>gpd/ft²</td>
<td>0.5</td>
<td>245</td>
</tr>
<tr>
<td>Hydraulic Gradient (I)</td>
<td>ft/ft</td>
<td>0.1</td>
<td>0.02</td>
</tr>
<tr>
<td>Area (A)</td>
<td>ft²</td>
<td>23,400</td>
<td>54,600</td>
</tr>
<tr>
<td>Calculated ground water flow (Q)</td>
<td>gpd</td>
<td>1,170</td>
<td>267,540</td>
</tr>
</tbody>
</table>

The calculated ground water flow was based on Darcy’s Law using these values:
**Darcy’s Law:**

\[ Q = KIA \]

Where:

- **K** = hydraulic conductivity (the study provided in units of gallons per day per square foot)
- **I** = hydraulic gradient (ft/ft), and
- **A** = cross-sectional area (saturated thickness times width)

Furthermore, the 1999 permit renewal required CFAC to monitor 12 ground water wells for cyanide, fluoride, pH, and specific conductance (W00 to W11). See Figure 3 (Exhibit 1). DEQ provided a summary of the ground water monitoring data from 2001 to 2012 in Table 19.

<table>
<thead>
<tr>
<th>Monitoring Location</th>
<th>Maximum Monitoring Result</th>
<th>Cyanide µg/L</th>
<th>Fluoride µg/L</th>
<th>pH s.u.</th>
<th>Specific conductance umho/cm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ground Water Human Health Standards (HHS)</strong></td>
<td></td>
<td>200</td>
<td>4,000</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Outfall W00 - CFMW2 200 ft North of Plant</td>
<td></td>
<td>1,120</td>
<td>5,470</td>
<td>8.2</td>
<td>710</td>
</tr>
<tr>
<td><strong>Outfall W01 - PW-7 800 ft South of Plant (1)</strong></td>
<td></td>
<td>60</td>
<td>1,710</td>
<td>8.2</td>
<td>450</td>
</tr>
<tr>
<td>Outfall W02 - CF-MW-1 2,700 ft NW of landfill</td>
<td></td>
<td>10</td>
<td>710</td>
<td>7.9</td>
<td>452</td>
</tr>
<tr>
<td>Outfall W03 Well TW-20 500 ft W/SW of Landfill</td>
<td></td>
<td>3,570</td>
<td>4,180</td>
<td>8.1</td>
<td>739</td>
</tr>
<tr>
<td>Outfall W04 - TW-21 400 ft south of Landfill</td>
<td></td>
<td>5,600</td>
<td>32,100</td>
<td>9.2</td>
<td>2,280</td>
</tr>
<tr>
<td>Outfall W05 - TW-15 750 ft south of Landfill</td>
<td></td>
<td>1,720</td>
<td>3,820</td>
<td>8.1</td>
<td>975</td>
</tr>
<tr>
<td>Outfall W06 - TW-18 600 ft south of Landfill</td>
<td></td>
<td>2,110</td>
<td>3,000</td>
<td>8.0</td>
<td>753</td>
</tr>
<tr>
<td>Outfall W07 - TW-19 3,800 ft SE of Landfill</td>
<td></td>
<td>500</td>
<td>1,600</td>
<td>8.0</td>
<td>752</td>
</tr>
<tr>
<td>Outfall W08 - Well TW-2 2,800 ft SW of Landfill</td>
<td></td>
<td>590</td>
<td>3,160</td>
<td>8.2</td>
<td>624</td>
</tr>
<tr>
<td><strong>Outfall W09- Well PW-5 4,600 ft SE of Landfill (1)</strong></td>
<td></td>
<td>170</td>
<td>810</td>
<td>8.2</td>
<td>646</td>
</tr>
<tr>
<td>Outfall W10 - Wells TW-22 and TW-23 Downgradient of NW Percolation Pond</td>
<td></td>
<td>10</td>
<td>1,610</td>
<td>8.1</td>
<td>525</td>
</tr>
<tr>
<td>Outfall W11 - TW-17 60 ft SW of Landfill</td>
<td></td>
<td>77,400</td>
<td>138,000</td>
<td>10.1</td>
<td>8,720</td>
</tr>
</tbody>
</table>

Footnote:
1. W01 and W09 monitoring wells represent the downgradient mixing zone boundary, and are also water supply wells.

The following conclusions were drawn using the above information:

- All ground water human health standards (HHS) were met at the edge of the ground water mixing zone, as observed at W01 and W09.
- W02 is 2,700 feet upstream from the capped landfills. The data from this well was considered to be the ‘background’ for netting in the previous permit.

**Surface Water**

Discharges from CFAC percolate into ground waters that flow towards the Flathead River. This segment of the Flathead River is located in USGS Hydrological Unit Code (HUC) 17010208 and identified as Montana stream segment MT760001_010.
This segment is not listed as impaired on the 1996 or 2012 303(d) lists as a waterbody in need of development of a TMDL. However, the Flathead River supplies approximately 85 percent of the water that enters Flathead Lake, which is listed as impaired. Mercury, nitrogen (total), phosphorus (total), polychlorinated biphenyls, and sedimentation/siltation have been identified as the causes of the Flathead Lake impairment. The Nutrient Management Plan & TMDL for Flathead Lake was approved by EPA on March 31, 2002. A wasteload allocation has not been assigned to CFAC.

This segment of the Flathead River is classified as “B-1” according to Montana Water Use Classifications, ARM 17.30.608(1). Waters classified B-1 are to be maintained suitable for drinking, culinary, and food processing purposes, after conventional treatment; bathing, swimming, and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply [ARM 17.30.623(1)].

ARM 17.30.635(2) states that the receiving water design flow for point source discharges must be based on the minimum consecutive seven day average flow which may be expected to occur on the average once in 10 years (7Q10). The 7Q10 for Flathead River at Columbia Falls is 1,250 cubic feet per second (cfs), based on 50 years of record for regulated streamflow at site 12363000 “Flathead River at Columbia Falls, MT” [USGS Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002, Scientific Investigations Report 2004-5266]. Although this station is more than 2.5 miles downstream of the end of CFAC’s mixing zone, there are no other major contributions and this 7Q10 should be representative of the upstream conditions.

The North Fork, Middle Fork, and South Fork combine to create the Flathead River approximately 1.5 miles upstream of CFAC. Based on the three data points available for each waterbody over the past ten years, the North Fork and Middle Fork each comprise approximately 40% and the South Fork comprises 20% of the combined flow of the Flathead River.

The following monitoring locations were reviewed in order to obtain background concentrations and characteristics of the Flathead River upstream from CFAC:
### Table 20: List of Flathead River Monitoring Stations

<table>
<thead>
<tr>
<th>Station ID</th>
<th>Station Name</th>
<th>Location</th>
<th>Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>USGS12363000</td>
<td>Flathead River @ Columbia Falls, MT</td>
<td>Lat 48.3620 Long -114.1838</td>
<td>7Q10. 2.5 miles downstream of CFAC</td>
</tr>
<tr>
<td>MT0030066</td>
<td>Flathead River @ CFAC</td>
<td>Lat 48.3871 Long -114.1246</td>
<td>Data Years: 2008 – 2012</td>
</tr>
<tr>
<td></td>
<td>Upstream</td>
<td>Lat 48.3864 Long -114.1396</td>
<td></td>
</tr>
<tr>
<td>RIV2</td>
<td>Mixing Zone</td>
<td>Lat 48.3879 Long -114.1518</td>
<td></td>
</tr>
<tr>
<td>RIVM</td>
<td>Downstream</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C06NFKFR01</td>
<td>Flathead River North Fork near Glacier Rim</td>
<td>Lat 48.4933 Long -114.1253</td>
<td>Data Years: 2001 – 2005 40% of Flathead River flow.</td>
</tr>
<tr>
<td>C07MFKFR01</td>
<td>Flathead River Middle Fork in West Glacier</td>
<td>Lat 48.5056 Long -113.9933</td>
<td>Data Years: 2001 – 2005 40% of Flathead River flow.</td>
</tr>
<tr>
<td>C08FRSF001</td>
<td>Flathead River South Fork (5 stations)</td>
<td>Varies</td>
<td>Data Years: 2003 – 2009 20% of Flathead River flow.</td>
</tr>
<tr>
<td>C08FRSF002</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C08FRSF003</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C08FRSF004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLBSSFFLATR01</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The magnitude of some numeric standards is dependent on characteristics of the receiving water, such as hardness, pH, and temperature. The characteristics of the receiving water used in determining specific numeric standards for Flathead River are shown in Table 21. This information is based on monitoring of the upstream receiving water during the previous permit term.
## Table 21: Flathead River Ambient Water Quality Data (2001 – current)(1)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Agency</th>
<th># Samples</th>
<th>Minimum</th>
<th>Average</th>
<th>Minimum 75th Percentile</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>°C</td>
<td>CFAC-RIV1 USGS(3)</td>
<td>11 35</td>
<td>6.8</td>
<td>12.8</td>
<td>15.7</td>
<td>19.7</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>CFAC-RIV1 USGS(3)</td>
<td>11 34</td>
<td>7.2</td>
<td>8.0</td>
<td>8.3</td>
<td>8.6</td>
</tr>
<tr>
<td>Hardness, as CaCO₃</td>
<td>mg/L</td>
<td>USGS(3)</td>
<td>6</td>
<td>89</td>
<td>105</td>
<td>100</td>
<td>116</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>CFAC-RIV1</td>
<td>10</td>
<td>5</td>
<td>56</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (TR)</td>
<td>µg/L</td>
<td>USGS(3)</td>
<td>6</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Copper, TR</td>
<td>µg/L</td>
<td>USGS(3)</td>
<td>6</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Nickel, TR</td>
<td>µg/L</td>
<td>USGS(3)</td>
<td>6</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Cyanide (CN)</td>
<td>µg/L</td>
<td>CFAC-RIV1</td>
<td>11</td>
<td>&lt; 3</td>
<td>5.4</td>
<td>5.0</td>
<td>10</td>
</tr>
<tr>
<td>Fluoride (F)</td>
<td>µg/L</td>
<td>CFAC-RIV1</td>
<td>11</td>
<td>67</td>
<td>178</td>
<td>185</td>
<td>530</td>
</tr>
<tr>
<td>Ammonia, Total as N</td>
<td>mg/L</td>
<td>USGS(3)</td>
<td>21</td>
<td>ND</td>
<td>--</td>
<td>--</td>
<td>0.016</td>
</tr>
<tr>
<td>Nitrogen, Total as N (TN)</td>
<td>mg/L</td>
<td>USGS(3)</td>
<td>26</td>
<td>ND</td>
<td>--</td>
<td>--</td>
<td>0.48</td>
</tr>
<tr>
<td>Phosphorus, Total as P (TP)</td>
<td>mg/L</td>
<td>USGS(3)</td>
<td>32</td>
<td>ND</td>
<td>--</td>
<td>--</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Footnotes: ND = Nondetect
1. See Table 18 for additional information on data sources. CFAC-RIV1 upstream samples 2008 – current.
2. Hardness is the 25th percentile rather than 75th percentile to be conservative.
3. USGS – analyses on individual North, Middle, and South Fork River data combined.
4. Lab noted contamination in method blank for June 2010 analysis that resulted in 200 ug/L river concentration for dissolved aluminum, since data suspect it was not included in statistical calculations.

## C. Nondegradation

Flathead River in the vicinity of the discharge is considered high quality water, and degradation of high quality water is not allowed unless authorized by DEQ [75-5-303(3), MCA]. The provisions of ARM 17.30.701 et seq. (Nondegradation of Water Quality) apply to new or increased sources of pollution [ARM 17.30.702(18)]. Sources that are in compliance with the conditions of their permit and do not exceed the limitations established in the permit or determined from a permit issued by DEQ prior to April 29, 1993, are not considered new or increased sources.

Except for the sow casting line, all of the point sources at CFAC were installed prior to 1993 and are considered existing discharges. The sow casting line was installed in 2006 and is considered equivalent to 2.5 of the older T-bar casting lines. Although the sow line has lower flow and pollutant loading than the T-bar casting lines, the change could be considered an increase unless the facility discharge is restricted to the permitted discharge at maximum production in 1993. Therefore, the final limits will require that no more than five casting lines be in operation on any day.
The effluent limitations applied to these outfalls are derived from and comply with the state’s water quality standards and, therefore, ensure the level of water quality necessary to attain and maintain existing and anticipated uses.

D. Mixing Zone

A mixing zone is an area where the effluent mixes with the receiving water and certain water quality standards may be exceeded [ARM 17.30.502(6)].

DEQ must determine the applicability of currently granted mixing zones [ARM 17.30.505(1)]. Mixing zones allowed under a permit issued prior to April 29, 1993 will remain in effect unless there is evidence that previously allowed mixing zones will impair existing or anticipated uses [ARM 17.30.505(1)(c)].

CFAC applied for MPDES permit coverage because of ground water seeps discharging into the Flathead River in 1993. The MPDES discharge permit was issued in 1994. The 1999 permit renewal granted a ground water mixing zone for cyanide (CN) and fluoride (F), as well as a standard surface water mixing zone for CN, based on information provided in the 1998 renewal package.

CFAC requested to continue the ground water and surface water mixing zones as part of their current renewal application (2013 Renewal Update, including reference to the 2003 Renewal Application, Attachment A). DEQ evaluated this request with consideration of the new outfall configurations and effluent data, as discussed below.

Mixing Zone Summary

The mixing zone rules require DEQ to determine whether a mixing zone is appropriate for a particular discharge during the permit development process. Where a mixing zone is requested, DEQ must determine whether the requested mixing zone may be granted for a particular parameter and, if a mixing zone is granted, the type of mixing zone that is appropriate [ARM 17.30.515(1)].

Ground Water Mixing Zone

CFAC discharges are first to the ground water prior to reaching surface water. If a ground water mixing zone is needed, it may be either a standard or a source-specific mixing zone. An applicant may request a source-specific mixing zone if there is not adequate information regarding ground water flow or if a standard mixing zone is not applicable or desired [ARM 17.30.518(1)]. A source-specific ground water mixing zone will only be granted after the applicant demonstrates to DEQ that the requested mixing zone will comply with the requirements of ARM 17.30.506 and 17.30.507 and the provisions of 75-5-303, MCA.

The previous permit granted a facility-wide source-specific ground water mixing zone for CN and F [see Figure 3 (Exhibit 1)]. CFAC provided the required demonstration as part of the previous permit renewal application in 1998. The criteria for delineating the ground water mixing zone boundary is that no existing drinking water supply wells are located within the mixing zone, and the human health standards (HHS) for cyanide and fluoride were not exceeded beyond the mixing zone boundary [ARM 17.30.508].

According to the CFAC Plant Public Water System Source Water Delineation and Assessment Report (PWSID #MT0000906), CFAC has four active on-site water supply wells. The wells
were each installed in the 1950’s. Two of the wells overlap with MPDES ground water monitoring wells, as follows:

- Well #4 – East of Well #5, outside of the ground water mixing zone.
- **Well #5 (MPDES monitoring Well W09)** – boundary of the ground water mixing zone.
- Well #6 – Southwest of Well #7, outside of the ground water mixing zone.
- **Well #7 (MPDES monitoring Well W01)** – boundary of ground water mixing zone.

Ground water monitoring for the past twelve years demonstrates that the ground water mixing zone criteria was met: the Human Health Standards (HHS) of 200 µg/L CN and 4,000 µg/L F were not exceeded outside the downgradient mixing zone boundary (see Table 19).

However, DEQ has determined that the previous ground water mixing zone was improperly applied to the entire facility, rather than applied to each permitted outfall [ARM 17.30.515(1)]. The ground water mixing zones are re-evaluated in this section. As presented in Table 18, above, the mixing zone study submitted in 1998 found that the ground water characteristics were widely variable from the western portion to the eastern portion of the site. Because the ground water was shown to be so variable, DEQ calculated the following specific ground water dilution values for each outfall that requires a mixing zone:

<table>
<thead>
<tr>
<th>Outfall</th>
<th>Outfall Discharge Location</th>
<th>K (1)</th>
<th>I (2)</th>
<th>Width</th>
<th>Mixing Zone Length (3)</th>
<th>A (4)</th>
<th>QGW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Units:</td>
<td></td>
<td></td>
<td>ft</td>
<td>ft</td>
<td>gpd</td>
</tr>
<tr>
<td>007</td>
<td>North Ponds</td>
<td>0.5</td>
<td>0.1</td>
<td>850</td>
<td>2,700</td>
<td>27,000</td>
<td>1,350</td>
</tr>
<tr>
<td>009</td>
<td>South Ponds</td>
<td>245</td>
<td>0.02</td>
<td>2,450</td>
<td>250(4)</td>
<td>39,000</td>
<td>190,000</td>
</tr>
<tr>
<td>013</td>
<td>Headtank Cleaning</td>
<td>245</td>
<td>0.02</td>
<td>40</td>
<td>1,500</td>
<td>4,500</td>
<td>22,000</td>
</tr>
</tbody>
</table>

Footnote:
1. Hydraulic conductivity (K) in gallons per day per square foot (gpd/ft²) as reported in 1998 Mixing Zone Study.
2. Distance from Outfall to Flathead River.
3. Area = [(Mixing Zone Width) + (Mixing Zone Length x tangent 5° both sides)] x 15 ft saturated thickness.
4. Average of distance for the three south ponds to Flathead River (50, 100, and 600 feet).

**Surface Water Mixing Zones**

All CFAC discharges enter the ground water prior to reaching surface water. Facilities that discharge to surface waters through the ground may qualify for a standard surface water mixing zone [ARM 17.30.516(3)(c)]. For discharges to surface water that first pass through the ground, the surface water mixing zone begins at the most upstream point of discharge into the receiving surface water. If the discharge continues to occur downstream beyond a distance equal to 10 times the stream width measured at the upstream discharge point at low flow, a standard mixing zone will not be granted [ARM 17.30.507(3)].

Acute and chronic standards for aquatic life and human health standards may not be exceeded outside of the mixing zone [ARM 17.30.507(1)(a)]. The discharge must comply with the general prohibitions of ARM 17.30.637(1) which require that state surface waters, including mixing zones, must be free from substances which will:
(i) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines;
(ii) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 mg/L) or globules of grease or other floating materials;
(iii) produce odors, colors or other conditions as to which create a nuisance or render undesirable tastes to fish flesh or make fish inedible;
(iv) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; and
(v) create conditions which produce undesirable aquatic life.

**Acute Mixing Zone**

In general, an acute mixing zone (zone of initial dilution) is not granted for toxic or persistent substances [ARM 17.30.506(2)(d)]. To grant a mixing zone for acute standards, the discharger must demonstrate to DEQ that allowing minimal, initial dilution will not threaten or impair existing beneficial uses [ARM 17.30.507(1)(b)].

DEQ granted a CN acute surface water mixing zone as part of the 1998 renewal (Figure 4 “Exhibit 2”). CFAC exceeded the acute CN standard of 22 µg/L within the surface water mixing zone (DMR data for Flathead River mixing zone monitoring location RIV2 showed a maximum concentration of 53 µg/L). It is unknown whether CN exceeded acute water quality standards at the end of the 150-foot acute water mixing zone. However, CFAC has not demonstrated that CN will naturally dissipate in the receiving water sufficiently to avoid acute affects. DEQ will not include an acute mixing zone for cyanide.

With this renewal, DEQ set the available dilution flow to achieve acute limits for cyanide and persistent toxic parameters, including metals, as zero (no acute mixing).

DEQ will grant a 150-foot acute surface water mixing zone for parameters that are known to naturally dissipate in the receiving water – ammonia, and TRC. The dilution flow used to evaluate RP and develop acute limits for these parameters are established at one percent (1%) of the 7Q10 based on an alternate mixing zone (1,250 x 0.01 = 12.5 cfs, or 8.1 mgd) [ARM 17.30.507(1)(b) and 17.30.515(1)(d)].

**Chronic Mixing Zone**

DEQ granted a CN chronic surface water mixing zone as part of the 1998 renewal. CFAC exceeded the chronic CN standard of 5.2 µg/L within the surface water mixing zone (DMR data for monitoring location RIV2), but data shows nondetect [laboratory reporting limit ranging from 3.5 to 10 µg/L] at the downstream boundary (RIVM). DEQ will maintain the CN chronic mixing zone length of 2,800 feet, which DEQ estimates to be approximately 10 times the stream width in the mixing zone vicinity.

ARM 17.30 Subchapter 5 allows for standard mixing zones for facilities that discharge to the surface water through the ground. In addition to cyanide, DEQ will grant a standard chronic surface water mixing zone for aluminum, ammonia, antimony, benzo(a)pyrene, chlorine, copper, fluoride, and nickel. The dilution flow used to evaluate RP and develop chronic and human health limits is 10% of the 7Q10 (1,250 x 0.10 = 125 cfs, or 81 mgd) [ARM 17.30.516(3)(c)].
E. Basis for WQBELs

ARM 17.30.1345 requires DEQ to develop WQBELs for any pollutant for which there is reasonable potential (RP) for discharges to cause or contribute to exceedences of instream numeric or narrative water quality standards, after application of any approved mixing zones.

RP Analysis

Table 23 lists the parameters of concern, for which RP is evaluated during this permit renewal:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Basis for Identifying as a Pollutant of Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSS</td>
<td>TBEL</td>
</tr>
<tr>
<td>pH</td>
<td>TBEL</td>
</tr>
<tr>
<td>Aluminum, Total Dissolved</td>
<td>TBEL, Indicated as Present in Discharge on Application</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (TR)</td>
<td></td>
</tr>
<tr>
<td>Nickel, TR</td>
<td>TBEL</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>TBEL</td>
</tr>
<tr>
<td>Cyanide</td>
<td>Indicated as Present in Discharge on Application</td>
</tr>
<tr>
<td>Fluoride</td>
<td>TBEL, Indicated as Present in Discharge on Application</td>
</tr>
<tr>
<td>Outfall 007 (North Ponds)</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>TBEL</td>
</tr>
<tr>
<td>pH</td>
<td>TBEL</td>
</tr>
<tr>
<td>Aluminum, Total Dissolved</td>
<td>TBEL</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (TR)</td>
<td></td>
</tr>
<tr>
<td>Copper, TR</td>
<td>Indicated as Believed Present in Discharge on Application</td>
</tr>
<tr>
<td>Nickel, TR</td>
<td>TBEL</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>TBEL</td>
</tr>
<tr>
<td>Cyanide</td>
<td>Indicated as Believed Present in Discharge on Application</td>
</tr>
<tr>
<td>Fluoride</td>
<td>TBEL</td>
</tr>
<tr>
<td>Outfall 009 (South Ponds)</td>
<td></td>
</tr>
<tr>
<td>TSS</td>
<td>TBEL</td>
</tr>
<tr>
<td>pH</td>
<td>TBEL</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>TBEL</td>
</tr>
<tr>
<td>Aluminum, Total Dissolved</td>
<td>TBEL</td>
</tr>
<tr>
<td>Antimony, TR</td>
<td>TBEL</td>
</tr>
<tr>
<td>Copper, TR</td>
<td>Indicated as Believed Present in Discharge on Application</td>
</tr>
<tr>
<td>Nickel, TR</td>
<td>TBEL</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>TBEL</td>
</tr>
<tr>
<td>Cyanide</td>
<td>Indicated as Believed Present in Discharge on Application</td>
</tr>
<tr>
<td>Fluoride</td>
<td>TBEL</td>
</tr>
<tr>
<td>Ammonia, TRC</td>
<td>Typical sewage treatment parameters</td>
</tr>
<tr>
<td>Nitrate + Nitrite, TN, TP</td>
<td>Typical sewage treatment parameters &amp; TMDL for Flathead Lake</td>
</tr>
<tr>
<td>Outfall 013 (Head Tank Cleaning)</td>
<td></td>
</tr>
<tr>
<td>TRC</td>
<td>Known to be Present</td>
</tr>
</tbody>
</table>
In addition to the above, CFAC provided the following information regarding possible pollutants of concern on Form 2C Item V:

- Outfall 008 – all parameters are ‘believed absent;’
- Outfall 010 – copper and iron are ‘believed present’ but CFAC had no data to provide. All other parameters were ‘believed absent;’
- Outfall 011 – aluminum, copper, and iron are ‘believed present.’ All other parameters were ‘believed absent;’ and
- Outfall 012 – CFAC indicated that only CN and F from water supply wells would be present in the discharge.

As no effluent data exists from each of these outfalls (008, 010, 011, and 012), DEQ will require CFAC to monitor the discharge from these outfalls during this permit renewal cycle.

RP for the discharge from Outfalls 006, 007, 009, and 013 to cause exceedences of a WQBEL in Flathead River was evaluated using the following mass-balance equation (Eq. 1):

\[ C_r = \frac{Q_d C_d + Q_s C_s}{Q_d + Q_s} \quad (Eq. 1) \]

Given:
- \( Q_s \) = critical stream flow of receiving water, 7Q10 - available dilution
- \( C_s \) = critical river concentration - Flathead River 75th percentile ambient concentration
- \( Q_d \) = critical effluent discharge flow rate
- \( C_d \) = critical discharge concentration [maximum concentration during the POR x Table 3-2 multiplier (C95)]
- \( C_r \) = the resulting receiving water concentration

Where the projected receiving water concentration (\( C_r \)) exceeds the lowest applicable numeric standard for the parameter of concern, there is reasonable potential and WQBELs must be calculated.

**Critical Stream Flow (\( Q_s \))**

Critical stream flow is based on the available part of the 7Q10 considering dilution, except that effluent limitations for controlling nitrogen and phosphorus concentration in surface water are based on the minimum consecutive 14-day average flow which may be expected to occur on the average once in five years (14Q5). The 14Q5 is 1,760 cfs. As discussed in Part IV.B., the 7Q10 for the Flathead River at this location is 1,250 cfs.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Acute Dilution</th>
<th>Chronic/HH Dilution</th>
<th>Information Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia, Chlorine</td>
<td>12.5 (1% 7Q10)</td>
<td>125.0 (10% 7Q10)</td>
<td>ARM 17.30.507(1)(b), 17.30.515(1)(d), and 17.30.516(3)</td>
</tr>
<tr>
<td>Aluminum, Antimony, Copper, Nickel, Benzo(a)pyrene, Cyanide, Fluoride</td>
<td>0.0 (0% 7Q10)</td>
<td></td>
<td>ARM 17.30.507(1)(b) and 17.30.516(3)</td>
</tr>
<tr>
<td>Nutrients</td>
<td>NA</td>
<td>1,760 (100% 14Q5)</td>
<td>ARM 17.30.635 and Draft Circular DEQ-12</td>
</tr>
</tbody>
</table>
In addition to the critical stream flow available for dilution, the discharges from Outfalls 007, 009 and 013 are first diluted with ground water, as follows (also see Table 22):

- 007 North Ponds 1,350 gpd
- 009 South Ponds 190,000 gpd
- 013 Headtank Cleaning 22,000 gpd

**Critical Background Receiving Water Pollutant Concentration (C_s)**

Critical background pollutant concentrations (C_s) for Flathead River are given in Table 21. These values are based on facility DMR data for the Flathead River upstream from the plant and the average of available USGS monitoring data from the three forks of the Flathead River. DEQ uses the 75th percentile of the data as C_s.

It is important to note that the data from CFAC’s upstream monitoring showed elevated aluminum (100 µg/L, which is above the chronic standard) and CN (5 µg/L, which is approaching the chronic standard). Elevated background concentrations of these parameters is suspect since there are no known upstream sources of aluminum or cyanide. DEQ has requested that CFAC identify a monitoring location that is representative of ambient conditions without impact from the site as a Special Condition.

**Critical Effluent Flow (Q_d)**

For existing industrial facilities, DEQ bases the critical effluent flow on either the reported average daily flow and maximum 30-day (monthly) average flow reported on Application Form 2C, or a measure of average daily flow based on data submitted through DMRs. Because applicable outfalls have been identified during this renewal process, after the facility production has been shut down, there is no DMR data for the current configuration. Table 25 provides a summary of the Q_d and the sources of information.

<table>
<thead>
<tr>
<th>Outfall</th>
<th>Critical Effluent Flow (mgd)</th>
<th>Information Source/Period of Record</th>
</tr>
</thead>
<tbody>
<tr>
<td>006</td>
<td>unknown</td>
<td>2013 Renewal Application Update (Form 2E) provided a flow estimate of 0.27 mgd. However, this estimate was based on the 1998 Mixing Zone study calculations for ground water flow through the entire site, and is not representative of the flow from the ground water seep.</td>
</tr>
<tr>
<td>007</td>
<td>1.81</td>
<td>2013 Renewal Application Update. Sum of known discharges without storm water contribution. These figures represent the long-term average value flow during 1993 – 1998, when operation of all five potlines was the norm.</td>
</tr>
<tr>
<td>009</td>
<td>2.50</td>
<td></td>
</tr>
<tr>
<td>013</td>
<td>0.0005</td>
<td>2013 Renewal Application Update.</td>
</tr>
</tbody>
</table>

DEQ may establish alternate permit limits based on anticipated increased production levels (not to exceed maximum production capabilities) [ARM 17.30.1345(3)]. Any increase in flow for an existing facility might need to be evaluated under Montana’s nondegradation criteria [ARM 17.30.715(2)] if there is a commensurate increase in the load or concentration of a pollutant.
**Critical Effluent Pollutant Concentration (\(C_d\))**

The RP analysis uses the critical effluent concentration for each parameter as part of the steady state model. Due to the low frequency of sampling and the non-normal distribution of most effluents, DEQ estimates the critical effluent concentration based on the 95\(^{th}\) percentile of the expected effluent concentration (*Technical Support Document for Water Quality Based Toxic Control (TSD)*, EPA/505/2-90-001, March 1991). A multiplier is determined using Table 3-2 in the TSD (based on the data set coefficient of variation and sample size at the 95% confidence interval). The critical effluent pollutant concentration is the multiplier times the maximum reported effluent concentration.

Critical effluent pollutant concentrations (\(C_d\)) are given in Table 26 to Table 28 for Outfalls 006, 007 and 009, as determined using the procedures described above.

<table>
<thead>
<tr>
<th>Table 26: Outfall 006 Concentration of Discharge at River ((C_d))</th>
<th>Units</th>
<th>Max Conc</th>
<th>TSD</th>
<th>(C_d)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(CV)</td>
<td>(n)</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>(\mu g/L)</td>
<td>170</td>
<td>0.6</td>
<td>1</td>
</tr>
<tr>
<td>Antimony, TR</td>
<td>(\mu g/L)</td>
<td>ND</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Nickel, TR</td>
<td>(\mu g/L)</td>
<td>ND</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>(\mu g/L)</td>
<td>ND</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Cyanide</td>
<td>(\mu g/L)</td>
<td>170</td>
<td>0.6</td>
<td>22</td>
</tr>
<tr>
<td>Fluoride</td>
<td>(\mu g/L)</td>
<td>4,780</td>
<td>0.6</td>
<td>18</td>
</tr>
</tbody>
</table>

Since the facility has not been in operation since 2009, and Outfalls 007 - 013 were not previously monitored, the maximum concentration provided in the 2013 updated renewal application package was an engineering projection, based on known concentration of the contributing waste streams (internal monitoring points). The coefficient of variation (CV) and number of samples reflect the monitoring conducted for the internal monitoring points.

Ground water provides some dilution for Outfalls 007 and 009 discharge prior to reaching the Flathead River. Therefore, the dilution flows developed in Table 22 are applied to determine the critical effluent pollutant concentration for each parameter upon reaching the river from these outfalls (see Tables 27 and 28, below). The maximum concentration values are presented as reported in the 2013 application package. If the concentration was presented as a “less than,” this is reflected in the following tables:
Table 27: Outfall 007 Concentration of Discharge at River (Cd)

<table>
<thead>
<tr>
<th>Units</th>
<th>Max Conc (1)</th>
<th>TSD (2)</th>
<th>Cd</th>
<th>Cd (3) after GW Dilution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CV n Multiplier</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>0.6 58 1.4</td>
<td>280</td>
<td>280</td>
</tr>
<tr>
<td>Antimony, TR</td>
<td>&lt; 200</td>
<td>0.6 8   1.9</td>
<td>5.7</td>
<td>5.7</td>
</tr>
<tr>
<td>Copper, TR</td>
<td>1</td>
<td>0.6 1   6.2</td>
<td>6.2</td>
<td>6.2</td>
</tr>
<tr>
<td>Nickel, TR</td>
<td>&lt; 20</td>
<td>0.6 58 1.4</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>&lt; 0.1</td>
<td>0.6 1   6.2</td>
<td>0.62</td>
<td>0.62</td>
</tr>
<tr>
<td>Cyanide</td>
<td>27</td>
<td>0.6 1   6.2</td>
<td>167</td>
<td>167</td>
</tr>
<tr>
<td>Fluoride</td>
<td>750</td>
<td>2.6 57 2.0</td>
<td>1,500</td>
<td>1,500</td>
</tr>
</tbody>
</table>

Footnotes:
1. The maximum concentrations are estimates as provided in Form 2C Part V, except benzo(a)pyrene was corrected to <0.1 based on Table 2C-3 for Outfall 002.
2. The TSD statistical multipliers are based on monitoring data for Outfall 002.
3. Ground water flow provides 1,300 gallons per day dilution for Outfall 007, which was not enough to effect the calculated parameter concentrations.

Table 28: Outfall 009 Concentration of Discharge at River (Cd)

<table>
<thead>
<tr>
<th>Units</th>
<th>Max Conc (1)</th>
<th>TSD (2)</th>
<th>Cd</th>
<th>Cd (3) after GW Dilution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CV n Multiplier</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>0.3 11 1.34</td>
<td>270</td>
<td>249</td>
</tr>
<tr>
<td>Antimony, TR</td>
<td>&lt; 3</td>
<td>0.6 8   1.9</td>
<td>5.7</td>
<td>5.3</td>
</tr>
<tr>
<td>Copper, TR</td>
<td>1</td>
<td>0.6 1   6.2</td>
<td>6.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Nickel, TR</td>
<td>&lt; 20</td>
<td>0.6 58 1.4</td>
<td>28</td>
<td>26</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>&lt; 0.1</td>
<td>0.6 1   6.2</td>
<td>0.62</td>
<td>0.58</td>
</tr>
<tr>
<td>Cyanide</td>
<td>27</td>
<td>0.6 58 1.4</td>
<td>4,480</td>
<td>4,165</td>
</tr>
<tr>
<td>Fluoride</td>
<td>3,200</td>
<td>0.7 58 1.4</td>
<td>167</td>
<td>176</td>
</tr>
<tr>
<td>Ammonia</td>
<td>5.0</td>
<td>0.6 1   6.2</td>
<td>31.0</td>
<td>28.8</td>
</tr>
</tbody>
</table>

Footnotes:
1. The maximum concentrations are estimates as provided in Form 2C Part V, except benzo(a)pyrene was corrected to <0.1 based on Table 2C-3 for Outfall 004.
2. The TSD statistical multipliers are based on monitoring data for internal Outfall 004.
3. Ground water flow provides 190,000 gpd dilution flow; background for cyanide and fluoride in ground water obtained from DMR data.

Similar analysis for Outfall 013 indicated the maximum concentration of TRC (Cd), after ground water dilution, is 4.09 mg/L.

Reasonable Potential (RP) Analysis

The RP analysis for Outfalls 006, 007, 009, and 013 are presented in Attachments #1 - #4. If the resulting receiving water concentration (Cr) is greater than the lowest applicable surface water quality standard, CFAC has RP and effluent limits will be developed. However, there were several difficulties in conducting this evaluation for CFAC:
• The previous permit required monitoring of dissolved metals; therefore, since 1999 all facility DMR data is based on dissolved and not total recoverable. (This requirement was based on the fact that ground water standards in Circular DEQ-7 are based on the dissolved portion of the sample. However, except for aluminum, all surface water standards for metals are in the total recoverable form.) Furthermore, DEQ is required to express permit limits as total recoverable [ARM 17.30.1345(5)]. Since CFAC analyzed for the dissolved faction, the data may under-represent the actual quantity of the parameters that would be seen in the discharge from Outfalls 007 & 009 before it enters the waters of the state. The dissolved faction is expected to be fairly representative of the discharge from Outfall 006, however, since this discharge passes through ground water before it enters Flathead River.

• Monitoring was conducted at internal monitoring points D002, D004, and D005, in order to demonstrate compliance with the TBELs without dilution. However, this does not provide data of the diluted waste stream as it is discharged into ‘waters of the state,’ which is the basis for the WQBELs. Although the projected effluent limits provided in the 2013 renewal application update represent an engineering estimate of the water quality from Outfalls 007, 009, and 013, there is an extra level of uncertainty introduced.

• CFAC has not had production since 2009, and therefore there is a lack of recent effluent quality data and no way to obtain it.

• Effluent limits and DMR data were based on “net” concentrations for aluminum, antimony, nickel, and fluoride. Net limitations (intake credits) are not approved as part of this permit renewal. Therefore, the 2013 renewal application update included the gross effluent characteristics without netting.

DEQ develops an effluent limit for any parameter with RP. The following summarizes the RP analysis conducted for all parameters of concern in CFAC discharge that have numeric water quality standards listed in Circular DEQ-7. The acute and chronic standards for copper, nickel, and zinc are based on the 25th percentile hardness value for Flathead River of 100 mg/L.

Outfall 006 – Ground Water Seep RP

Table 29 presents an overview of the RP analysis for Outfall 006, based on the above assumptions (also see Attachment #1).

<table>
<thead>
<tr>
<th>Parameter (all units in µg/L)</th>
<th>Surface Water Quality Standards</th>
<th>Concentration after Mixing ( (C_r) )</th>
<th>WQBEL Needed?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acute</td>
<td>Chronic</td>
<td>Human Health</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>750</td>
<td>87</td>
<td>None</td>
</tr>
<tr>
<td>Cyanide</td>
<td>22</td>
<td>5.2</td>
<td>140</td>
</tr>
<tr>
<td>Fluoride</td>
<td>None</td>
<td>None</td>
<td>4000</td>
</tr>
</tbody>
</table>

The RP analysis included the assumption that the discharge flow from the seep was the entire 270,000 gpd calculated ground water flow, which is not believed to be true. However, DEQ confirmed that the RP analysis would derive the same conclusions even if the flow from the
ground water seep was significantly lower. This evaluation demonstrated that there is RP to exceed the dissolved aluminum and cyanide standards, and WQBELs will be developed. In addition:

**TSS and pH:** TBELs for TSS and pH are applied at Outfalls 002 & 004. There are no TSS water quality standards, and the effluent is discharged through the ground to the surface water; therefore DEQ determined that no additional TSS limits are needed. CFAC will be required to monitor pH semi-annually in order to determine if there is potential for an excursion from 6.0 – 9.0 s.u., which is the typical pH limit imposed at end of pipe.

**Antimony, Benzo(a)pyrene, and Nickel:** Although there are TBELs for these parameters, CFAC has not monitored for them at the ground water seep. These three parameters were monitored at internal outfalls 002 & 004 and found to be nondetect. Monitoring for these parameters at Outfall 006 will be required during this permit cycle in order to determine if the parameters are present in the discharge, and if so evaluate RP during the next permit renewal.

**Fluoride:** There are TBELs for this parameter. Although the maximum concentration at Outfall 006 was 4,780 µg/L, the analysis did not show RP to exceed the human health standard of 4,000 µg/L after consideration of mixing. Monitoring will be required during this permit cycle in order to provide information for an updated RP analysis during the next permit renewal.

**Outfall 007 – North Ponds RP**

The anode paste plant briquette cooling water (Outfall 002), compressor house non-contact cooling water, general plant water use, and industrial storm water runoff combine in the first of two sequential North Ponds. The primary purpose of the first pond is settling and evaporation, and the second is infiltration to ground water which is hydraulically connected to the Flathead River. Because the ponds are not lined, DEQ applied the WQBEL review to the end of the pipe.

Table 30 presents an overview of the RP analysis for Outfall 007, based on the above assumptions and as shown in Attachment #2.
This evaluation demonstrated that there is RP to exceed the dissolved aluminum and cyanide standards, and WQBELs will be developed with this permit renewal. In addition:

**Oil and Grease (O&G):** The O&G water quality standard is 10 mg/L [ARM 17.30.637(1)(b)]. CFAC reported “believed absent,” but did not include any monitoring data. Semi-annual monitoring will be required for the duration of the permit in order to determine RP during the next permit renewal cycle.

**TSS and pH:** There are TSS and pH TBELs applied at Outfall 002. There are no TSS water quality standards, and the effluent is discharged through the ground to the surface water – so no additional TSS limits are needed. CFAC will be required to monitor pH semi-annually at Outfall 007 in order to determine if there is potential for an excursion from 6.0 – 9.0 s.u., which is the typical pH limit at end of pipe.

**Antimony, Benzo(a)pyrene, Nickel, and Fluoride:** Although there are TBELs for these parameters, the analysis did not show RP to exceed water quality standards based on the information provided. Furthermore, these parameters were found to be “nondetect” at the internal monitoring point, Outfall 002. However, the effluent concentrations were estimates; CFAC has not monitored for these parameters at Outfall 007. Monitoring will be required during this permit cycle in order to determine RP during the next permit renewal.

**Copper:** Although this parameter is “expected present,” the analysis did not show RP to exceed water quality standards based on the information provided. However, the effluent concentration was an estimate; CFAC has not monitored for it at Outfall 007. Monitoring will be required during this permit cycle in order to determine RP during the next permit renewal.

**Outfall 009 – South Ponds RP**

Table 31 presents an overview of the RP for Outfall 009, based on the above assumptions and shown in Attachment #3.
This evaluation demonstrated that there is RP to exceed the dissolved aluminum, cyanide, and ammonia standards, and WQBELs will be developed with this permit renewal. In addition, DEQ evaluated RP for the following parameters at Outfall 009:

**Oil and Grease (O&G):** The O&G water quality standard is 10 mg/L [ARM 17.30.637(1)(b)]. In addition this parameter has a TBEL applied at Outfall 004 for the Sow Casting Line. CFAC reported “believed absent,” and provided the results from one O&G sample, which had a result of “less than 5 mg/L.” Semi-annual monitoring of oil & grease from Outfall 009 will be required once production is started up, for the duration of the permit. This will provide data for determining RP during the next permit renewal cycle.

**Antimony, Benzo(a)pyrene, and Nickel:** Although there are TBELs for these parameters, the analysis did not show RP to exceed water quality standards based on the information provided. Furthermore, these parameters were found to be “nondetect” at the internal monitoring point, Outfall 004. However, the effluent concentrations were estimates; CFAC has not monitored for them at Outfall 009. Monitoring will be required during this permit cycle in order to determine RP during the next permit renewal.

**Fluoride:** Although there are TBELs for this parameter, the analysis did not show RP to exceed water quality standards based on the information provided. However, the effluent concentrations were estimates; CFAC has not monitored for fluoride at Outfall 009. Monitoring will be required during this permit cycle in order to determine RP during the next permit renewal.

**Copper:** Although this parameter is “expected present,” the analysis did not show RP to exceed water quality standards based on the information provided. However, the effluent concentration was an estimate; CFAC has not monitored for it at Outfall 009. Monitoring will be required during this permit cycle in order to determine RP during the next permit renewal.

### Table 31: RP Summary for Outfall 009 (to South Ponds)

<table>
<thead>
<tr>
<th>Parameter (all units in µg/L except as noted)</th>
<th>Surface Water Quality Standards</th>
<th>Concentration after Mixing (Cᵣ)</th>
<th>WQBEL Needed?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acute</td>
<td>Chronic</td>
<td>Human Health</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>750</td>
<td>87</td>
<td>None</td>
</tr>
<tr>
<td>Antimony, TR</td>
<td>None</td>
<td>None</td>
<td>5.6</td>
</tr>
<tr>
<td>Copper, TR (¹)</td>
<td>14.0</td>
<td>9.3</td>
<td>1,300</td>
</tr>
<tr>
<td>Nickel, TR (¹)</td>
<td>469</td>
<td>52</td>
<td>100</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>None</td>
<td>None</td>
<td>0.038</td>
</tr>
<tr>
<td>Cyanide</td>
<td>22</td>
<td>5.2</td>
<td>140</td>
</tr>
<tr>
<td>Fluoride</td>
<td>None</td>
<td>None</td>
<td>4,000</td>
</tr>
<tr>
<td>Ammonia (mg/L)</td>
<td>3.15</td>
<td>1.41</td>
<td>NA</td>
</tr>
</tbody>
</table>

Footnotes:
1. Acute and chronic water quality standards for copper and nickel based on the 25th percentile hardness of the Flathead River of 100 mg/L, in accordance with Circular DEQ-7.
**BOD₅**: The facility provides a significant amount of control of BOD₅ through TBELs for the sewage treatment plant (Section III). No additional WQBELs will be required for this parameter.

**TSS and pH**: there are TSS and pH TBELs applied at Outfall 004 and 005. There are no TSS water quality standards, and the effluent is discharged through the ground to the surface water – so no additional TSS limits are needed. Semi-annual monitoring of pH at Outfall 009 will be required once production is started up, for the duration of the permit. This will provide data in order to determine if there is potential for an excursion from 6.0 – 9.0 s.u., which is the typical pH limit at end of pipe.

**Escherichia coli (E. coli) Bacteria**: E. coli bacteria standards became effective February 1, 2006. The applicable standards for E. coli are:

1. April 1 through October 31, of each year, the geometric mean number of the microbial species E. coli must not exceed 126 colony forming units (cfu) per 100 milliliters (mL), nor are 10% of the total samples during any 30-day period to exceed 252 cfu per 100 mL [ARM 17.30.623(2)(a)(i)]; and

2. November 1 through March 31, of each year, the geometric mean number of E. coli shall not exceed 630 cfu per 100 mL and 10% of the samples during any 30-day period may not exceed 1,260 cfu per 100 mL [ARM 17.30.623(2)(a)(ii)].

No analysis was provided. CFAC will be required to perform monitoring of E. coli at Outfall 009, in order to determine RP during the next permit renewal cycle.

**Total Residual Chlorine (TRC)**: Circular DEQ-7 contains the TRC water quality standards of 0.011 mg/L Average Monthly Limit (AML) and 0.019 mg/L Maximum Daily Limit (MDL). CFAC reported “believed absent,” but did not include any monitoring data for TRC. Chlorine is used to disinfect effluent from the package plant. Semi-annual monitoring for TRC will be required at Outfall 009 for the duration of the permit in order to determine RP during the next permit renewal cycle, as long as CFAC continues to use chlorine for disinfection.

**Total Ammonia**: Total ammonia limits are developed based on standards that account for a combination of pH and temperature of the receiving stream, the presence or absence of salmonid fish species, and the presence or absence of fish in early life stages. Based on Circular DEQ-7, DEQ calculated ammonia water quality standards for Flathead River:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Period</th>
<th>Salmonids Present</th>
<th>Early Life Stages</th>
<th>Ambient Conditions (1)</th>
<th>Water Quality Standard (mg/L) (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>pH (s.u.)</td>
<td>Temperature (°C)</td>
</tr>
<tr>
<td>Acute Criterion</td>
<td>Annual</td>
<td>Yes</td>
<td>NA</td>
<td>8.3</td>
<td>NA</td>
</tr>
<tr>
<td>Chronic Criterion</td>
<td>Annual</td>
<td>NA</td>
<td>Yes</td>
<td>8.3</td>
<td>15.7</td>
</tr>
</tbody>
</table>

Footnotes: NA – Not Applicable

1. Based on 75th percentile of data from Flathead River (see Part IV.B).
2. Acute and chronic standards based on Department Circular DEQ-7 (2012).

RP to exceed the ammonia standards was assessed using Equation 1 (see Attachment #3), and there is RP to exceed these standards. WQBELs are developed, below.
**Total Nitrogen (TN) and Total Phosphorus (TP):** The Flathead River is not listed as impaired for TN or TP and there are no nutrient standards. Flathead River is a major tributary to Flathead Lake, which is impaired and has a TMDL. The Nutrient Management Plan & Total Maximum Daily Load for Flathead Lake was approved by EPA on March 31, 2002. CFAC was not assigned a wasteload allocation.

The effluent concentration of the one TN sample was 2.2 mg/L. The effluent concentration of TP was 0.96 mg/L. The new permit will continue to require monitoring of nutrients, and effluent limits for TN and TP may be developed during the next permit renewal in accordance with any nutrient standards that may be implemented during this permit cycle.

**Nitrate + Nitrite (NO₃+NO₂):** The human health standard for NO₃+NO₂ is 10 mg/L. The C_d for NO₃+NO₂ was 1.7 mg/L, based on a maximum observed effluent concentration of 0.26 mg/L x TSD multiplier of 6.7. Using Equation 1, DEQ determined that even if the available dilution were zero, the worst-case C_s = C_d (=1.7 mg/L), therefore there is no RP to exceed the NO₃+NO₂ standard. DEQ will need to re-evaluate RP for NO₃ + NO₂ if CFAC conducts ammonia-removal treatment.

**Outfall 013 – Head Tank Cleaning RP**

Table 33 presents an overview of the RP for Outfall 013 developed in Attachment #4, which shows that there is no RP to exceed water quality standards and no WQBEL is needed.

<table>
<thead>
<tr>
<th>Table 33: RP Summary for Outfall 013 (Head Tank Cleaning)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Chlorine</td>
</tr>
</tbody>
</table>

**WQBEL Calculations—Individual Pollutants and Parameters**

For most parameters with RP, to establish WQBELs for an existing discharger DEQ first calculates Wasteload Allocations (WLAs) from the numeric water quality standards. These WLAs are then translated into maximum daily limitations (MDLs) and average monthly limitations (AMLs). The most protective AML and the most protective MDL are the WQBELs for each pollutant of concern.

As shown in Equation 2 below, the mass-balance equation given in the previous section can be arranged to calculate the WLA (C_d) so that the discharge does not cause or contribute to an exceedance of the applicable water quality standard under critical conditions.

\[
C_d = \frac{Q_s C_s - Q_d C_r}{Q_d} \quad (Eq. 2)
\]

Given:
- \( C_d \) = Effluent Pollutant Concentration (WLA)
- \( Q_s \) = critical stream flow of receiving water, 7Q10 - available dilution
- \( Q_d \) = critical effluent discharge flow rate
- \( C_s \) = critical river concentration – Flathead River 75th percentile ambient concentration
- \( C_r \) = the resulting receiving water concentration
Arranging the equation in this manner, it can be applied to any effluent and receiving water where the applicable dilution ratio is known (see Attachment #5). Where an existing discharge is to a water body that is not meeting a concentration-based numeric standard in the water column, the WLAs for that pollutant of concern may be set equal to the applicable numeric water quality standards.

**Outfall 006 – Ground Water Seep WQBELs**

A summary of the WQBEL for Outfall 006 is found in the table below.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>WQBEL</th>
<th>Basis for WQBEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MDL</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>143</td>
<td>Circular DEQ-7 (no assimilative capacity; WLA = WQS)</td>
</tr>
<tr>
<td>Cyanide</td>
<td>22</td>
<td>Circular DEQ-7 (aquatic life stds)</td>
</tr>
</tbody>
</table>

DEQ developed the Outfall 006 dissolved aluminum and cyanide MDLs and AMLs based on the TSD approach (see Attachment #5). However, this included the assumption that the discharge flow from the seep was the entire 270,000 gpd calculated ground water flow, which is not believed to be true. Regardless, the calculations for developing the WQBELs result in the same limits, even if the ground water seep was significantly lower.

Based on 22 samples, the Outfall 006 average CN concentration was 100 µg/L and the maximum was 170 µg/L. Furthermore, the one dissolved aluminum sample was 170 µg/L which is greater than both the AML and MDL.

**Outfall 007 – North Ponds WQBELs**

A summary of the WQBELs for Outfalls 007 is found in the table below.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>WQBEL</th>
<th>Basis for WQBEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MDL</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>152</td>
<td>Circular DEQ-7 (no assimilative capacity; WLA = WQS)</td>
</tr>
<tr>
<td>Cyanide</td>
<td>22</td>
<td>Circular DEQ-7 (aquatic life stds)</td>
</tr>
</tbody>
</table>

**Outfall 009 – South Ponds WQBELs**

A summary of the WQBELs for Outfalls 009 is found in the table below.
Table 36: WQBEL Development for Outfall 009

<table>
<thead>
<tr>
<th>Parameter</th>
<th>WQBEL</th>
<th>Basis for WQBEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MDL</td>
<td>AML</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>118</td>
<td>78</td>
</tr>
<tr>
<td>Cyanide</td>
<td>19</td>
<td>9.5</td>
</tr>
<tr>
<td>Ammonia (mg/L)</td>
<td>13.5</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Based on the TSD approach the proposed ammonia MDL is 13.5 mg/L and AML is 6.7 mg/L (see Attachment #5). However, during the POR, there was only one effluent ammonia sample, with a concentration of 5 mg/L. This is not enough data to determine whether CFAC is currently capable of meeting the new ammonia limits proposed in this permit renewal. Therefore, the special condition section will include a compliance schedule (see Section VIII.B) and the ammonia limits will become effective January 1, 2017.

Whole Effluent Toxicity (WET) Monitoring – Acute Toxicity

ARM 17.30.637(1)(d) requires that state water be free from substances attributable to industrial waste that create conditions which are harmful or toxic to human, animal, plant or aquatic life, except DEQ may allow limited toxicity in a mixing zone provided that there is no acute lethality to organisms.

Except Outfall 006, all discharges report to site ground water prior to entering surface water and WET testing is not appropriate. CFAC will be required to monitor Outfall 006 for WET. Should the effluent exceed the acute toxicity limitation in a routine test and is confirmed as persistent by the additional test, a Toxicity Identification Evaluation / Toxicity Reduction Evaluation (TIE-TRE) shall be undertaken by the permittee to establish the cause of the toxicity, locate the source(s) of the toxicity, and develop control of, or treatment for the toxicity.

If the results for four consecutive quarters of testing indicate no acute toxicity, the permittee may request a reduction to quarterly acute toxicity testing on only one species on an alternating basis.

V. Final Effluent Limits

Section 402(o) of the CWA and 40 CFR 122.44(l) require that effluent limits or conditions in reissued permits be at least as stringent as those in the existing permit, with certain exceptions. Also, regulations at 40 CFR 122.44 require that permits contain the more stringent TBEL or WQBEL limitation applicable to an individual pollutant. The more stringent technology-based limit was used to determine the final effluent limits.

Outfall 002 – Anode Casting (Internal Monitoring):

TBELs apply at the end of the process, prior to any dilution. Therefore, DEQ will continue to assign TBEL effluent limits at Outfall 002, the internal monitoring point for the anode casting process discharge, before it combines with unregulated waste streams regulated at Outfall 007.
The mass-based limits are tiered on a production-basis. As CFAC is in shutdown mode at the time of renewal, the effluent limits for Outfall 002 are ‘0.’ Any time production changes the facility must provide a 30-day advance notice to DEQ. At that time, the effluent limits for the anode casting plant corresponding to the appropriate level of production will be effective, as shown in Table 37:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Production – 5 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.001</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.207</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.066</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.028</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>2.01</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,846</td>
<td>695</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td></td>
<td>Between 6.0 – 9.0 at all times</td>
</tr>
<tr>
<td><strong>4 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00088</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.165</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.053</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.022</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>1.61</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,477</td>
<td>556</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td></td>
<td>Between 6.0 – 9.0 at all times</td>
</tr>
<tr>
<td><strong>3 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00066</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.124</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.039</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.017</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>1.21</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,107</td>
<td>417</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td></td>
<td>Between 6.0 – 9.0 at all times</td>
</tr>
<tr>
<td><strong>2 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00044</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.083</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.026</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.011</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>0.806</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>738</td>
<td>278</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td></td>
<td>Between 6.0 – 9.0 at all times</td>
</tr>
<tr>
<td><strong>1 Potline</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.00022</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.041</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.013</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.0056</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>0.403</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>369</td>
<td>139</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td></td>
<td>Between 6.0 – 9.0 at all times</td>
</tr>
</tbody>
</table>
Outfall 004 – Aluminum Chilling (Internal Monitoring):

TBELs apply at the end of the process, prior to any dilution. Therefore, DEQ will continue to assign TBEL effluent limits at Outfall 004 for the aluminum casting chilling discharge, the internal monitoring point for the aluminum casting chilling discharge, before it combines with unregulated waste streams regulated at Outfall 009. The mass-based limits are tiered on a production-basis.

As CFAC is in shutdown mode at the time of renewal, the effluent limits for Outfall 004 are ‘0.’ Any time production changes the facility must provide a 30-day advance notice to DEQ. At that time, the effluent limits corresponding to the appropriate level of production will be effective, as shown in Tables 38 (T-Bar Casting) and 39 (Sow Casting):

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max.</th>
<th>Ave, Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table 38: Final Limits for Outfall 004 (Internal Monitoring for T-Bar Casting)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Full Production – 5 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>5.00</td>
<td>1.67</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>1.58</td>
<td>0.53</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.45</td>
<td>0.23</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>48.65</td>
<td>16.27</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,846</td>
<td>695</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
<tr>
<td><strong>4 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>4.00</td>
<td>1.34</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>1.26</td>
<td>0.42</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.36</td>
<td>0.18</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>38.92</td>
<td>13.01</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,477</td>
<td>556</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
<tr>
<td><strong>3 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>3.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.95</td>
<td>0.32</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.27</td>
<td>0.14</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>29.19</td>
<td>9.76</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,107</td>
<td>417</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
<tr>
<td><strong>2 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>2.00</td>
<td>0.67</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.63</td>
<td>0.21</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.18</td>
<td>0.091</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>19.46</td>
<td>6.51</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>738</td>
<td>278</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>
Table 38: Final Limits for Outfall 004 (Internal Monitoring for T-Bar Casting)

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Potline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>1.00</td>
<td>0.33</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.32</td>
<td>0.11</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.09</td>
<td>0.046</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>9.73</td>
<td>3.25</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>369</td>
<td>139</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>

A total of no more than five casting lines (both T-bar and sow) may be in operation on any day.

Table 39: Final Limits for Outfall 004 (Internal Monitoring for Sow Casting)

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 Potlines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>2.50</td>
<td>0.84</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.79</td>
<td>0.27</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.23</td>
<td>0.11</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>24.33</td>
<td>8.13</td>
</tr>
<tr>
<td>Oil and Grease (00182)</td>
<td>kg/day</td>
<td>4.09</td>
<td>3.08</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>6.13</td>
<td>3.70</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>(1)</td>
<td></td>
</tr>
</tbody>
</table>

Footnotes:
1. The pH shall be maintained within the range of 7.0 to 10.0 at all times except for those situations when this waste is discharged separately and without commingling with any other wastewater in which case the pH shall be within the range of 6.0 to 10.0 at all times.

Outfall 005 - Sewage Treatment Plant (Internal Monitoring):

Effective immediately, the following limits apply after the sewage treatment plant, prior to confluence with discharge from Outfall 004 and other unregulated waste streams.

Table 40: Outfall 005 – Sewage Treatment Plant Effluent Limits

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Average Weekly Limitation</th>
<th>Average Monthly Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-day Biochemical Oxygen Demand (BOD₅) (00310)</td>
<td>mg/L</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>mg/L</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 to 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>
**Outfall 006 – Ground Water Seep:**

Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 006, at the ground water seep prior to discharge into the Flathead River:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>MDL</th>
<th>AML</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>143</td>
<td>71</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>22</td>
<td>11</td>
</tr>
</tbody>
</table>

In addition, there shall be no acute toxicity in the effluent discharged by the facility from Outfall 006.

**Outfall 007 – Outfall to North Ponds:**

Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 007, at the end of the pipe prior to discharge into the North Pond system:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>MDL</th>
<th>AML</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>152</td>
<td>49</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>22</td>
<td>11</td>
</tr>
</tbody>
</table>

**Outfall 009 – Outfall to South Ponds:**

Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 009, at the end of the pipe prior to discharge into the South Pond system:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>MDL</th>
<th>AML</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>118</td>
<td>78</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>19</td>
<td>9.5</td>
</tr>
<tr>
<td>Ammonia (1)</td>
<td>mg/L</td>
<td>13.5</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Footnote:
1. The ammonia limits become effective January 1, 2017 since it is unknown whether CFAC can currently meet these limits. CFAC is required to monitor, only until that time.

**Outfall 013:**

Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 013 at the end of the pipe prior to discharge onto the ground: TRC will be limited to <0.1 mg/L.
VI. Monitoring Requirements

Regulations requiring the establishment of monitoring and reporting conditions in MPDES permits are found at 40 CFR 122.44(i) and 122.48 and ARM 17.30.1351.

All analytical procedures must comply with the specifications of 40 CFR Part 136 and the analysis must meet any Required Reporting Values (RRVs) listed in Circular DEQ-7 unless otherwise specified. Samples shall be collected, preserved and analyzed in accordance with approved procedures listed in 40 CFR 136.

A. Effluent Monitoring

Self-monitoring of effluent discharged from the anode paste plant (Outfall 002) shall be conducted downstream of the process, prior to the addition of any other wastewater. Samples must be representative of the volume and quantity of the effluent.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency (i)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Monthly</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Quarterly</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Monitoring required only during periods of discharge.
### Table 45. Outfall 004 (Internal) Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Monthly</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Quarterly</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Monitoring required only during periods of discharge.

### Table 46. Outfall 005 (Internal) Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>5-Day Biochemical Oxygen Demand (BOD₅)</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Monthly</td>
<td>Instantaneous</td>
</tr>
</tbody>
</table>
### Table 47. Outfall 006 Ground Water Seep - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency (1)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous (2)</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily (2)</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>WET – Two Species</td>
<td>Pass/Fail</td>
<td>Quarterly (3)</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Monitoring required immediately upon the effective date of this permit except for flow volume and frequency.
2. By no later than September 1, 2015, CFAC will install necessary flow monitoring equipment and continuously monitor the flow from the ground water seep.
3. Sampling is required starting the first full calendar quarter following the effective date of the permit. If the results for four consecutive quarters of testing indicate no acute toxicity, the permittee may request a reduction to quarterly acute toxicity testing on only one species on an alternating basis.

### Table 48. Outfall 007 North Ponds - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 007 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.
### Table 49. Outfall 008 North Ponds - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>TSS</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 008 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

### Table 50. Outfall 009 South Ponds - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Chlorine, Total Residual</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>E. coli bacteria</td>
<td>cfu/100 mL</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nitrate + Nitrite</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 009 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.
### Table 51. Outfall 010 - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Iron, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

Footnotes:

1. Effective immediately, the discharge flow rate for Outfall 010 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

### Table 52. Outfall 011 - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Iron, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

Footnotes:

1. Effective immediately, the discharge flow rate from Outfall 011 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.
Table 53. Outfall 012 - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Composite</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate from Outfall 012 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

Table 54. Outfall 013 - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Residual Chlorine (TRC)</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
</tbody>
</table>

B. Upstream Monitoring

CFAC will supply DEQ with a location, both using coordinates and indicated on a diagram, of the upstream sampling location within thirty days of the effective date of this permit. The location must be at a location that is representative of the Flathead River ambient quality before any impacts from CFAC.

CFAC shall monitor the following parameters from a monitoring site upstream of any expected influence from the process wastewater or ground water as listed in Table 55. The analysis must meet the RRV as listed in the most recent Circular DEQ-7.
Table 55. Flathead River Upstream of Facility - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency (1)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Temperature</td>
<td>deg C</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nitrate + Nitrite</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
</tbody>
</table>

VII. Special Conditions/Compliance Schedules

A. Compliance Schedule

1. **Upstream Monitoring** – Within thirty (30) days of the effective date of this permit, CFAC shall submit both latitude/longitude coordinates and a diagram of the upstream sampling location to DEQ. The submittal shall include a discussion on how CFAC has ensured the monitoring will be representative of the background concentration in Flathead River without any influence from their site.

2. **Outfall 006 Ground Water Seep** – Monitoring of the ground water seep flow rate will become effective **September 1, 2015**. Until this date, CFAC shall submit to DEQ:
   - a plan of action within six (6) months from the effective date of this permit, and
   - a report by no later than January 28, 2015, describing the actions taken in 2014 and planned in 2015. If necessary, an updated plan of action shall be included with this report.

3. **Ammonia** – The Outfall 009 ammonia effluent limits will become effective **January 1, 2017**. Until this date, CFAC shall submit an annual report dated no later than the 28th of January following each year, describing the actions taken in the previous year and proposed for the upcoming year, to ensure compliance with the new limits.
B. Storm water Pollution Prevention Plan

Storm water effluent quality is typically managed through the implementation of Storm Water Pollution Prevention Plans (SWPPPs) and BMPs and, where necessary, effluent monitoring requirements. CFAC shall operate the facility in accordance with a current SWPPP. The SWPPP shall be updated as soon as possible but no later than January 1, 2015.

a. The SWPPP and associated documentation, as well as BMPs developed and implemented, must be accomplished using good standard engineering practices.

b. The SWPPP must be retained onsite.

c. The SWPPP must be signed in accordance with the signatory requirements stated in the renewed MPDES permit Part IV.G.

d. The SWPPP must be made available upon request of DEQ staff, such as during inspections.

e. CFAC must develop and maintain the SWPPP in accordance with the “Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity,” MPDES MTR000000, Part 3.1.

CFAC must notify DEQ after the SWPPP has been updated, by no later than January 28, 2015.

C. Toxicity Identification Evaluation / Toxicity Reduction Evaluation (TIE-TRE)

Should acute toxicity be detected in the required WET resample, a TIE-TRE shall be undertaken by the permittee to establish the cause of the toxicity, locate the source(s) of the toxicity, and develop control or treatment for the toxicity. Failure to initiate or conduct an adequate TIE-TRE, or delays in the conduct of such tests, shall not be considered a justification for noncompliance with the WET limits.

A TRE plan needs to be submitted to DEQ within 45 days after confirmation of the continuance of effluent toxicity (resample failure).

VIII. Nonsignificance Determination

The proposed effluent limits have been maintained below the nondegradation levels and do not constitute a new or increased source of pollutants pursuant to ARM 17.30.702(16). Therefore, a nonsignificance analysis is not required [ARM 17.30.705(1)].

IX. Other Information

On September 21, 2000, a US District Judge issued an order stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a particular water quality limited segment, the State is not to issue any new permits or increase permitted discharges under the MPDES program. The order was issued under the lawsuit Friends of the Wild Swan vs. US EPA, et al., CV 97-35-M-DWM, District of Montana, Missoula Division. The renewal of this permit does not conflict with Judge Molloy’s order because the permit includes effluent limits that prohibit any increases above previously-allowed authorized amounts and it is therefore not a new or increased discharge.
X. Information Source

1. Montana Code Annotated Title 75, Chapter 5 - Water Quality
2. Administrative Rules of Montana Title 17 Chapter 30 - Water Quality
   Subchapter 2 - Water Quality Permit and Application Fees
   Subchapter 5 - Mixing Zones in Surface and Ground Water
   Subchapter 6 - Montana Surface Water Quality Standards and Procedures
   Subchapter 7 - Nondegradation of Water Quality
   Subchapter 10 - Montana Ground Water Pollution Control System
   Subchapter 12 - Montana Pollutant Discharge Elimination System (MPDES) Standards
   Subchapter 13 - Montana Pollutant Discharge Elimination System (MPDES) Permits
4. Montana Pollutant Discharge Elimination System (MPDES) Permit Number MT0030066
   a. Administrative Record.
   b. 2003 Renewal Application & 2013 Renewal Update

Completed by: Christine Weaver, February 2014
EXHIBIT 12
April 4, 2014

Submitted via email to WPBPublicNotices@mt.gov

DEQ Permitting & Compliance Division  
Water Protection Bureau  
PO Box 200901  
Helena, MT 59620  

Re: Comments regarding Draft MPDES Permit MT0030066 and Fact Sheet (Public Notice dated 2/18/2013)  
Columbia Falls Aluminum Company Water Discharge Permit

Dear Bureau:

Thank you for the opportunity to comment on draft permit MT0030066 and the related Fact Sheet. Attached are Columbia Falls Aluminum Company (CFAC) comments.

The February 2014 draft permit and Fact Sheet include changes which are inconsistent with the regulatory history and CFAC’s application, and contain significant errors. Substantial corrections and changes are required before issuance of a final permit. We describe our concerns in the attached documents. We request that MDEQ consider our comments going forward in the permit renewal process, and we request a meeting with MDEQ no later than April 17, 2014 to discuss these issues.

Sincerely,

Steve Wright  
Environmental Manager

Enclosures

cc: Scott Mason – Hydrometrics  
     Doug Parker – Hydrometrics  
     Cathy Laughner, Esq.- Browning, Kaleczyk, Berry & Hoven P.C.  
     Andrew Otis, Esq. – Curtis, Mallet-Prevost, Colt & Mosle LLP
Columbia Falls Aluminum Company (CFAC) Comments on Draft Permit MT0030066

Columbia Falls Aluminum Company (CFAC) appreciates the opportunity to submit the following comments on Draft Permit MT0030066. Because the Draft Permit relies upon the statement of facts in the Fact Sheet, CFAC has included comments with regard to the Fact Sheet as well and has ordered its comments so that its comments related to the Fact Sheet appear first. Regardless of how they are organized, it is CFAC’s intent that all of the comments be applied to the Draft Permit and Fact Sheet as appropriate. CFAC will be pleased to provide additional information and to work with the Department as necessary to finalize this permit.

**Overall Comments**

As a general comment, CFAC considers the major changes in this Draft Permit from the existing permit to be either (i) unnecessary (ii) unsupported by the facts in the administrative record (iii) inconsistent with established MDEQ policy or (iv) inconsistent with applicable Montana law. Furthermore, in addition to being deficient for the reasons described in the preceding sentence, the proposed changes to the existing groundwater and surface water mixing zones, additional internal outfalls and additional monitoring do not benefit the environment and impose significant burden. In addition, CFAC finds many of the statements in the Fact Sheet to be unsupported by the facts in the Administrative Record and thus incapable of supporting provisions of the Draft Permit that rely on such statements.

**Fact Sheet Comments**

**Comment 1: Page 1** – The second paragraph is incomplete. Please add the following:

Discharges to groundwater were initially regulated by a 1984 ground water discharge permit. This permit included a groundwater mixing zone. (See page 2, Exhibit 1.) Later, MDEQ required an MPDES permit. In 1993, CFAC applied for a MPDES surface water permit for the discharge of “Groundwater contaminated by historical spent potlining disposal practices.” The application was for a MPDES permit for the groundwater release to the Flathead River. The Statement of Basis for the permit issued in 1994 stated, “The permit requires ground water monitoring adjacent to and downgradient of the landfill to verify the effectiveness of the measures taken to reduce the leachate volume and to track the reduction in ground water CN concentration from the landfill to the Flathead River.” (Statement of Basis, p. 2, 1994). The 1994 MPDES permit stated: “CFAC is authorized to discharge process water from its aluminum reduction plant, to ground waters discharging to the Flathead River.” ( Permit No. MT-0030066, p.1). A special condition in Permit No. MT-0030066 required CFAC to institute best management practices in capping the spent potliner landfill and investigating the site hydrology. An engineered cap, installed at a cost of over $700,000 was placed over the spent potliner to comply with the Special Condition in the MPDES permit. CFAC also implemented a MDEQ approved workplan for the “Assessment of Hydrologic Conditions Associated With the Closed Landfill and Calcium Fluoride Pond”, dated March 2, 1993. The 1998 Statement of Basis describes this history (See Exhibit 2, attached).

**Comment 2: Page 1** – The third paragraph is incomplete. Please add the following to the beginning of the paragraph:

In August 1998, CFAC submitted an application for an MPDES Permit Renewal and “Application for Groundwater and Surface Water Mixing Zones.” See Attachment A – Mixing Zone Application, CFAC
MPDES Permit Renewal (August 1998). The MPDES Permit currently in effect, which includes a groundwater mixing zone and a surface water mixing zone, has been administratively extended consistent with Administrative Rules of Montana (ARM) 17.30.1313.

Comment 3: Page 4, Table 1 – Outfall 006; The table incorrectly indicates that 006 is a discrete seep. The seepage and groundwater discharge to the Flathead River occurs both above and below the surface water level of the Flathead River along the length of that section of the riverbank. (See Exhibit 3, Mixing Zone Application, pages 5-9 (1998)).

Compliance monitoring upgradient and downgradient of the mixing zone is through a monitoring plan which includes wells W1, W2, W9, and W10. Wells W0, W1, W3, W4, W5, W6, W7, W8, and W11 monitor the groundwater within the mixing zone.

Comment 4: Page 6 – The descriptions of the end of inlet pipes to the North and South Ponds being the “last point of control” is inaccurate. The ponds are treatment facilities and provide settling and solids removal. This Fact Sheet and draft permit do not give credit for the ponds as treatment, which is inconsistent with MDEQ policy and is not based on the facts in the record. MDEQ recognized the North and South Ponds as wastewater treatment facilities in the current MPDES permit, throughout the 1998 Statement of Basis. One example, on page 12 of the 1998 SOB, states:

Wastewater Outfalls 002, 003, 004 and 005 report to percolation ponds where suspended solids are removed by settling. Primary treatment of the discharges is justification for basing effluent limits on dissolved concentrations. The discharge of Outfall 004 to the south percolation ponds also reduces the temperature of the ingot cooling water prior to its seepage into surface water. Outfall 006 probably receives some treatment due to CN attenuation in the aquifer medium in addition to dilution between the closed west landfill and the Flathead River.

Comment 5: Page 7 – Although the description of Outfall 006 includes the sites where both process and non-process waters are discharged to groundwater and “Site Ground Water” it does not include the areas where that groundwater flows into surface water in the Flathead River; the description below taken from the existing permit provides a more accurate description of sources and should be included in this Fact Sheet as well.

Discharge 006 is ground water flowing beneath the plant site and discharging to surface water in the Flathead River. Groundwater receives water from the North Pond, South Pond, West Pond, dry wells and historical disposal practices. The ponds and dry wells receive water from D002, D003, D004, D005, stormwater, paste plant ball mill cooling water, motor and fan bearing non-contact cooling water, other non-contact equipment cooling water, air conditioner condensate, electromelt furnace non-contact cooling water, air compressor condensate blowdown, air compressor non-contact cooling water, masonry shop waste water, battery shop waste water, laboratory instrument non-contact cooling water, blowdown from boilers and hot water production, garage waste water, garage steam cleaning sump, pin crane steam cleaning sump, casting mold cleaning water, casting mold steam cleaning, rectifier cooling water, rectifier oil separator sump water, non-solvent laboratory waste water, heat pump condensate, machine shop steam cleaning sump, quonset building septic system, outdoor vehicle wash water, head tank overflow, head tank cleaning water, production well water during testing and maintenance, lawn water, dust abatement water, non-contact cooling water for diesel engine used for emergency fire water pump, and fire hydrant winter water bleed system.
Comment 6: Page 8 – The 270,000 gpd GW flow (referenced on top of page 8 of Fact Sheet) does not represent the entire flow, when the Plant is at full production.

Comment 7: Page 8 – The North (Outfall 007) and South (Outfall 009) Ponds are treatment facilities that provide settling and solids removal. The Fact Sheet and draft permit need to be corrected because they do not give credit for the ponds as treatment. MDEQ recognized the North and South Ponds as wastewater treatment facilities in the current MPDES permit, as stated throughout the 1998 Statement of Basis and in particular, on page 12 which states:

Wastewater Outfalls 002, 003, 004 and 005 report to percolation ponds where suspended solids are removed by settling. Primary treatment of the discharges is justification for basing effluent limits on dissolved concentrations. The discharge of Outfall 004 to the south percolation ponds also reduces the temperature of the ingot cooling water prior to its seepage into surface water. Outfall 006 probably receives some treatment due to CN attenuation in the aquifer medium in addition to dilution between the closed west landfill and the Flathead River.

Neither the Fact Sheet nor the Administrative Record provide any factual basis to contradict the findings quoted from the Statement of Basis above. Thus, the MDEQ had no factual basis upon which to change the classification of the North and South pounds as treatment facilities.

In the draft permit, outfalls to which TBELs apply (Outfalls 002, 004, and 005) are monitored at internal monitoring points prior to discharge to the ponds. For Outfalls to which TBELs do not apply (Outfall 007 and 009), CFAC requests that parameters are monitored on the basis of dissolved concentrations (i.e., field-filtered samples) to simulate settling and removal that occurs in the ponds. Otherwise, the Fact Sheet and Permit arbitrarily alter the permit and impose requirements not required by applicable Montana law.

Comment 8: Page 13. Compliance history is incorrect. It is inaccurate to state the DMR was not submitted.

Comment 9: Page 18; Outfall 013 – The TRC limit of 0.1 mg/L appears to come from the Disinfection Water General Discharge Permit and is not appropriate for a groundwater discharge under an Individual Permit. Attenuation between the discharge source and the river would remove most if not all of the TRC. Moreover, as described in Table 33, page 42 of the Fact Sheet, there is not reasonable potential for TRC to exceed water quality standards, therefore, no effluent limit is required.

Comment 10: Page 18 – Previous permit applied ELs as “net”; this is not continued. The application of net limits should be reconsidered and included in the permit.

Comment 11: Page 19 – The application of Total Recoverable metals to Outfalls 002 and 004 Al, Sb, Ni does not account for the treatment process performed by a series of three settling ponds adjacent to the Flathead River. The treatment, settling and solids removal, is recognized in the previous permit: “Outfalls 002 and 003 are treated by solids settling and cooling in a primary pond and filtration in a secondary percolation pond. Outfall 004 is treated by settling and percolation through a series of three
“ponds adjacent to the Flathead River.” (1998 Statement of Basis page 5). In addition to solids removal, the metals are attenuated through the GW flow path. By not accounting for these treatment steps the current Draft uses an inaccurate and inappropriate conceptual model of contaminant transport to the surface water and ignores facts established in the Administrative Record without justification. The 002 and 004 discharges should be measured as dissolved.

ARM 17.30.1345(5) only requires that permit “effluent limitations, standards, or prohibitions for a metal” must be expressed as “total recoverable”. This does not preclude monitoring in such a way as to account for the treatment provided by the ponds, as was done in the existing permit. Therefore, CFAC requests that monitoring for metals should be based on filtered samples.

Comment 12: Page 25, Table 19 – Table 19 incorrectly lists monitoring wells as outfalls.

Comment 13: Page 26 – For clarification, it should be noted that no discharge allocations have been assigned to any sources in the Flathead Lake TMDL. When developed and published in December 2001 the Flathead Lake TMDL stated that allocations would be developed in the future based on the watershed loading model. However, the model has not yet been developed and discharge allocations have not yet been assigned to any sources, including CFAC.

Comment 14: Page 28, Table 21. The basis for the selection of statistical estimates of water quality should be described as it appears to be inaccurate and inconsistent. For parameters that have never been detected (antimony, copper, and nickel), since the maximum value (i.e., 100th percentile) is nondetect, the 75th percentile must be less than the nondetect value (that is, 75th percentile must be less than the 100th percentile). In these instances, CFAC suggests that a value of one half of the detection limit value is used. The selection of the 25th percentile rather than 75th percentile for hardness is not described or supported and CFAC requests the use of 75th percentile for hardness for consistency.

Comment 15: Page 28, last sentence – ....“final limits will require no more than five casting lines.” CFAC is unclear as to what a “casting line” is and how this limitation would be applied. It seems that this reference should be changed to “pot lines”.

Comment 16: Page 30. The Fact Sheet states that the groundwater mixing zone contained in the current permit was “improperly applied to the entire facility, rather than to each permitted outfall [ARM 17.30.515(1)].” This statement is inconsistent with Montana law and not supported by the facts in the Administrative Record.

Montana Law and Rules Applicable to Mixing Zones

The definition of a “mixing zone” is an “area established in a permit or final decision on nondegradation issued by the department where water quality standards may be exceeded, subject to conditions that are imposed by the department and that are consistent with the rules adopted by the board.” (Mont Code Ann. 75-5-103(21). Contrary to the MDEQ approach, ARM 17.30.515(1) does not expressly limit mixing zones to each permitted outfall, but merely states that “The department will determine whether a mixing zone is appropriate for a particular discharge ...”. Moreover, the regulations allow the Department to establish an alternative or modified mixing zone (arm 17.30.515(1)(d)), as is included in the current permit. Furthermore, Montana law requires that once such a mixing zone is included in the permit, it must be designated in future permits unless there is a factual basis for excluding it. ARM 17.30.505 (c) provides:
“For sources discharging under a permit issued by the department prior to April 29, 1993, any mixing zone allowed under the permit will remain in effect until renewal. Upon renewal, any previously allowed mixing zone will be designated in the renewed permit, unless there is evidence that the previously allowed mixing zone will impair existing or anticipated uses.”

The Previous CFAC Permit Designated a Site Wide Groundwater Mixing Zone that was Allowable Under Applicable Law and Supported by Applicable Facts.

MDEQ (or its predecessor, MT Dept. of Health and Environmental Services) issued a Montana Groundwater Pollution Control System Permit No. 0005 on Sept. 17, 1984, permitting discharges to groundwater. (See Exhibit 1) The Department permitted CFAC to discharge to groundwater under this permit. This was a permitted release, and conditions were imposed on CFAC. The Permit required a “landfill leachate management plan” and groundwater monitoring plan. Permit MGWP0005 No. 0005 also required “no degradation of groundwater beyond the property boundary.” During the period the permit was in effect, leachate from the landfill to groundwater was permitted as long as the groundwater quality beyond the property boundary was not degraded. Since MGWP0005 No. 0005 permitted water quality to be degraded within the property boundary, the Permit provided for a groundwater mixing zone, and this mixing zone was allowed under then applicable law. CFAC’s mixing zone application for both a Groundwater Mixing Zone and a Surface Water Mixing Zone (Attachment A to the 1998 Application, Exhibit 3) and DEQ’s Statement of Basis granting the mixing zones describe that the extent of the mixing zones as limited to be as small as practicable and to only encompass areas where cyanide or fluoride standards are exceeded in groundwater. Thus, the two mixing zones established in the Fact Sheet for the Draft Permit clearly indicates that Outfall 006 includes groundwater affected by the upgradient internal Outfalls 007, 008, 009, 010, 011, 012 plus “site groundwater”. The Fact Sheet offers no facts from or references to the Administrative Record that would contradict the conclusion that the Site Wide Groundwater Mixing Zone in the current permit as shown on the referenced Figure 3 continues to be necessary and appropriate.

Comment 17: Page 31. The Acute Toxicity Surface Water Mixing Zone. Fact Sheet page 31 states “However, CFAC has not demonstrated that CN will naturally dissipate in the receiving water sufficiently to avoid acute [effects].” This statement is an incorrect statement of the applicable legal requirements and is contradicted by the facts in the Administrative Record. The applicable legal requirements for mixing zones are described in Comment 16 above. Nowhere in those requirements or in any other applicable laws or rules is it required that a chemical “naturally dissipate in the receiving water” in order for a previously established mixing zone to be approved in a re-issued permit. The only applicable test under Montana Law is whether there is evidence that the mixing zone will impair current or future beneficial uses. The evidence in the Administrative Record supports the conclusion that all of the mixing zones in the prior CFAC permit will not impair such uses and the MDEQ has introduced no facts into the record to support a contrary conclusion.

CFAC did provide this demonstration in the 1998 MPDES application. See attached Attachment A and Exhibit 2 from the 1998 MPDES application. This analysis shows cyanide (CN) is not persistent in surface water and the previous application for a mixing zone (Exhibit 3 which is Attachment A to the 1998
Application) provided an adequate demonstration that acute effects would be avoided. Section 3.0 of Attachment A describes the CN surface water mixing zone analysis.

The Acute Toxicity Mixing Zone Did not Result in Acute Toxicity in the Flathead River and Complied with Applicable Regulations When Approved

In the 1998 Mixing Zone Application, CFAC provided an evaluation of the potential effects of cyanide in compliance with the Mixing Zone Rules (ARM 17.30.500 et seq). On that basis, MDEQ approved a standard surface water mixing zone that included both chronic and acute mixing zones. In the Statement of Basis for the 1998 Permit that granted the mixing zone, DEQ made the following findings regarding the appropriateness of mixing zones:

<table>
<thead>
<tr>
<th>Applicable Regulation</th>
<th>Requirement</th>
<th>Department Finding</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARM 17.30.505(2)</td>
<td>Limitations will be modified and apply at end-of-pipe, if uses threatened or impaired</td>
<td>A water quality assessment completed by CCFAC does not identify threatened or impaired uses.</td>
</tr>
<tr>
<td>ARM 17.30.506(2)(a)</td>
<td>Biologically important areas</td>
<td>The mixing zone does not include a nursery of spawning area.</td>
</tr>
<tr>
<td>ARM 17.30.506(2)(d)</td>
<td>Toxicity/Persistence of pollutant</td>
<td>CN is not persistent in surface water due to photodegradation and volatilization; bioaccumulation factor for CN is 1.1.</td>
</tr>
<tr>
<td>ARM 17.30.507(1)(b)</td>
<td>Acute aquatic life standards not exceeded within any portion of mixing zone, unless the department specifically finds that allowing minimal initial mixing will not threaten or impair existing beneficial uses.</td>
<td>Acute standards are exceeded at the portion of the mixing zone closest to the seeps. Propagation of aquatic life is the existing beneficial use conceivably affected by the CN concentration. The portion of the Flathead River in question is a fish migration route only. The area exceeding the acute CN standard extends for a length of 150 feet and a width of several feet depending on flow and thus does not persist throughout the mixing zone. This limited area of the river where acute toxicity is exceeded will not inhibit fish migration and thus will not threaten or impair beneficial uses.</td>
</tr>
</tbody>
</table>

Source: Table 11, Statement of Basis, Columbia Falls Aluminum Company, MT-0030066; November 12, 1998.

(1) A bioaccumulation factor of 1 means that cyanide does not bioaccumulate.

Neither the Fact Sheet nor the Administrative Record contain any facts that indicate that these facts are no longer valid nor contradicting these findings. Absent such facts, these findings continue to be the only supportable findings and contradict the above referenced statement in the Fact Sheet.
Current Data Supports the Conclusion that the Current Acute Toxicity Mixing Zone does not Result in Acute Toxicity in the Flathead River and Contradicts the Statement in the Fact Sheet.

Existing data for monitoring location Riv-M collected twice per year and submitted to DEQ indicates compliance with standards at the end of the chronic mixing zone. Data submitted in CFAC’s 1998 mixing zone application indicated compliance with aquatic life standards at monitoring location Riv-D which is immediately below the acute mixing zone. A sample collected on March 20, 2014 shows no toxicity at the downgradient end of the acute surface water mixing zone (total CN <0.003 mg/L, See Exhibit 4).

The Current Science Supports The Conclusion in the Statement of Basis and Contradicts the Statement in the Fact Sheet

For purposes of complying with Montana water quality standards at the surface water mixing zone boundary, it is appropriate to establish limits based upon total cyanide concentrations as DEQ has specified in both the 1999 Permit and the draft 2014 Permit. However, in considering the possible acute toxicity effects of cyanide within the mixing zone, DEQ should recognize that total cyanide concentration is not an accurate or appropriate measure of toxicity. The majority of the cyanide forms that are measured and reported as total cyanide are not toxic and the concentration of toxic “free cyanide” forms of cyanide are likely very low both in the groundwater seep and in CFAC’s previously permitted surface water mixing zone.

The USEPA numeric acute aquatic life criteria for cyanide are specifically for “free” cyanide as free cyanide is a more reliable measure of toxicity to aquatic life than total cyanide because the total cyanide can include nitriles and other stable metallocyanide complexes that are not very toxic to aquatic life (USEPA 1985 – Ambient Water Quality Criteria for Cyanide). The Water and Environment Research Foundation sponsored a reassessment of the EPA aquatic life criteria for cyanide (Gensemer et al, 2006. Reassessment of cyanide ambient water quality criteria: An integrated approach to protection of the aquatic environment) and confirmed that free cyanide is the toxic form of cyanide that is most relevant to measurement of cyanide toxicity. Until recently, laboratory measurement of free cyanide concentration has historically not been very reliable (i.e., high detection or reporting limit relative to criteria). As a result of this analytical uncertainty, some states took the conservative approach of either 1) basing their aquatic life criteria on total cyanide; or 2) basing their aquatic life criteria on free cyanide, while still requiring compliance monitoring for WAD (weak acid dissociable) or total cyanide.

Recent improvements in cyanide analytical techniques have resulted in EPA approving three new methods for free cyanide analysis (OIA 1677-09, ASTM method D4282-02, and ASTM method D7237-10; Federal Register Volume 77, Number 97 (May 18, 2012) for monitoring under the Clean Water Act. As a result of these better analytical techniques, State of Oregon Department of Environmental Quality recently changed their approach to implementing and monitoring cyanide effluent limits (ODEQ, November 2012). Oregon aquatic life criteria were previously based on free cyanide concentrations and now allow effluent limits and compliance monitoring to be based on free cyanide concentrations as well. For cyanide aquatic life criteria, the current (March 2014) USEPA National Recommended Water Quality Criteria (http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm) notes that “This recommended water quality criterion [chronic and acute cyanide] is expressed as μg free cyanide (as CN)/L.”

CFAC has historically monitored total cyanide concentrations because the MPDES permit requires monitoring of this cyanide form. However, available data for other aluminum facilities reported in the scientific literature (e.g., Dzombak et al, 2006) demonstrate that the total cyanide from aluminum
smelters and spent potliner leachate is predominately in the form of iron-cyanide complexes (i.e., a form of cyanide measured by the total cyanide method) and contains very little “free” cyanide. Although cyanide effluent limits at CFAC have been expressed in the form of total cyanide, it is appropriate to consider the various cyanide forms in the evaluation of the surface water mixing zone. Allowing an acute mixing zone to provide minimal, initial dilution to comply with the Montana water quality standard will not result in toxic conditions and will not threaten or impair existing beneficial uses.

Cyanide is naturally occurring and is readily removed from water by natural mechanisms. The following summary of the environmental fate of cyanide is summarized from *Cyanide in Water and Soil; Chemistry, Risk and Management* (Dzombak et al, 2006).

1. Cyanide is produced by all living plants (over 2,000 species of plants are recognized as producing significant levels of cyanide), algae, bacteria, fungi, and over 100 species of arthropods.
2. Cyanide-metal complexes (such as ferrocyanide and ferricyanide compounds that typically occur in spent potliner leachate) are subject to photodissociation by natural sunlight. During photodissociation, the cyanide-metal complexes are broken down into free cyanide (which is subject to further volatilization and biodegradation) and metal ions. Cyanide within CFAC’s surface water mixing zone is exposed to sunlight and is expected to photodissociate.
3. Free cyanide is readily volatilized from water (i.e., is lost from water to the atmosphere) at pH conditions below 9.2. The Flathead River within CFAC’s mixing zone has a natural pH ranging from about 7.5 to 8.5. Thus, any free cyanide within the mixing zone, including free cyanide that occurs due to photodissociation of cyanide-metal complexes, is expected to dissipate from the water by volatilization.
4. Free cyanide is biologically degradable by a variety of plant, bacteria, and fungal metabolic processes. In general, these processes are described as either degradation (reactions that convert cyanide into simple organic or inorganic molecules which can be further metabolized into ammonia and either carbon dioxide or methane) and assimilation (incorporation of cyanide directly into organic compounds). As summarized by Dzombak et al (2006) “the transformation of cyanide compounds is a natural biological process, which can be accomplished through a diverse array of biochemical reactions mediated by numerous species of micro-organisms.” Given the ubiquity of organisms and processes by which biological degradation occurs, it is likely that cyanide present in CFAC’s surface water mixing zone will be biologically degraded.

**Comment 18: Page 34, Table 25** – As discussed in Comment 3, this Outfall 006 description does not indicate an accurate understanding of the groundwater flow path from the plant site to the river. The seep is diffuse. The amount of groundwater that contains cyanide and fluoride from CFAC activities and that discharges to the Flathead River is larger than the flow from the discrete seep. The flow estimate provided in the 2013 Renewal Application is the best estimate of actual groundwater discharge.

**Comment 19: Page 35, Table 26** - The aluminum CV is based on one sample. Because there was only one sample analyzed (N=1) this yields a very high multiplier. CFAC suggests that the default value of 1.4 be used.
Comment 20: Page 36, Table 27 – CV for F appears to be incorrect; CFAC calculates a CV of 0.39.

Comment 21: Page 37, first paragraph – The water from all outfalls passes through the ground before being discharged to the Flathead River. That is why dissolved fractions are monitored in the existing permit. Please note that ARM 17.30.1345(5) only requires that permit “effluent limitations, standards, or prohibitions for a metal” must be expressed as “total recoverable”. For monitoring, the RP analysis can be made on the basis of dissolved metals, allowing monitoring on the basis of dissolved metals, or allowing effluent limits and monitoring for non-metal species (such as cyanide, fluoride, and benzo(a)pyrene) on the basis of filtered samples. Therefore, CFAC requests that effluent limits and monitoring for cyanide, fluoride and benzo(a)pyrene be based on filtered (dissolved) samples.

Comment 22: Page 41 – An RP for ammonia is calculated because there was only one sample analyzed, which yields a very high RP multiplier. As above for Al, CFAC suggests that the default value be used.

Comment 23: Page 48 – An effluent limit for TRC in Outfall 013 is inappropriate. Table 33 page 42 indicates there is no RP for TRC; therefore no effluent limit is required to protect beneficial uses. Moreover, the analysis does not consider TRC attenuation through contact with the ground and through the groundwater flow path will almost certainly result in no TRC reaching the surface water more than one quarter mile away.

Comment 24: Page 51 – Continuous flow monitoring of Outfalls 007 - 012 discharges to ponds and groundwater should not be required until restart of operations. Stormwater is all that enters the North Ponds during this period of operations curtailment. The South Pond receives stormwater and 005 discharge. The 005 discharge is already monitored at its point of exit from the sewage treatment plant.

Comment 25: Page 51 – WET testing of Outfall 006 is not necessary or appropriate because of the existing acute surface water mixing zone. See Exhibit 2.

Comment 26: Page 54 – Table 54; Continuous flow measurement for the periodic batch discharge of head tank water is not realistic. CFAC suggests that the requirement be that head tank discharge volume and time-to-empty duration be measured whenever the head tanks are discharged after cleaning.

Draft Permit Comments

Comment 27: The composite sampling requirement for Outfalls 005, 007, 008, 009, 010, 011 and 012 is unrealistic considering the variable discharge at each of these outfalls, is not feasible, and will not improve the monitoring data sufficiently to justify the cost and difficulty in sampling. Also, CFAC requests that all monitoring requirements for 007, 008, 009, 010, 011, and 012 become effective upon restart of the facility.

Comment 28: Page 3, Outfall 006 Mixing ZONEs. Although it is ambiguous, the narrative description of the outfall could be interpreted to explicitly exclude the site wide Groundwater Mixing Zone and the
Acute Toxicity Surface Water Mixing Zone that were included in the previous permits.\(^1\) To the extent that these decisions represent the intent of the MDEQ, they are contrary to applicable law and not supported by the facts in the Administrative Record.

The Montana laws and rules and some of the facts applicable to mixing zones are discussed in relation to Comment 16.

**The Site-Wide Groundwater Mixing Zone**

The site-wide ground water mixing zone was designated in the previous permit in compliance with applicable regulations and according to the facts in the Administrative Record and the Statement of Basis. The facts that supported the Statement of Basis are still in the Administrative Record, have not been contradicted by any facts cited by the MDEQ or in the Administrative Record and are still valid. Those facts support a finding today by the MDEQ that the previously allowed site-wide groundwater mixing zone will not impair existing or anticipated uses as required by ARM 17.30.505 (c). Thus, because the facts in the Administrative Record support such a finding and do not provide any support for a finding that the current site wide groundwater mixing zone would impair any beneficial use, the MDEQ is obligated under Montana law to include the site-wide ground water mixing zone in CFAC’s final MDES permit.

**Acute Aquatic Toxicity Mixing Zone**

As described above, CFAC demonstrated in 1998 that the acute aquatic toxicity mixing zone complied with all applicable Montana mixing zone laws and rules. The facts presented to support that finding are still valid and have not been contradicted by any facts introduced into the Administrative Record since that time. In addition, the current sampling data and current science all overwhelmingly support the conclusion that the current acute aquatic toxicity zone will not impair beneficial uses in the Flathead River and the MDEQ has introduced no evidence in to Administrative Record to indicate that it will. Thus, under ARM 17.30.305 (c), the MDEQ had no rational basis on which to determine to remove the acute aquatic toxicity mixing zone from the CFAC Draft Permit and should restore it to the CFAC final permit using the same narrative related thereto that was in the previous CFAC permit.

**Comment 29: Page 11, Outfall 006 Flow Monitoring:** Flow monitoring is not needed at this outfall and is technically infeasible. The groundwater flow is highly variable throughout the year and is only a portion of the total groundwater flux (either calculated as indicated in the Fact Sheet or as a sum of the internal “outfalls”) and thus attempts at monitoring would not provide useful data if it were technically feasible. As explained in Attachment A of the 1998 Mixing Application (Exhibit 3), groundwater seeps from the riverbank from the length of the riverbank and cannot be measured or captured in one monitoring location. The existing permit has a functional and practicable program for monitoring the impact of groundwater on surface water that flows into the river from the seeps that are classified as outfall 006. During operations, the total of all discharges to the groundwater discharge outfalls is probably a more representative measure of the quantity of flow reaching the river.

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\(^1\) Figure 3 attached to the Draft Permit shows the same acute toxicity mixing zone that is shown in Figure 3 of the current permit. CFAC reserves all rights, including but not limited to the right to argue for alternative interpretations of permit provisions than those that are stated in or implied by these Comments.
Comment 30: Page 18, Compliance Schedule. As indicated in comments on the Fact Sheet, CFAC believes that continuous flow monitoring of the intermittent flow of the Outfall 006 seep will be technically infeasible and will not yield useful data as it is not representative of the discharge to the river and should not be required. Thus, a compliance schedule is not necessary.
EXHIBIT 13
MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

AUTHORIZATION TO DISCHARGE UNDER THE
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Montana Water Quality Act, Title 75, Chapter 5, Montana Code Annotated (MCA) and the Federal Water Pollution Control Act (the “Clean Water Act”), 33 U.S.C. § 1251 et seq.,

Columbia Falls Aluminum Company, LLC

is authorized to discharge from its Columbia Falls Aluminum Company

located at 2000 Aluminum Drive, Columbia Falls, MT

to receiving waters named, ground water discharging to the Flathead River

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein. Authorization for discharge is limited to those outfalls specifically listed in the permit.

This permit shall become effective: September 1, 2014.

This permit and the authorization to discharge shall expire at midnight, August 31, 2019.

FOR THE MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

[Signature]
Jon Kenning, Chief
Water Protection Bureau
Permitting & Compliance Division

Issuance Date: July 25, 2014
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V. **DEFINITIONS** ...................................................................................................................... 31
I. EFFLUENT LIMITATIONS, MONITORING REQUIREMENTS & OTHER CONDITIONS

A. Description of Discharge Points and Mixing Zones

The authorization to discharge provided under this permit is limited to those outfalls specially designated below as discharge locations. Discharges at any location not authorized under an MPDES permit is a violation of the Montana Water Quality Act and could subject the person(s) responsible for such discharge to penalties under the Act. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within a reasonable time from first learning of an unauthorized discharge could subject such person to criminal penalties as provided under Section 75-5-632 of the Montana Water Quality Act.

<table>
<thead>
<tr>
<th>Outfall</th>
<th>Description</th>
<th>Located at:</th>
</tr>
</thead>
<tbody>
<tr>
<td>002 - Anode Paste Plant Briquette Cooling Water (Internal Monitoring Point)</td>
<td><strong>Location:</strong> Internal monitoring point at tank after end of the main briquette cooling belt, prior to dilution. <strong>Mixing Zone:</strong> None</td>
<td>48°23’43.9”N latitude, -114°8’9.9”W longitude</td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> 0.525 million gallons per day (mgd) average flow. No treatment.</td>
<td></td>
</tr>
<tr>
<td>004 - Aluminum Casting Contact Chilling Water (Internal Monitoring Point)</td>
<td><strong>Location:</strong> Internal monitoring point at one of three casting pits, prior to dilution. <strong>Mixing Zone:</strong> None</td>
<td>48°23’34.5”N latitude, -114°8’5.3”W longitude</td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> 1.6 mgd average flow. No treatment.</td>
<td></td>
</tr>
<tr>
<td>005 - Domestic Sewage Treatment (Internal Monitoring Point)</td>
<td><strong>Location:</strong> Internal monitoring point at end of package sewage treatment plant, prior to dilution. <strong>Mixing Zone:</strong> None</td>
<td>48°23’24.9”N latitude, -114°8’18.1”W longitude</td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> 0.062 mgd average flow. Solids removal, aeration, chlorination.</td>
<td></td>
</tr>
<tr>
<td>006 – Ground Water Seep</td>
<td><strong>Location:</strong> Daylighting of ground water at discrete seep which discharges to Flathead River. <strong>Mixing Zone:</strong> Granted chronic dilution of 10%, no acute dilution. (See mixing zone delineation in Figure 1.)</td>
<td>48°23’22”N latitude, -114°8’29”W longitude</td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> Unknown average flow. No treatment.</td>
<td></td>
</tr>
<tr>
<td>007 – North Ponds</td>
<td><strong>Location:</strong> At the end of the pipe/ditch discharging into the North Ponds, which ultimately discharges to the Flathead River. <strong>Mixing Zone:</strong> Granted chronic dilution of 10%, no acute dilution. (See mixing zone delineation in Figures 2 &amp; 3.)</td>
<td>48°23’47.0”N latitude, -114°8’14.1”W longitude</td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> 1.81 mgd. No treatment.</td>
<td></td>
</tr>
<tr>
<td>Outfall</td>
<td>Description</td>
<td>Located at:</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>008 – North Ponds</td>
<td><strong>Location:</strong> At the end of the pipe/ditch discharging into the North Ponds, which ultimately discharges to the Flathead River.</td>
<td><strong>48°23’46.8”N latitude, -114°8’4.5”W longitude</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Mixing Zone:</strong> Granted chronic dilution of 10%, no acute dilution.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> 0.009 mgd. No treatment.</td>
<td></td>
</tr>
<tr>
<td>009 – South Ponds</td>
<td><strong>Location:</strong> At the end of the pipe/ditch discharging into the South Ponds, which ultimately discharges to the Flathead River.</td>
<td><strong>48°23’20.3”N latitude, -114°8’19.3”W longitude</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Mixing Zone:</strong> Granted chronic dilution of 10%, acute dilution only for ammonia and chlorine. (See mixing zone delineation in Figures 2&amp;3.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> 2.5 mgd. No treatment other than the sewage treatment plant (Outfall 005).</td>
<td></td>
</tr>
<tr>
<td>010 – West Pond</td>
<td><strong>Location:</strong> At the end of the pipe/ditch discharging into the West Pond, which ultimately discharges to the Flathead River.</td>
<td><strong>48°23’38.0”N latitude, -114°8’26.0”W longitude</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Mixing Zone:</strong> Granted chronic dilution of 10%, no acute dilution.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> 0.00012 mgd. No treatment.</td>
<td></td>
</tr>
<tr>
<td>011 – Dry Wells</td>
<td><strong>Location:</strong> At the end of the pipe/ditch discharging into dry wells, which ultimately discharge to the Flathead River.</td>
<td><strong>48°23’43.7”N latitude, -114°8’6.0”W longitude</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Mixing Zone:</strong> Granted chronic dilution of 10%, no acute dilution.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> 0.00004 mgd. No treatment.</td>
<td></td>
</tr>
<tr>
<td>012 – Dry Well</td>
<td><strong>Location:</strong> At the end of the pipe/ditch discharging into a dry well, which ultimately discharges to the Flathead River.</td>
<td><strong>48°23’34.2”N latitude, -114°8’16.6”W longitude</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Mixing Zone:</strong> Granted chronic dilution of 10%, no acute dilution.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> 0.014 mgd. No treatment.</td>
<td></td>
</tr>
<tr>
<td>013 – Head Tank Cleaning</td>
<td><strong>Location:</strong> At the end of the pipe discharging to the ground, which ultimately discharges to the Flathead River.</td>
<td><strong>48°23’28.9”N latitude, -114°7’37.6”W longitude</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Mixing Zone:</strong> Granted chronic dilution of 10%, acute dilution of 1%. (See mixing zone delineation in Figures 2&amp;3.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Treatment Works:</strong> 0.0005 mgd. No treatment.</td>
<td></td>
</tr>
</tbody>
</table>
B. Effluent Limitations

Outfall 002 - Anode Casting Internal Monitoring Point

The quality of effluent discharged to Outfall 002 shall, as a minimum, meet the limitations as set forth below, depending upon the number of lines in production.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Production – 5 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>0.003</td>
<td>0.001</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.600</td>
<td>0.207</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.189</td>
<td>0.066</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.054</td>
<td>0.028</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>5.84</td>
<td>2.01</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,846</td>
<td>695</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td></td>
<td>Between 6.0 – 9.0 at all times</td>
</tr>
</tbody>
</table>

| 4 Potlines | | |
|-----------------------------|-------|------------|--------------|
| Benzo(a)pyrene (34247)      | kg/day| 0.003      | 0.00088      |
| Aluminum, Total Recoverable (01104) | kg/day | 0.600 | 0.165 |
| Antimony, Total Recoverable (01268) | kg/day | 0.189 | 0.053 |
| Nickel, Total Recoverable (01074) | kg/day | 0.054 | 0.022 |
| Fluoride (00949)             | kg/day| 5.84       | 1.61         |
| Total Suspended Solids (TSS) (51530) | kg/day | 1,477 | 556 |
| pH (00400)                   | s.u.  |            | Between 6.0 – 9.0 at all times |

| 3 Potlines | | |
|-----------------------------|-------|------------|--------------|
| Benzo(a)pyrene (34247)      | kg/day| 0.003      | 0.00066      |
| Aluminum, Total Recoverable (01104) | kg/day | 0.600 | 0.124 |
| Antimony, Total Recoverable (01268) | kg/day | 0.189 | 0.039 |
| Nickel, Total Recoverable (01074) | kg/day | 0.054 | 0.017 |
| Fluoride (00949)             | kg/day| 5.84       | 1.21         |
| Total Suspended Solids (TSS) (51530) | kg/day | 1,107 | 417 |
| pH (00400)                   | s.u.  |            | Between 6.0 – 9.0 at all times |

| 2 Potlines | | |
|-----------------------------|-------|------------|--------------|
| Benzo(a)pyrene (34247)      | kg/day| 0.003      | 0.00044      |
| Aluminum, Total Recoverable (01104) | kg/day | 0.600 | 0.083 |
| Antimony, Total Recoverable (01268) | kg/day | 0.189 | 0.026 |
| Nickel, Total Recoverable (01074) | kg/day | 0.054 | 0.011 |
| Fluoride (00949)             | kg/day| 5.84       | 0.806        |
| Total Suspended Solids (TSS) (51530) | kg/day | 738  | 278 |
| pH (00400)                   | s.u.  |            | Between 6.0 – 9.0 at all times |

| 1 Potline | | |
|-----------------------------|-------|------------|--------------|
| Benzo(a)pyrene (34247)      | kg/day| 0.003      | 0.00022      |
| Aluminum, Total Recoverable (01104) | kg/day | 0.600 | 0.041 |
| Antimony, Total Recoverable (01268) | kg/day | 0.189 | 0.013 |
| Nickel, Total Recoverable (01074) | kg/day | 0.054 | 0.0056 |
| Fluoride (00949)             | kg/day| 5.84       | 0.403        |
| Total Suspended Solids (TSS) (51530) | kg/day | 369  | 139 |
| pH (00400)                   | s.u.  |            | Between 6.0 – 9.0 at all times |
As the facility is in shutdown mode at the time of renewal, the effluent limits for Outfall 002 are ‘0.’ Any time production changes the facility must provide a 30-day advance notice to DEQ. At that time, the effluent limits for the anode casting plant corresponding to the appropriate level of production will be effective.

### Outfall 004 – Aluminum Chilling Internal Monitoring Point

The quality of effluent discharged to Outfall 004 shall, as a minimum, meet the limitations as set forth below for the T-Bar Casting line and the Sow Casting line, depending upon the number of lines in production.

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max.</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Production – 5 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>5.00</td>
<td>1.67</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>1.58</td>
<td>0.53</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.45</td>
<td>0.23</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>48.65</td>
<td>16.27</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,846</td>
<td>695</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
<tr>
<td><strong>4 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>4.00</td>
<td>1.34</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>1.26</td>
<td>0.42</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.36</td>
<td>0.18</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>38.92</td>
<td>13.01</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,477</td>
<td>556</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
<tr>
<td><strong>3 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>3.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.95</td>
<td>0.32</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.27</td>
<td>0.14</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>29.19</td>
<td>9.76</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>1,107</td>
<td>417</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
<tr>
<td><strong>2 Potlines</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>No Discharge</td>
<td></td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>2.00</td>
<td>0.67</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.63</td>
<td>0.21</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>0.18</td>
<td>0.091</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>19.46</td>
<td>6.51</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>738</td>
<td>278</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>
### Effluent Limits for Outfall 004 (Internal Monitoring for T-Bar Casting)

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max.</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>1.00</td>
<td>0.33</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.32</td>
<td>0.11</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.09</td>
<td>0.046</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>9.73</td>
<td>3.25</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>369</td>
<td>139</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>s.u.</td>
<td>Between 6.0 – 9.0 at all times</td>
</tr>
</tbody>
</table>

### Effluent Limits for Outfall 004 (Internal Monitoring for Sow Casting)

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Daily Max.</th>
<th>Ave. Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo(a)pyrene (34247)</td>
<td>kg/day</td>
<td>2.50</td>
<td>0.84</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable (01104)</td>
<td>kg/day</td>
<td>0.79</td>
<td>0.27</td>
</tr>
<tr>
<td>Antimony, Total Recoverable (01268)</td>
<td>kg/day</td>
<td>0.23</td>
<td>0.11</td>
</tr>
<tr>
<td>Nickel, Total Recoverable (01074)</td>
<td>kg/day</td>
<td>24.33</td>
<td>8.13</td>
</tr>
<tr>
<td>Fluoride (00949)</td>
<td>kg/day</td>
<td>4.09</td>
<td>3.08</td>
</tr>
<tr>
<td>Oil and Grease (00182)</td>
<td>kg/day</td>
<td>6.13</td>
<td>3.70</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>kg/day</td>
<td>s.u.</td>
<td>(i)</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Footnotes:
1. The pH shall be maintained within the range of 7.0 to 10.0 at all times except for those situations when this waste is discharged separately and without commingling with any other wastewater in which case the pH shall be within the range of 6.0 to 10.0 at all times.

As the facility is in shutdown mode at the time of renewal, the effluent limits for Outfall 004 are ‘0.’ Any time production changes the facility must provide a 30-day advance notice to DEQ. At that time, the effluent limits corresponding to the appropriate level of production will be effective. A total of no more than five pot lines (both T-bar and sow) may be in operation on any day.

### Outfall 005 – Sewage Treatment Plant

Effective immediately, the following limits apply after the sewage treatment plant:

<table>
<thead>
<tr>
<th>Parameter and Parameter Code</th>
<th>Units</th>
<th>Average Weekly Limitation</th>
<th>Average Monthly Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-day Biochemical Oxygen Demand (BOD₅) (00310)</td>
<td>mg/L</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>Total Suspended Solids (TSS) (51530)</td>
<td>mg/L</td>
<td>45</td>
<td>30</td>
</tr>
<tr>
<td>pH (00400)</td>
<td>s.u.</td>
<td>Between 6.0 to 9.0 at all times</td>
<td></td>
</tr>
</tbody>
</table>
Outfall 006 – Ground Water Seep
Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 006 at the ground water seep prior to discharge into the Flathead River:

<table>
<thead>
<tr>
<th>Effluent Limits for Outfall 006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
</tr>
<tr>
<td>Cyanide</td>
</tr>
</tbody>
</table>

In addition, there shall be no acute toxicity in the effluent discharged by the facility from Outfall 006.

Outfall 007 – North Ponds
Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 007 at the end of the pipe prior to discharge into the North Pond system:

<table>
<thead>
<tr>
<th>Effluent Limits for Outfall 007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
</tr>
<tr>
<td>Cyanide</td>
</tr>
</tbody>
</table>

Outfall 009 – South Ponds
Effective immediately and lasting the duration of this permit, other than ammonia which is effective January 1, 2017, the following effluent limits will apply to Outfall 009 at the end of the pipe prior to discharge into the South Pond system:

<table>
<thead>
<tr>
<th>Effluent Limits for Outfall 009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
</tr>
<tr>
<td>Cyanide</td>
</tr>
<tr>
<td>Ammonia&lt;sup&gt;(1)&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Footnote:

Outfall 013 – Head Tank Cleaning
Effective immediately and lasting the duration of this permit, the following effluent limits will apply to Outfall 013 at the end of the pipe prior to discharge onto the ground: TRC will be limited to <0.1 mg/L.
C. Monitoring Requirements

1. Effluent Monitoring Requirements

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

All analytical procedures must comply with the specifications of 40 CFR Part 136 and the analysis must meet any Required Reporting Values (RRVs) listed in Circular DEQ-7 unless otherwise specified. Samples shall be collected, preserved and analyzed in accordance with approved procedures listed in 40 CFR 136.

### Outfall 002 - Anode Casting Internal Monitoring Point

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td></td>
<td>kg/day</td>
<td>Monthly</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Monthly</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Quarterly</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Monitoring required only during periods of discharge.
### Outfall 004 – Aluminum Chilling Internal Monitoring Point

**Outfall 004 - Summary of Monitoring Requirements**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Composite</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Monthly</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Quarterly</td>
<td>Grab</td>
</tr>
</tbody>
</table>

**Footnotes:**
1. Monitoring required only during periods of discharge.

### Outfall 005 – Sewage Treatment Plant

**Outfall 005 - Summary of Monitoring Requirements**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>5-Day Biochemical Oxygen Demand (BOD₅)</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Monthly</td>
<td>Instantaneous</td>
</tr>
</tbody>
</table>
### Outfall 006 – Ground Water Seep

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Monthly</td>
<td>Estimate</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>WET – Two Species</td>
<td>Pass/Fail</td>
<td>Quarterly</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Monitoring required immediately upon the effective date of this permit.
2. WET sampling is required starting the first full calendar quarter following the effective date of the permit. If the results for four consecutive quarters of testing indicate no acute toxicity, the permittee may request a reduction to quarterly acute toxicity testing on only one species on an alternating basis.

### Outfall 007 – North Ponds

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 007 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.
## Outfall 008 – North Ponds

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>TSS</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 008 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

## Outfall 009 – South Ponds

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Chlorine, Total Residual</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>E. coli bacteria</td>
<td>cfu/100 mL</td>
<td>Semi-annual</td>
<td>Semi-annual</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nitrate + Nitrite</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 009 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.
### Outfall 010 – West Pond

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow(^{(1)})</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Iron, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate for Outfall 010 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

### Outfall 011 – Dry Wells

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow(^{(1)})</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Iron, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate from Outfall 011 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.
Outfall 012 – Dry Well

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow (^1)</td>
<td>mgd</td>
<td>Continuous</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>μg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
</tbody>
</table>

Footnotes:
1. Effective immediately, the discharge flow rate from Outfall 012 must be provided by either a monitor or an estimate. Upon initializing production, the discharge flow rate must be provided by monitoring.

Outfall 013 – Head Tank Cleaning

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow</td>
<td>mgd</td>
<td>Monthly</td>
<td>Estimate</td>
</tr>
<tr>
<td>Duration of Discharge</td>
<td># days</td>
<td>Daily</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Residual Chlorine (TRC)</td>
<td>μg/L</td>
<td>Monthly</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
</tbody>
</table>

Unless flow-proportioned sampling is requested in writing, composite samples shall, as a minimum, be composed of four or more discrete aliquots (samples) of equal volume and time collected in a 24 hour period. The aliquots shall be combined in a single container for analysis (simple composite). The time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours.

2. Upstream Monitoring Requirements

The permittee shall monitor the following parameters from a monitoring site upstream of any expected influence from the process wastewater or ground water. The analysis must meet the RRVs as listed in the most recent Circular DEQ-7.
### Flathead River Upstream of Facility - Summary of Monitoring Requirements

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Monitoring Frequency (1)</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum, Dissolved</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Antimony, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Copper, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nickel, Total Recoverable</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Benzo(a)pyrene</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Fluoride</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Cyanide</td>
<td>µg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Temperature</td>
<td>deg C</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
<td>Semi-annual</td>
<td>Instantaneous</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Nitrate + Nitrite</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Calculated</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>mg/L</td>
<td>Semi-annual</td>
<td>Grab</td>
</tr>
</tbody>
</table>

3. Whole Effluent Toxicity (WET) Monitoring at Outfall 006—Acute Toxicity

Starting in the first calendar quarter following the effective date of the permit, the permittee shall, at least once each quarter conduct an acute static replacement toxicity test on a grab sample of discharge from the ground water seep at Outfall 006. Testing will employ two species per quarter and will consist of five (5) effluent concentrations (100, 50, 25, 12.5, 6.25 percent effluent) and a control. Dilution water and the control shall consist of the receiving water.

The static toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Methods for Measuring the Acute Toxicity of Effluent to Freshwater and Marine Organisms*, EPA-600/4-90/027 and the *Region VIII EPA NPDES Acute Test Conditions-Static Renewal Whole Effluent Toxicity*. The permittee shall conduct an acute 48-hour static renewal toxicity test using *Ceriodaphnia sp.* and an acute 96-hour static renewal toxicity test using fathead minnows (*Pimephales promelas*). The control of pH in the toxicity test utilizing CO₂ enriched atmospheres is allowed to prevent rising pH drift. The target pH selected must represent the pH value of the receiving water at the time of sample collection.

Acute toxicity occurs when 50 percent or more mortality is observed for either species at any effluent concentration. If more than 10 percent control mortality occurs, the test is considered invalid and shall be repeated until satisfactory
control survival is achieved, unless a specific individual exception is granted by DEQ. This exception may be granted if less than 10 percent mortality was observed at the dilutions containing high effluent concentrations.

If acute toxicity occurs in a routine test, an additional test shall be conducted within 14 days of the date of the initial sample. Should acute toxicity occur in the second test, testing shall occur once a month until further notified by DEQ. In all cases, the results of all toxicity tests must be submitted to DEQ in accordance with Part II of this permit. Further, should acute toxicity occur in a routine test and is confirmed as persistent by the additional test, a TIE-TRE shall be undertaken by the permittee as required by Part I.D.1.

The quarterly WET results from the laboratory shall be reported along with the Discharge Monitoring Report (DMR) form submitted for the end of the reporting calendar quarter (e.g., whole effluent results for the reporting quarter ending March 31 shall be reported with the March DMR due April 28th with the remaining quarterly reports submitted with the June, September, and December DMR’s). The format for the laboratory report shall be consistent with the latest revision of Region VIII Guidance for Acute Whole Effluent Reporting, and shall include all chemical and physical data as specified.

If the results for four consecutive quarters of testing indicate no acute toxicity, the permittee may request a reduction to quarterly acute toxicity testing on only one species on an alternating basis. DEQ may approve or deny the request based on the results and other available information without an additional public notice. If the request is approved, the test procedures are to be the same as specified above for the test species.
D. Special Conditions

1. Toxicity Reduction Evaluation / Toxicity Identification Evaluation

Should acute toxicity be detected in the required resample, a TIE-TRE shall be undertaken by the permittee to establish the cause of the toxicity, locate the source(s) of the toxicity, and develop control or treatment for the toxicity. Failure to initiate or conduct an adequate TIE-TRE, or delays in the conduct of such tests, shall not be considered a justification for noncompliance with the whole effluent toxicity limits contained in Part I.B of this permit. A TRE plan needs to be submitted to DEQ within 45 days after confirmation of the continuance of effluent toxicity (resample).

2. Storm Water Management

Storm water effluent quality is typically managed through the implementation of Storm Water Pollution Prevention Plans (SWPPPs) and Best Management Practices (BMPs) and, where necessary, effluent monitoring requirements. The permittee shall operate the facility in accordance with a current SWPPP. The SWPPP shall be updated as soon as possible but no later than January 1, 2015.

a. The SWPPP and associated documentation, as well as BMPs developed and implemented, must be accomplished using good standard engineering practices.

b. The SWPPP must be retained onsite.

c. The SWPPP must be signed in accordance with the signatory requirements stated in the renewed MPDES permit Part IV.G.

d. The SWPPP must be made available upon request of DEQ staff, such as during inspections.

e. The permittee must develop and maintain the SWPPP in accordance with the “Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity,” MPDES MTR000000, Part 3.1.

The permittee must notify DEQ after the SWPPP has been updated, by no later than January 28, 2015.
E. Compliance Schedule

1. Upstream Monitoring.

Within thirty (30) days of the effective date of this permit, the permittee shall submit both latitude/longitude coordinates and a diagram of the upstream sampling location to DEQ. The submittal shall include a discussion on how the permittee has ensured the monitoring will be representative of the background concentration in Flathead River without any influence from their site.

2. Ammonia.

The Outfall 009 ammonia effluent limits will become effective January 1, 2017. Until this date, the permittee shall submit an annual report dated no later than the 28th of January following each year, describing the actions taken in the previous year and proposed for the upcoming year, to ensure compliance with the new limits.
II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

A. Representative Sampling
Samples taken in compliance with the monitoring requirements established under Part I of the permit shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.

B. Monitoring Procedures
Monitoring must be conducted according to test procedures approved under Part 136, Title 40 of the Code of Federal Regulations, unless other test procedures have been specified in this permit. All flow-measuring and flow-recording devices used in obtaining data submitted in self-monitoring reports must indicate values within 10 percent of the actual flow being measured.

C. Penalties for Tampering
The Montana Water Quality Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than six months, or by both.

D. Reporting of Monitoring Results
Monitoring results must be reported on a Discharge Monitoring Report (DMR) EPA form 3320-1. Monitoring results must be submitted in either electronic or paper format and be postmarked no later than the 28th day of the month following the end of the monitoring period. Whole effluent toxicity (biomonitoring) results must be reported with copies of the laboratory analysis report on forms from the most recent version of EPA Region VIII’s “Guidance for Whole Effluent Reporting.” If no discharge occurs during the reporting period, “no discharge” must be reported on the report form.

Legible copies of these, and all other reports required herein, must be signed and certified in accordance with Part IV.G ‘Signatory Requirements’ of this permit and submitted to DEQ at the following address:

Montana Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, Montana 59620-0901
Phone: (406) 444-3080

E. Compliance Schedules
Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit must be submitted to DEQ in either electronic or paper format and be postmarked no later than 14 days following each schedule date unless otherwise specified in the permit.
F. **Additional Monitoring by the Permittee**
   If the permittee monitors any pollutant more frequently than required by this permit, using approved analytical methods as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated.

G. **Records Contents**
   Records of monitoring information shall include:
   1. The date, exact place, and time of sampling or measurements;
   2. The initials or name(s) of the individual(s) who performed the sampling or measurements;
   3. The date(s) analyses were performed;
   4. The time analyses were initiated;
   5. The initials or name(s) of individual(s) who performed the analyses;
   6. References and written procedures, when available, for the analytical techniques or methods used; and
   7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.

H. **Retention of Records**
   The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of DEQ at any time. Data collected on site, copies of Discharge Monitoring Reports, and a copy of this MPDES permit must be maintained on site during the duration of activity at the permitted location.

I. **Twenty-four Hour Notice of Noncompliance Reporting**
   1. The permittee shall report any serious incidents of noncompliance as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the Water Protection Bureau at (406) 444-3080 or the Office of Disaster and Emergency Services at (406) 324-4777. The following examples are considered serious incidents:
      a. Any noncompliance which may seriously endanger health or the environment;
      b. Any unanticipated bypass which exceeds any effluent limitation in the permit (See Part III.G of this permit, "Bypass of Treatment Facilities"); or
c. Any upset which exceeds any effluent limitation in the permit (see Part III.H of this permit, "Upset Conditions").

2. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
   a. a description of the noncompliance and its cause;
   b. the period of noncompliance, including exact dates and times;
   c. the estimated time noncompliance is expected to continue if it has not been corrected; and
   d. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

3. DEQ may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Water Protection Bureau, by phone, (406) 444-3080.

4. Reports shall be submitted to the addresses in Part II.D of this permit, "Reporting of Monitoring Results".

J. Other Noncompliance Reporting
Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D of this permit are submitted. The reports shall contain the information listed in Part II.I.2 of this permit.

K. Inspection and Entry
The permittee shall allow the head of DEQ or the Director, or an authorized representative thereof, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance, any substances or parameters at any location.
III. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply
The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give DEQ or the Regional Administrator advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance.

B. Penalties for Violations of Permit Conditions
The Montana Water Quality Act provides that any person who violates a permit condition of the Act is subject to civil or criminal penalties not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates permit conditions of the Act is subject to a fine of not more than $50,000 per day of violation, or by imprisonment for not more than 2 years, or both, for subsequent convictions. MCA 75-5-611(a) also provides for administrative penalties not to exceed $10,000 for each day of violation and up to a maximum not to exceed $100,000 for any related series of violations. Except as provided in permit conditions on Part III.G of this permit, “Bypass of Treatment Facilities” and Part III.H of this permit, “Upset Conditions”, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. Need to Halt or Reduce Activity not a Defense
It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate
The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

E. Proper Operation and Maintenance
The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.
F. Removed Substances
Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard.

G. Bypass of Treatment Facilities

1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III.G.2 and III.G.3 of this permit.

2. Notice:
   a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
   
   b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.I of this permit, “Twenty-four Hour Reporting”.

3. Prohibition of bypass:
   a. Bypass is prohibited and DEQ may take enforcement action against a permittee for a bypass, unless:
      
      1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
      
      2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

      3) The permittee submitted notices as required under Part III.G.2 of this permit.

   b. DEQ may approve an anticipated bypass, after considering its adverse effects, if DEQ determines that it will meet the three conditions listed above in Part III.G.3.a of this permit.
H. Upset Conditions

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of Part III.H.2 of this permit are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e. Permittees will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limitations).

2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
   
   a. An upset occurred and that the permittee can identify the cause(s) of the upset;
   
   b. The permitted facility was at the time being properly operated;
   
   c. The permittee submitted notice of the upset as required under Part II.I of this permit, “Twenty-four Hour Notice of Noncompliance Reporting”; and
   
   d. The permittee complied with any remedial measures required under Part III.D of this permit, "Duty to Mitigate”.

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

I. Toxic Pollutants

The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. Changes in Discharge of Toxic Substances

Notification shall be provided to DEQ as soon as the permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:

   a. One hundred micrograms per liter (100 μg/L);
b. Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

d. The level established by DEQ in accordance with 40 CFR 122.44(f).

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:

a. Five hundred micrograms per liter (500 µg/L);

b. One milligram per liter (1 mg/L) for antimony;

c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

d. The level established by DEQ in accordance with 40 CFR 122.44(f).
IV. GENERAL REQUIREMENTS

A. Planned Changes
   The permittee shall give notice to DEQ as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutant discharged. This notification applies to pollutants which are not subject to effluent limitations in the permit.

B. Anticipated Noncompliance
   The permittee shall give advance notice to DEQ of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

C. Permit Actions
   This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

D. Duty to Reapply
   If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application must be submitted at least 180 days before the expiration date of this permit.

E. Duty to Provide Information
   The permittee shall furnish to DEQ, within a reasonable time, any information which DEQ may request to determine whether cause exists for revoking, modifying and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to DEQ, upon request, copies of records required to be kept by this permit.

F. Other Information
   When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to DEQ, it shall promptly submit such facts or information with a narrative explanation of the circumstances of the omission or incorrect submittal and why they weren’t supplied earlier.

G. Signatory Requirements
   All applications, reports or information submitted to DEQ or the EPA shall be signed and certified.

1. All permit applications shall be signed as follows:
   a. For a corporation: by a responsible corporate officer;
b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;

c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by DEQ shall be signed by a person described above or by a duly authorized representative of that person. A person is considered a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to DEQ; and

b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or an individual occupying a named position.)

3. Changes to authorization. If an authorization under Part IV.G.2 of this permit is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Part IV.G.2 of this permit must be submitted to DEQ prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

“\text{I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.}”

H. Penalties for Falsification of Reports

The Montana Water Quality Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring
reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more that $25,000 per violation, or by imprisonment for not more than six months per violation, or by both.

I. **Availability of Reports**
Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of DEQ. As required by the Clean Water Act, permit applications, permits and effluent data shall not be considered confidential.

J. **Oil and Hazardous Substance Liability**
Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Clean Water Act.

K. **Property or Water Rights**
The issuance of this permit does not convey any property or water rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. **Severability**
The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. **Transfers**
This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies DEQ at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them;

3. DEQ does not notify the existing permittee and the proposed new permittee of an intent to revoke or modify and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in Part IV.M.2 of this permit; and

4. Required annual and application fees have been paid.
N. Fees
The permittee is required to submit payment of an annual fee as set forth in ARM 17.30.201. If the permittee fails to pay the annual fee within 90 days after the due date for the payment, DEQ may:

1. Impose an additional assessment computed at the rate established under ARM 17.30.201; and,

2. Suspend the processing of the application for a permit or authorization or, if the nonpayment involves an annual permit fee, suspend the permit, certificate or authorization for which the fee is required. DEQ may lift suspension at any time up to one year after the suspension occurs if the holder has paid all outstanding fees, including all penalties, assessments and interest imposed under this subsection. Suspensions are limited to one year, after which the permit will be terminated.

O. Reopener Provisions
This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements if one or more of the following events occurs:

1. Water Quality Standards: The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.

2. Water Quality Standards are Exceeded: If it is found that water quality standards or trigger values in the receiving stream are exceeded either for parameters included in the permit or others, DEQ may modify the effluent limits or water management plan.

3. TMDL or Wasteload Allocation: TMDL requirements or a wasteload allocation is developed and approved by DEQ and/or EPA for incorporation in this permit.

4. Water Quality Management Plan: A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than contained in this permit.

5. Toxic Pollutants: A toxic standard or prohibition is established under Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit.

6. Toxicity Limitation: Change in the whole effluent protocol, or any other conditions related to the control of toxicants have taken place, or if one or more of the following events have occurred:
a. Toxicity was detected late in the life of the permit near or past the deadline for compliance.

b. The TRE/TIE results indicated that compliance with the toxic limits will require an implementation schedule past the date for compliance.

c. The TRE/TIE results indicated that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits.

d. Following the implementation of numerical controls on toxicants, a modified whole effluent protocol is needed to compensate for those toxicants that are controlled numerically.

e. The TRE/TIE revealed other unique conditions or characteristics which, in the opinion of DEQ, justify the incorporation of unanticipated special conditions in the permit.
V. DEFINITIONS

1. “Act” means the Montana Water Quality Act, Title 75, chapter 5, MCA.

2. “Administrator” means the administrator of the United States Environmental Protection Agency.

3. “Acute Toxicity” occurs when 50 percent or more mortality is observed for either species (See Part 1.C of this permit) at any effluent concentration. Mortality in the control must simultaneously be 10 percent or less for the effluent results to be considered valid.

4. “Arithmetic Mean” or “Arithmetic Average” for any set of related values means the summation of the individual values divided by the number of individual values.

5. “Average Monthly Limitation” means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

6. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

7. “Chronic Toxicity” means when the survival, growth, or reproduction, as applicable, for either test species, at the effluent dilution(s) designated in this permit (see Part 1.C.), is significantly less (at the 95 percent confidence level) than that observed for the control specimens.

8. “Composite samples” means a sample composed of two or more discrete aliquots (samples). The aggregate sample will reflect the average quality of the water or wastewater in the compositing or sample period. Composite sample may be composed of constant volume aliquots collected at regular intervals (simple composite) or flow proportioned.

9. “Daily Discharge” means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the day.

10. "Daily Maximum Limit" means the maximum allowable discharge of a pollutant during a calendar day. Expressed as units of mass, the daily discharge is cumulative mass discharged over the course of the day. Expressed as a concentration, it is the arithmetic average of all measurements taken that day.
11. "Department" means the Montana Department of Environmental Quality (DEQ). Established by 2-15-3501, MCA.

12. "Director" means the Director of the Montana Department of Environmental Quality.

13. "Discharge" means the injection, deposit, dumping, spilling, leaking, placing, or failing to remove any pollutant so that it or any constituent thereof may enter into state waters, including ground water.


16. "Grab Sample" means a sample which is taken from a waste stream on a one-time basis without consideration of flow rate of the effluent or without consideration for time.

17. "Instantaneous Maximum Limit" means the maximum allowable concentration of a pollutant determined from the analysis of any discrete or composite sample collected, independent of the flow rate and the duration of the sampling event.

18. "Instantaneous Measurement", for monitoring requirements, means a single reading, observation, or measurement.

19. "Minimum Level" (ML) of quantitation means the lowest level at which the entire analytical system gives a recognizable signal and acceptable calibration point for the analyte, as determined by the procedure set forth at 40 CFR 136. In most cases the ML is equivalent to the Required Reporting Value (RRV) unless other wise specified in the permit. (ARM 17.30.702(22))

19. "Mixing zone" means a limited area of a surface water body or aquifer where initial dilution of a discharge takes place and where certain water quality standards may be exceeded.

20. "Nondegradation" means the prevention of a significant change in water quality that lowers the quality of high-quality water for one or more parameters. Also, the prohibition of any increase in discharge that exceeds the limits established under or determined from a permit or approval issued by DEQ prior to April 29, 1993.

21. "Regional Administrator" means the administrator of Region VIII of EPA, which has jurisdiction over federal water pollution control activities in the state of Montana.

22. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be
expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

23. “TIE” means a toxicity identification evaluation.

24. "TMDL" means the total maximum daily load limitation of a parameter, representing the estimated assimilative capacity for a water body before other designated uses are adversely affected. Mathematically, it is the sum of wasteload allocations for point sources, load allocations for non-point and natural background sources, and a margin of safety.

25. “TRE” means a toxicity reduction evaluation.

26. "TSS" means the pollutant parameter total suspended solids.

27. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
EXHIBIT 14
July 25, 2014

Patrick J. Wilson
Manager and VP
Columbia Falls Aluminum Company, LLC
2000 Aluminum Drive
Columbia Falls, MT 59912

RE: Notice of Final Decision, Montana Pollutant Discharge Elimination System (MPDES)
Permit No.: MT0030066, Columbia Falls Aluminum Company

Dear Mr. Wilson:

In accordance with the Administrative Rules of Montana (ARM) 17.30.1377, enclosed is the Response to Comments and a copy of the proposed permit for the Columbia Falls Aluminum Company issued to Columbia Falls Aluminum Company, LLC. The permit is issued by the Department under the authority of 75-5-402, Montana Code Annotated (MCA) and Sections 402 and 303 of the federal Clean Water Act.

The Response to Comments addresses issues that were identified during the public comment period. The public comment period closed on April 4, 2014. The following were the significant changes made in the proposed permit in response to comments received during the public comment period:

1. Monitoring requirements were modified as follows:
   - Outfalls 005 – 013 were modified to reflect grab samples rather than composite,
   - Flow monitoring for the ground water seep (Outfall 006) and Head Tank Cleaning was changed from continuous to an estimate. The corresponding compliance schedule for continuous flow monitoring from Outfall 006 was removed.
2. Figures were added to provide ground water and surface water mixing zone delineations.
3. A correction was made on page 7 to clarify that the facility-wide production cap was based on the operation of five pot lines.

In accordance with ARM 17.30.1378, the Department’s final decision to issue the permit is effective 30 days after service of this notice. Under ARM 17.30.1370, the applicant may appeal this decision within the 30 day period in accordance with 75-5-403 and 75-5-611, MCA. Pursuant to 40 CFR 122.44, the Regional Administrator may object to or make recommendations to the proposed permit.
A copy of the permit should be made available to the person in charge of the operation of the wastewater treatment facilities so that person is aware of the requirements in the permit. Please take note of any revised monitoring requirements specified in Part I of the permit. Also, the final permit contains a compliance schedule. Please refer to Part I of the permit for additional information.

Also please see the enclosed pamphlet outlining the new electronic submission method for Discharge Monitoring Reports (DMRs), called NetDMRs. DEQ encourages the electronic submission by NetDMRs; however, if you do not register for this system, then hardcopies the preprinted DMR forms will be sent to you.

If you have any questions, please contact the permit writer, Christine Weaver, at 406-444-3927 or by email at cweaver@mt.gov.

Sincerely,

[Signature]

Jon Kenning, Chief
Water Protection Bureau
Permitting and Compliance Division

cc: Carson Coate, EPA (w/o NetDMR pamphlet)
    Steve Wright, Environmental Manager
    Doug Parker, Hydrometrics, 667 E. Beckwith, Missoula, MT 59801 (w/o NetDMR)

Enclosure: Permit No.: MT0030066
           Response to Comments
           NetDMR Pamphlet
Response to Comments
Columbia Falls Aluminum Company
MPDES Permit #MT0030066

On February 18, 2014, the Department of Environmental Quality (DEQ) issued Public Notice MT-14-06, stating the DEQ's intent to renew Montana Pollutant Discharge Elimination System (MPDES) wastewater discharge permit MT00300066, to Columbia Falls Aluminum Company, LLC for the Columbia Falls Aluminum Company (CFAC) facility.

The public notice required that all substantive comments must be received or postmarked by April 4, 2014, in order to be considered in the final determination and issuance of the permit. DEQ received the following sets of comments:

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Media</th>
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</thead>
<tbody>
<tr>
<td>Columbia Falls Aluminum Company (Steve Wright)</td>
<td>4/4/2014</td>
<td>Email (set of 2 emails)</td>
</tr>
<tr>
<td>EPA Region 8 (Rob Parker)</td>
<td>4/4/2014</td>
<td>Email (set of 3 emails)</td>
</tr>
<tr>
<td>Flathead Lakers (Greg McCormick, Executive Director)</td>
<td>Dated 4/2/2014 (recvd 4/7/2014)</td>
<td>Letter</td>
</tr>
<tr>
<td>Sarah and Bill Dakin</td>
<td>4/2/2014</td>
<td>Letter &amp; Email</td>
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<tr>
<td>Thomas Kurdy</td>
<td>3/31/2014</td>
<td>Email</td>
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<tr>
<td>Don Bennett</td>
<td>4/2/2014</td>
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<tr>
<td>Mary Ann Carlson</td>
<td>3/31/2014</td>
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<td>John and Rachel</td>
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<tr>
<td>Michael Shepard</td>
<td>3/18/2014</td>
<td>Email</td>
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<tr>
<td>Pat and Ron Wood</td>
<td>3/12/2014</td>
<td>Email</td>
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DEQ has considered these comments in preparation of the final permit and decision. The full set of comments is available by request from DEQ. A summary of the comments and DEQ's response is as follows; this Response to Comments is an addendum to and supersedes the Fact Sheet.

Columbia Falls Aluminum Company – Steve Wright, Environmental Manager

CFAC provided 30 comments, including four (4) exhibits, as part of the public comment. DEQ has paraphrased their comments rather than include the entire 11 pages of comments verbatim; the original set of comments is a public document available upon request. As previously stated, this Response to Comments is an addendum to and supersedes the Fact Sheet.

COMMENT #1: The second paragraph is incomplete. Please add the following ...:

RESPONSE #1: The second paragraph of Part I. Permit Status is hereby modified to read:
The initial permit application for wastewater discharged from the CFAC facility was for discharges to ground water, submitted by ARCO in 1983. The ground water discharge permit was issued in September 1984. This permit included the discharge limitation “There shall be no degradation of ground water beyond the property boundary.”

Subsequently, CFAC submitted an MPDES permit application in 1993 at the request of the state. The request was as a result of a ground water seep downgradient from the facility that was found discharging to the Flathead River in 1991. According to a DEQ Enforcement Division Office Memorandum dated July 11, 1997, the 1993 permit application submitted by CFAC ‘clearly intended to identify the seep discharge as an outfall. However, the initial MPDES permit was issued in May 1994 addresses only discharges from the percolating ponds to the ground water. The department did not address the seep discharges...because the volume and concentrations were not controlled by plant operations and the CFRs did not establish effluent levels for these types of discharges...Instead, the department...addressed the seep discharge by requiring the implementation of BMPs.’ A special condition in Permit No. MT0030066 required CFAC to institute best management practices in capping the spent potliner landfill and investigating the site hydrology. To comply with the Permit’s Special Conditions, an engineered cap, installed at a cost of over $700,000, was placed over the spent potliner in 1994; in addition a ground water mixing zone study was conducted.

DEQ intends the above modifications to the second paragraph to serve the intent of the original permit history, and did not pursue further detailed suggestions for 1994 fact sheet and permit history proposed by CFAC.

COMMENT #2: The third paragraph is incomplete. Please add the following ...

RESPONSE #2: The third paragraph of Part I. Permit Status is hereby modified to read:

In August 1998, CFAC submitted an application for an MPDES Permit Renewal including an “Application for Ground water and Surface Water Mixing Zones.” The renewed MPDES permit for the CFAC facility, which includes a ground water mixing zone and a surface water mixing zone, became effective on February 1, 1999, and expired at midnight, January 31, 2004. This 1999-issued permit is the current permit, as the permit has been administratively extended until such time as it is renewed, consistent with Administrative Rules of Montana (ARM) 17.30.1313. DEQ sent a letter on October 28, 2003, that deemed the application substantially complete based on review of the permit renewal application submitted by CFAC on August 4, 2003 (including the applicable fees, Form 1, Form 2C, and mixing zone information), and supplemental information submitted on October 24, 2003.

COMMENT #3: Page 4, Table 1 –The table incorrectly indicates that 006 is a discrete seep.

RESPONSE #3: DEQ does not agree that the description for Outfall 006 is incorrect.

The application of record received July 29, 2013, stated on page 3 “Since ground water flowing through the plant site conveys water percolated from the ponds, dry wells, and possibly from the historic landfills and discharges to the river as discernible seeps in addition to the more diffuse local ground water system; CFAC feels that a separate outfall for the ground water discharge to the hydrologically connected surface water requires a
separate outfall (006). A map of the outfall locations is provided as Figure 2C-2." This figure indicates that Outfall 006 is a specific location on the southern end of the CFAC property, corresponding to the outfall location provided in both Form 2C Attachment A, and Form 2E.

As such, the proposed permit clarifies that MPDES permit coverage for the discharge point named Outfall 006 consists of effluent from a discrete seep meeting the definition of a point source, as identified and proposed in the 2013 application of record. At the same time, the fact sheet and permit authorize discharges from Outfalls 007-013 to surface water, and acknowledges that those discharges to surface water are via hydraulically connected ground water and will be diffuse in nature. As provided for by rule, DEQ has accounted for ground water and surface water mixing and dilution in the formulation of applicable effluent limits for discharges points proposed by the applicant and authorized as outfalls in the permit.

No change has been made in response to this comment. If other discrete/discriminable seeps exist that discharge pollutants to state water they may be incorporated into the permit through a permit modification.

COMMENT #4: Page 6 – The descriptions of the end of inlet pipes to the North and South Ponds being the "last point of control" is inaccurate. The ponds are treatment facilities and provide settling and solids removal.

RESPONSE #4: DEQ agrees that the north and south pond systems may provide primary treatment prior to release to ground water. However, CFAC has not provided a method for determining the ponds’ treatment performance or for compliance monitoring after the ponds and prior to dilution by ground water. Therefore, DEQ considers the three discharge pipes – Outfalls 007, 008, and 009 – to be the ‘last point of control’ prior to state waters. Also see Response #7. No change has been made to the permit.

COMMENT #5: Page 7 – Although the description of Outfall 006 includes the sites where both process and non-process waters are discharged to groundwater and "Site Ground Water" it does not include the areas where that groundwater flows into surface water in the Flathead River; the description below taken from the existing permit provides a more accurate description of sources and should be included in this Fact Sheet as well.

Discharge 006 is ground water flowing beneath the plant site and discharging to surface water in the Flathead River. Groundwater receives water from the North Pond, South Pond, West Pond, dry wells and historical disposal practices . . .

RESPONSE #5: This permit renewal changed the outfall identifications for the site. Sources are no longer aggregated under the Outfall 006 "umbrella" as in the previous permits, but rather are associated with the newly identified individual outfalls (Outfalls 007 – 013). For instance, page 8 of the Fact Sheet lists the sources to North Pond Outfall 007: noncontact cooling water from the compressor house and paste plant ball mill, the masonry shop, and lab boiler blowdown. There is no need to repeat these sources under Outfall 006.

In addition, DEQ is not permitting historical disposal practices or release of contamination through general site ground water flow. This is regulated by other programs, not MPDES. No change has been made.
COMMENT #6: Page 8 [Outfall 006] – The 270,000 gpd GW flow does not represent the entire flow, when the plant is in full production.

RESPONSE #6: CFAC provided the ground water flow rate of 270,000 gpd in the 2013 application of record, on Form 2E Section J. This corresponds with the 1998 “Attachment A: Application for Ground Water and Surface Water Mixing Zones,” which states on page 7 “Total ground water discharge is estimated to be approximately 270,000 gallons per day.”

In the current Fact Sheet, DEQ consistently pointed out that the rate of ground water discharged through the discrete seep identified as Outfall 006 was unknown, and that the 270,000 gpd estimate provided in the application was for the entire facility (see page 4 Table 1; top of page 8; page 30; and page 34 Table 25). However, DEQ determined that because the flow estimate did not impact the Water Quality-based Effluent Limit (WQBEL) calculations, this discussion was academic.

CFAC can provide updated flow data for Outfall 006 as part of a permit modification request, if necessary. No change has been made.

COMMENT #7: Page 8 – MDEQ recognized the North and South Ponds as wastewater treatment facilities in the current MPDES permit… MDEQ had no factual basis upon which to change the classification. For Outfalls to which TBELs do not apply, CFAC requests that parameters are monitored on the basis of dissolved concentrations to simulate settling and removal that occurs in the ponds.

RESPONSE #7: This permit renewal includes WQBELs for the first time (including providing dilution based on approved mixing zones) as well as acceptable methods for documenting compliance with these limits. As stated under ARM 17.30.1345(5), all permit effluent limitations for a metal must be expressed in terms of “total recoverable metal” unless the applicable standard has been expressed as dissolved. Other than aluminum, the standards for all metals in Circular DEQ-7 are expressed as total recoverable.

As stated in Response #4, the north and south pond systems may provide settling and solids removal, however, CFAC has not provided an acceptable method to measure the quantity and quality of the effluent exiting the bottom of the ponds for demonstrating compliance with effluent limits. Therefore, the appropriate compliance monitoring locations for Outfalls 007, 008, and 009 is the ‘end-of-pipe’ prior to dilution and prior to reaching State Water, as described in the Fact Sheet. No change has been made.

COMMENT #8: Page 13. It is inaccurate to state the DMR was not submitted.

RESPONSE #8: DEQ reviewed the recent compliance history, and found that CFAC provided the August 2007 Discharge Monitoring Reports (DMRs) to a DEQ compliance inspector during an inspection in 2010; the inspector considered CFAC to be in compliance. The 2011 DMR issues were also addressed; CFAC failed to report the minimum pH for Outfall 005 on the June and July 2011 DMRs; the DMRs were corrected and resubmitted within several months. There are no current DMR compliance concerns. This discussion supplements the Fact Sheet.
COMMENT #9: Page 18; Outfall 013 – The TRC limit of 0.1 mg/L appears to come from the Disinfection Water General Discharge Permit and is not appropriate for a groundwater discharge under an Individual Permit.

RESPONSE #9: Within the 2013 renewal application of record, CFAC requested MPDES permit coverage for newly identified Outfall 013, for the discharge of chlorinated water through ground water to the Flathead River. Technology-based Effluent Limits (TBELs) represent the minimum level of control that must be imposed by a MPDES permit issued for point source discharges, as stated at 40 CFR 125.44(a) and adopted by reference in ARM 17.30.1344(2)(b). DEQ must consider technology available to treat wastewater as well as limits that can be consistently achieved by that technology. WQBELs “supplement” the protection afforded by TBELs.

In reviewing the regulatory basis for TBELs related to this process (water hold tank chlorination shock), DEQ concluded that there are no applicable national standards or Effluent Limitation Guidelines (ELGs). When EPA has not promulgated a standard for a specific industry, permit limits may be based on best professional judgment (BPJ) [40 CFR 125.3(c) and ARM 17.30.1203(5)]. In fact, the Supreme Court of Montana confirmed that DEQ is required to develop TBELs for every source in a summary judgment released for publication June 30, 2010 (Northern Cheyenne Tribe, Tongue River Water Users Association, and Northern Plains Resource Council v. DEQ and Fidelity Exploration).

DEQ determined that the limits that can be consistently achieved when discharging chlorinated water is 0.1 mg/L Total Residual Chlorine (TRC), based on effluent limits for similar discharges under the General Permit for Disinfected Water and Hydrostatic Testing as well as numerous water treatment plant MPDES permits.

CFAC stated that a TBEL may not apply to this discharge, since the chlorinated water is discharged to the ground water. TBELs do not apply to ground water, but the discharge of chlorinated water is through the ground water to the Flathead River. If CFAC determines through further evaluation that discharge from Outfall 013 does not reach the Flathead River, then a permit modification request can be made for discharge to ground water. Furthermore, if there is not a discharge of pollutants that reach any State Waters, then permit coverage may not be required for this activity. No change has been made.

COMMENT #10: Page 18 – Previous permit applied ELs as “net”; this is not continued. The application of net limits should be reconsidered and included in the permit.

RESPONSE #10: As stated in the Fact Sheet DEQ is not allowing netting for TBELs at this time because CFAC has not demonstrated that netting complies with 40 CFR 122.45(g) and ARM 17.30.1345(9). Netting may be considered if CFAC supplies the required information as part of a permit modification request. No change has been made.

COMMENT #11: Page 19 [TBELs] – The application of Total Recoverable metals to Outfalls 002 and 004 Al, Sb, Ni does not account for the treatment process performed by a series of three settling ponds adjacent to the Flathead River. In addition to solids removal, the metals are attenuated through the GW flow path. The 002 and 004 discharges should be measured as dissolved. ARM 17.30.1345(5) only requires that permit “effluent
limitations, standards, or prohibitions for a metal must be expressed as “total recoverable”. This does not preclude monitoring in such a way as to account for the treatment provided by the ponds, as was done in the existing permit. Therefore, CFAC requests that monitoring for metals should be based on filtered samples.

RESPONSE #11: Monitoring required to demonstrate compliance with TBELs must be conducted prior to dilution – in this case prior to mixing with storm water, cooling water, or other wastewater sources [ARM 17.30.1203(7) and (8)]. Furthermore, the metal limits contained in the applicable federal Effluent Limit Guideline (ELG, 40 CFR 421 Subpart B) are expressed as Total Recoverable; DEQ interprets the requirement under 40 CFR 122.41(j) and ARM 17.30.1342(10) that monitoring must be representative of the activity to mean that CFAC must conduct compliance monitoring as Total Recoverable metals. For these reasons no change has been made.

COMMENT #12: Page 25, Table 19 incorrectly lists monitoring wells as outfalls.

RESPONSE #12: DEQ agrees and hereby corrects this typographical error. The word “outfall” in the first column of Table 19 of the fact sheet is considered removed for all of the monitoring wells.

COMMENT #13: Page 26 – For clarification, it should be noted that no discharge allocations have been assigned to any sources in the Flathead Lake TMDL.

RESPONSE #13: DEQ agrees with this statement.

COMMENT #14: Page 28, Table 21 - The basis for the selection of statistical estimates of water quality should be described as it appears to be inaccurate and inconsistent. For parameters that have never been detected (antimony, copper, and nickel), since the maximum value (i.e., 100th percentile) is nondetect, the 75th percentile must be less than the nondetect value. In these instances, CFAC suggests that a value of one half of the detection limit value is used. The selection of the 25th percentile rather than 75th percentile for hardness is not described or supported and CFAC requests the use of 75th percentile for hardness for consistency.

RESPONSE #14: The basis for determining the receiving water’s assimilative capacity is the receiving water (ambient) concentration, denoted as Cu. The data used to develop Cu for CFAC was summarized in Table 21 – Flathead River Ambient Water Quality Data, which included available data from CFAC and USGS. In response to your comments, DEQ reviewed the ambient data and hereby clarifies the following:

- DEQ consistently uses the 25th percentile hardness value to calculate metal standards (i.e., cadmium, copper, chromium III, lead, nickel, silver, and zinc) in accordance with Circular DEQ-7. This method has been determined to be protective of the receiving water body, and was not changed in this permit.
- DEQ consistently uses the 75th percentile as Cu for all other parameters if there are at least 10 quantified data points. If there are 10 data points that have some or all non-
quantified data, DEQ will set $C_s$ as $\frac{1}{2}$ the smaller of the water quality standard or the required reporting value (RRV) as provided in Circular DEQ-7.

There were two nondetect scenarios in Table 21:

- Antimony, copper, and nickel each had less than 10 data points (there were six USGS analyses each) and all were unquantified without a method detection limit. DEQ did not provide a concentration estimate for these parameters, and required upstream monitoring for the next permit cycle. This was not changed in the final permit.

- Ammonia, nitrogen, and phosphorus each had more than 10 data points, the vast majority of which were obtained in the South Fork of the Flathead. (Neither the North Fork nor the Middle Fork had any quantified ammonia, nitrogen, or phosphorus data.) In total, three out of 21 ammonia samples were quantified; 19 out of 26 nitrogen samples were quantified; and 25 out of 32 phosphorus samples were quantified. Although statistics could be performed on this data, the validity for the combined Flathead River concentration is questionable, and upstream monitoring of the Flathead will be required.

In addition, ammonia is currently the only one of these three parameters with water quality standards. DEQ performed RP analysis using 0.02 µg/L as the upstream ammonia concentration (see Attachment #3). In reviewing CFAC’s comments, DEQ found that this was a mistake. In addition to the error in units, the actual upstream concentration should have been calculated at $\frac{1}{2}$ of the RRV, which is 35 µg/L (0.035 mg/L), since most of the data was unquantified. The RP analysis revised as part of this response still shows that there is potential to exceed the acute ammonia standard. Similarly, DEQ calculated ammonia effluent limits using 16 µg/L (0.016 mg/L) as the upstream concentration (see Attachment #5). As with the RP analysis, the upstream concentration should have been 35 µg/L. Attachments #3 and #5 have been corrected and are attached.

DEQ is requiring upstream monitoring for these six parameters to provide data for the next permit renewal cycle.

**COMMENT #15:** Page 28, last sentence – “…final limits will require no more than five casting lines.” CFAC is unclear as to what a “casting line” is and how this limitation would be applied. It seems that this reference should be changed to “pot lines.”

**RESPONSE #15:** DEQ agrees, the final effluent limit requirement is hereby modified to reflect no more than five pot lines will operate at one time, instead of five casting lines. Page 7 of the permit (Part I.B. Effluent Limits for Outfall 004) has been modified as follows: “A total of no more than five pot casting lines (both T-bar and sow) may be in operation on any day.”
COMMENT #16: Page 30. Contrary to the MDEQ approach, ARM 17.30.515(1) does not expressly limit mixing zones to each permitted outfall... Furthermore, Montana law requires that once such a mixing zone is included in the permit, it must be designated in future permits unless there is a factual basis for excluding it [ARM 17.30.505(c)]. The Fact Sheet offers no facts ... that would contradict the conclusion that the Site Wide Groundwater Mixing Zone in the current permit as shown on the referenced Figure 3 continues to be necessary and appropriate.

RESPONSE #16: A mixing zone ... "means a limited area of a surface water body or a portion of an aquifer, where initial dilution of a discharge takes place and where water quality standards may occur and where certain water quality standards may be exceeded" [ARM 17.30.502]. 'Discharge' is defined in ARM 17.30.1304, and includes addition of pollutants into state waters from any point source; 'point source' is defined as a discernible, confined, or discrete conveyance.

ARM 17.30.515(1) requires DEQ to determine whether a mixing zone is appropriate for a particular discharge. As discussed in the Fact Sheet, DEQ proposed ground water mixing zones for discharges from three newly identified outfalls – Outfalls 007, 009, and 013 – which were previously regulated under the agglomerated Outfall 006. The newly identified outfalls are the initial points of discharge where ground water mixing may be allowed. Outfall 006 is a point source discharging pollutants to surface water from these outfalls and other potential sources such as storm water; a surface water mixing zone may be granted for Outfall 006 but a ground water mixing zone is not relevant.

There are two independent aspects related to granting of a mixing zone, which are discussed in Part IV.D of the Fact Sheet:
1. Delineation of the mixing zone, including relevant considerations for ground water and/or surface water boundaries regulated by ARM 17.30 Subchapter 5; and
2. Setting of available dilution flow on a parameter-specific basis, to be used in determining reasonable potential to exceed standards and, if necessary, develop effluent limits at the end-of-pipe.

The previous permit only included the first aspect: ground water and surface water mixing zone boundaries were defined for Outfall 006 but dilution was not considered and no WQBELs were developed. As part of this permit renewal, the ground water mixing zone characteristics were summarized in Table 22 on page 30 of the Fact Sheet. This data was the basis for the allowable dilution flow used for calculating effluent limits in Part IV.E. However, DEQ did not provide a delineation of the mixing zones in the draft; through this response to comments DEQ is adding a ground water mixing zone delineation for the three outfalls. A new figure was added to the Final Permit, which shows the ground water mixing zone delineation for the three outfalls. DEQ developed the mixing zone delineation using ground water flow direction based on the 1998 Mixing Zone Study Potentiometric Map and the newly released EPA Potentiometric Contour Map (dated February 17, 2014). The western boundary for the Outfall 007 ground water mixing zone was limited to the previous southwestern extent for the ground water mixing zone presented in the 1998 mixing zone study.

There are no other permitted discharges that require a ground water mixing zone included in this permit renewal. No change was made other than the inclusion of a new figure.
COMMENT #17: Page 31 - Nowhere is it required that a chemical “naturally dissipate in the receiving water” in order for a previously established mixing zone to be approved in a re-issued permit. The only applicable test under Montana Law is whether there is evidence that the mixing zone will impair current or future beneficial uses.

The evidence in the Administrative Record supports the conclusion that all of the mixing zones in the prior CFAC permit will not impair such uses. Existing data for monitoring location Riv-M indicates compliance with standards at the end of the chronic mixing zone. Data submitted in CFAC’s 1998 mixing zone application indicated compliance with aquatic life standards at monitoring location Riv-D which is immediately below the acute mixing zone. A sample collected on March 20, 2014 shows no toxicity at the downgradient end of the acute surface water mixing zone (total CN <0.003 mg/L, See Exhibit 4).

In considering the possible acute toxicity effects of cyanide within the mixing zone, DEQ should recognize that total cyanide concentration is not an appropriate measure of toxicity. The majority of the cyanide forms that are measured and reported as total cyanide are not toxic and the concentration of toxic “free cyanide” forms of cyanide are likely very low both in the groundwater seep and in CFAC’s previously permitted surface water mixing zone.

Until recently, laboratory measurement of free cyanide concentration has historically not been very reliable (i.e., high detection or reporting limit relative to criteria). Recent improvements in cyanide analytical techniques have resulted in EPA approving three new methods for free cyanide analysis (Federal Register Volume 77, Number 97 May 18, 2012).

The USEPA numeric acute aquatic life criteria are specifically for “free” cyanide because total cyanide can include nitriles and other stable metalloccyanide complexes that are not very toxic to aquatic life (USEPA 1985 – Ambient Water Quality Criteria for Cyanide). The Water and Environment Research Foundation sponsored a reassessment of the EPA aquatic life criteria for cyanide (Gensemer et al, 2006,) and confirmed that free cyanide is the toxic form of cyanide. For cyanide aquatic life criteria, the current (March 2014) USEPA National Recommended Water Quality Criteria notes that “This recommended water quality criterion [chronic and acute cyanide] is expressed as μg free cyanide.”

CFAC has historically monitored total cyanide concentrations. However, available data for other aluminum facilities reported in the scientific literature (e.g., Dzombak et al, 2006) demonstrate that the total cyanide from aluminum smelters and spent potliner leachate is predominately in the form of iron-cyanide complexes and contains very little “free” cyanide.

Although cyanide effluent limits at CFAC have been expressed in the form of total cyanide, it is appropriate to consider the various cyanide forms in the evaluation of the surface water mixing zone. Allowing an acute mixing zone to provide minimal, initial dilution to comply with the Montana water quality standard will not result in toxic conditions and will not threaten or impair existing beneficial uses. Cyanide is naturally occurring and is readily removed from water by natural mechanisms. The following summary of the environmental fate of cyanide is summarized from Cyanide in Water and Soil; Chemistry, Risk and Management (Dzombak et al, 2006).

1. Cyanide is produced by all living plants, algae, bacteria, fungi, and over 100 species of arthropods.
2. Cyanide-metal complexes (such as ferrocyanide and ferricyanide compounds that typically occur in spent potliner leachate) are subject to photodissociation. During photodissociation, the cyanide-metal complexes are broken down into free cyanide (which is subject to further volatilization and biodegradation) and metal ions. Cyanide within CFAC’s surface water mixing zone is exposed to sunlight and is expected to photodissociate.

3. Free cyanide is readily volatilized from water at pH conditions below 9.2. The Flathead River within CFAC’s mixing zone has a natural pH ranging from about 7.5 to 8.5. Thus, any free cyanide, including free cyanide that occurs due to photodissociation of cyanide-metal complexes, is expected to dissipate from the water by volatilization.

4. Free cyanide is biologically degradable by a variety of plant, bacteria, and fungal metabolic processes. Given the ubiquity of organisms and processes by which biological degradation occurs, it is likely that cyanide present in CFAC’s surface water mixing zone will be biologically degraded.

RESPONSE #17: Under ARM 17.30.515(1), DEQ is required to determine whether a mixing zone is appropriate for a particular discharge during permit renewal. DEQ does not find that a total cyanide acute surface water mixing zone for Outfall 006 is appropriate for the following reasons:

- DEQ enforces the water quality standards contained in Circular DEQ-7, which includes an acute water quality standard for total cyanide but not for free cyanide.
- DEQ does not grant acute surface water mixing zones except under very limited circumstances. ARM 17.30.507(1)(b) states “acute standards for aquatic life for any parameter may not be exceeded in any portion of a mixing zone, unless the department specifically finds that allowing minimal initial dilution will not threaten or impair existing beneficial uses. Both CFAC’s 1998 Mixing Zone application and the 2014 response to comments argue that the discharge does not threaten or impair beneficial uses based primarily on literature review. There is no actual biological data from the Flathead River to demonstrate that the discharge does not impair beneficial uses, including macroinvertebrates, amphibians, birds, or mammals.
- DEQ first issued a surface water mixing zone in 1994; this is after the April 29, 1993 cutoff date provided in ARM 17.30.505(1)(c).

No change was made.

COMMENT #18: Page 34, Table 25 – This Outfall 006 description does not indicate an accurate understanding of the groundwater flow path from the plant site to the river. The seep is diffuse. The amount of groundwater that contains cyanide and fluoride from CFAC activities and that discharges to the Flathead River is larger than the flow from the discrete seep. The flow estimate provided in the 2013 Renewal Application is the best estimate of actual groundwater discharge.

RESPONSE #18: DEQ agrees that the Fact Sheet does not include an estimate of the flow from the seep; it references the best available flow estimate (270,000 gpd facility total) and provides a brief discussion on the limit of data. Also see Response #6. No change was made.
COMMENT #19: [Outfall 006] Page 35, Table 26 - The aluminum CV is based on one sample. Because there was only one sample analyzed (N=1) this yields a very high multiplier. CFAC suggests that the default value of 1.4 be used.

RESPONSE #19: DEQ reviewed the coefficient of variation (CV) assumptions and RP analysis, and concluded that this assumption follows the statistical basis for developing RP multipliers (multipliers are a function of the number of samples and the CV) as described in the EPA’s 1991 Technical Support Document (TSD). CFAC could submit a permit modification request with additional effluent data for DEQ to use in an updated RP analysis, if desired. No change was made.

COMMENT #20: Page 36, Table 27 – CV for F appears to be incorrect; CFAC calculates a CV of 0.39.

RESPONSE #20: DEQ reviewed the CV calculations and concluded that the CV for fluoride was miscalculated in the draft, the correct CV is 0.39. This changed the TSD multiplier from 2.0 to 1.2 and decreased the projected maximum concentration of fluoride. Attachment #2 was revised to reflect this; please note this did not change the RP analysis conclusion.

COMMENT #21: Page 37 [WQBEL], first paragraph – The water from all outfalls passes through the ground before being discharged to the Flathead River. That is why dissolved factions are monitored in the existing permit. Please note that ARM 17.30.1345(5) only requires that permit “effluent limitations, standards, or prohibitions for a metal” must be expressed as “total recoverable”. For monitoring, the RP analysis can be made on the basis of dissolved metals, allowing monitoring on the basis of dissolved metals, or allowing effluent limits and monitoring for non-metal species (such as cyanide, fluoride, and benzo(a)pyrene) on the basis of filtered samples. Therefore, CFAC requests that effluent limits and monitoring for cyanide, fluoride and benzo(a)pyrene be based on filtered (dissolved) samples.

RESPONSE #21: Metals standards in Circular DEQ-7 are expressed as total recoverable, other than aluminum which is expressed as dissolved. DEQ interprets the requirement under 40 CFR 122.41(j) and ARM 17.30.1342(10) that monitoring must be representative of the activity to mean CFAC must conduct compliance monitoring for these metals as Total Recoverable. In addition, as per ARM 17.30.517(1)(d)(v), DEQ assumes that pollutants discharged from the source do not change in volume or concentration as they migrate through the unsaturated zone. No change has been made.

COMMENT #22: Page 41 – An RP for ammonia is calculated because there was only one sample analyzed, which yields a very high RP multiplier. As above for Al, CFAC suggests that the default value be used.

RESPONSE #22: DEQ reviewed the CV assumptions and RP analysis, and concluded this assumption follows the statistical basis set forth in the EPA’s 1991 TSD document. CFAC could supply additional ammonia data to DEQ for the RP analysis; as it stands there is only the one data point.
In the special conditions/compliance schedule (Part VII), DEQ provided a compliance date of January 1, 2017. CFAC could submit a permit modification request with additional effluent data for DEQ to use in an updated RP analysis, if desired. No change was made.

COMMENT #23: Page 48 – An effluent limit for TRC in Outfall 013 is inappropriate. There is no RP for TRC; therefore no effluent limit is required to protect beneficial uses. Moreover, the analysis does not consider TRC attenuation through contact with the ground and through the groundwater flow path.

RESPONSE #23: See response to Comment #9.

COMMENT #24: Page 51 – Continuous flow monitoring of Outfalls 007 – 012 discharges to ponds and groundwater should not be required until restart of operations. Stormwater is all that enters the North Ponds during this period of operations curtailment. The South Pond receives stormwater and 005 discharge. The 005 discharge is already monitored at its point of exit from the sewage treatment plant.

RESPONSE #24: DEQ reviewed your request, and concluded that no change is needed for the flow monitoring requirements for Outfalls 007 – 012, as the summary of monitoring requirements tables allows CFAC to report a flow estimate until CFAC re-initializes production (see footnote 1 for each table). Continuous monitoring is not required until CFAC initializes production.

COMMENT #25: Page 51 – WET testing of Outfall 006 is not necessary or appropriate because of the existing acute surface water mixing zone.

RESPONSE #25: DEQ does not agree. First, an acute surface water mixing zone is not granted with this renewal. In addition, DEQ requires Whole Effluent Toxicity (WET) testing for surface water dischargers at major facilities. Also see page 44 of the Fact Sheet for information on WET. No change has been made.

COMMENT #26: Page 54 – Table 54; Continuous flow measurement for the periodic batch discharge of head tank water is not realistic. CFAC suggests that the requirement be that head tank discharge volume and time-to-empty duration be measured whenever the head tanks are discharged after cleaning.

RESPONSE #26: DEQ considered your request and agrees that continuous flow monitoring is not realistic. The table for Outfall 013 was modified to allow for a flow estimate.

COMMENT #27: Draft Permit Comments - The composite sampling requirement for Outfalls 005, 007, 008, 009, 010, 011 and 012 is unrealistic considering the variable discharge at each of these outfalls, is not feasible, and will not improve the monitoring data sufficiently to justify the cost and difficulty in sampling. Also, CFAC requests that all monitoring requirements for 007, 008, 009, 010, 011, and 012 become effective upon restart of the facility.
RESPONSE #27: DEQ considered your request and agrees that composite sampling is not necessary for Outfall 005 until CFAC re-initiates production; grab samples will replace composite in this table.

DEQ also agrees that composite sampling is not necessary for Outfalls 007 – 012; however, semi-annual grab samples for these Outfalls will remain a requirement in order to provide data for the next permit renewal cycle.

COMMENT #28: Draft Permit Comments - Page 3, Outfall 006 Mixing Zones. The narrative description of the outfall could be interpreted to explicitly exclude the site wide Groundwater Mixing Zone and the Acute Toxicity Surface Water Mixing Zone that were included in the previous permits. (Figure 3 attached to the Draft Permit shows the same acute toxicity mixing zone that is shown in Figure 3 of the current permit.)

The site-wide ground water mixing zone was designated in the previous permit. See Comment #16. The MDEQ is obligated under Montana law to include the site-wide ground water mixing zone in CFAC’s final MD5ES permit.

As described above, CFAC demonstrated in 1998 that the acute aquatic toxicity mixing zone complied with all applicable Montana mixing zone laws and rules. The facts presented to support that finding are still valid. In addition, sampling data and current science all overwhelmingly support the conclusion that the current acute aquatic toxicity zone will not impair beneficial uses in the Flathead River. Thus, under ARM 17.30.505 (c), the MDEQ had no rational basis on which to determine to remove the acute aquatic toxicity mixing zone from the CFAC Draft Permit and should restore it to the CFAC final permit.

RESPONSE #28: The mixing zone figures presented in the Fact Sheet from the 1998 mixing zone study (Figure 3 – Ground water and Figure 4 – Surface Water) were referenced as part of the administrative record, and not meant to be interpreted as the proposed mixing zone delineations for this renewal. (See Fact Sheet pages 25, 29, and 31.) Note that the figures were not referenced in the draft permit.

With this response, a new figure has been developed that depicts the ground water mixing zones for the three outfalls granted ground water mixing zones (Outfalls 007, 009, and 013). In addition DEQ developed two figures to delineate the surface water mixing zones. These figures are included as attachments to and are referenced in the permit.

See the response to Comment #16 and #17.

COMMENT #29: Draft Permit Comments - Page 11, Outfall 006: Flow monitoring is not needed at this outfall and is technically infeasible. Groundwater seeps from the riverbank from the length of the riverbank and cannot be measured in one monitoring location.

RESPONSE #29: This MPDES permit renewal authorizes CFAC to discharge through the discrete seep designated as Outfall 006. CFAC needs to submit a request for a permit modification for additional outfalls if it proposes to discharges to state waters from additional point sources. After consideration, DEQ has revised the monitoring requirement to reflect that CFAC must provide a monthly estimate of the flow rate from Outfall 006 [75-5-602, MCA].
Response to Comments
MT0030066
Page 14 of 18

COMMENT #30: Draft Permit Comments – Page 18, Compliance Schedule. CFAC believes that continuous flow monitoring of the intermittent flow of the Outfall 006 seep will be technically infeasible and will not yield useful data as it is not representative of the discharge to the river and should not be required. Thus, a compliance schedule is not necessary.

RESPONSE #30: After consideration of Comments #29 and #30, DEQ agrees that the compliance schedule for flow monitoring of Outfall 006 should be removed.

Rob Parker, Site Assessment Manager, EPA Region 8, Denver

COMMENT #31: EPA has recently completed a Site Reassessment of the Columbia Falls Aluminum Property. I am submitting the Site Reassessment report as part of the comment period as it may contain additional information that DEQ may not previously be aware of in regard to environmental conditions at and near the site.

[Site Assessment Report (Dated April 2014) and attachments were provided.]

Response #31: Thank you for the information. DEQ reviewed and considered the technical information you provided as part of this response to comments, and did not find anything to contradict our permitting decisions.

DEQ would like to note for the record that EPA’s site assessment report documented a ‘observed release’ to Cedar Creek for copper, cyanide, and potassium; however, only cyanide exceeded any aquatic life benchmarks. CFAC has not proposed and is not authorized to discharge these or any pollutants into Cedar Creek, which is located approximately 1300 feet to the north/northwest of the second (western) North Pond.

PUBLIC COMMENTS

Flathead Lakers

COMMENT #32: The Flathead Lakers encourage the DEQ to delay renewing the CFAC MPDES permit until the EPA investigation into environmental contamination at the CFAC site has been completed and there is an opportunity to determine whether the results of EPA’s investigation warrant further review of the permit application and, potentially, additional permit limits or requirements to address contamination and discharge into groundwater or surface water. We understand that EPA plans to release the results of its investigation this spring.

CFAC has not been in operation since 2009 and its MPDES permit has been “administratively continued until such time as the permit is reviewed as per Administrative Rules of Montana (ARM) 17.30.1313” (MT0030066 2/2014 Fact Sheet). Since there are no plans for resuming operations at this facility in the foreseeable future and the renewal of the MPDES permit has been pending since January 31, 2004, we believe there will be no hardship in delaying consideration of the permit application for a few more months.
Response #32: Thank you for your comments.

In reviewing and processing this renewal, DEQ has coordinated closely with EPA and its' SUPERFUND investigation efforts, and we plan to continue to do so. If future information arises that conflicts with the MPDES permit, DEQ is authorized to modify, revoke and reissue, or terminate the permit [ARM 17.30.1365(3)].

This permit renewal is a significant rework of CFAC’s permit and installs current requirements and strengthens water quality controls. The CFAC MPDES permit was last renewed in 1999. In 2003, CFAC submitted their MPDES permit renewal application. Through no fault of the company, DEQ was not able to issue the renewal in a timely fashion; therefore the facility’s existing MPDES permit was ‘administratively extended,’ allowing the facility to discharge under the terms of the 1999-permit until such time as the renewed permit became effective [see ARM 17.30.1313].

This renewed permit more accurately represents the proposed facility operations. The purpose of having renewal cycles is to allow DEQ to review permit requirements based on current regulations as well as updated technical information supplied by the applicant in their renewal application. One improvement made in the proposed permit over the 1999-issued permit is a tiered approach to setting limits – as there is currently no production the allowable effluent limits from the two regulated process lines is zero. In addition, at the time of CFAC’s last permit renewal there were no water quality-based effluent limits (WQBELs) imposed; this permit proposes WQBELs. At the time of renewal in another five (5) years, DEQ can continue to review available information to determine whether additional limits are needed.

Sarah and Bill Dakin

COMMENT #33: We have concerns about the re-issuance of this permit and the granting of new ‘outfalls’ to the Glencore-owned CFAC facility at Columbia Falls. You should have, as a public agency, an obligation to hold public meetings and inform the citizenry of the administrative rationale. We have read the website “checklist” which seems to explain the DEQ’s rationale for this renewal with additional outfalls. In lay terms, it seems to be: ‘we issued this before, we will do it again, with new limits for certain effluents which for the first time we can monitor’. Please understand our skepticism about the monitoring, and our anxiety that while these effluents are being legally released and monitored, undesirable harm may be done.

We can’t but wonder why in the world seven (7) additional outfalls and increased discharges are being permitted to a facility that has not been operating for three years and has no chance, ever, of being re-opened?

We are not geologists, but it is obvious to a lay citizen that the soils and strata on which the plant is sited are nothing but gravel and glacial till. Everything that is allowed to leech into, through, under, and beyond these settling ponds will find its way into the Flathead River, sooner or later. The real ‘settling pond’ here is Flathead Lake and your stated intent to routinely permit the continued and increased discharge … where it almost inevitably will enter into the Flathead watershed is frankly disquieting.
We ask that DEQ immediately revoke its stated intent to issue these permits and structure a meaningful protocol for communicating the science and law behind your decision to the lay public.

Response #33: Thank you for your comments, they are hereby noted in the public record. In addition, DEQ would like to address your primary concerns.

The MPDES program is designed to have a five (5) year renewal cycle. The purpose is to ensure that limits reflect the most recent regulatory requirements and facility information. The draft permit for CFAC proposed in the February 2014 public notice contains more stringent limits and requires more treatment than the current permit that was issued in 1999. If DEQ fails to renew this permit, the default is to continue to enforce the less stringent 1999-permit.

DEQ was able to allocate resources to renew this permit last year (Winter 2013). This was before the potential EPA site investigation at CFAC was announced. Once DEQ gained knowledge of the EPA involvement, the two agencies began and have maintained communication on permitting and site investigation progress.

As required by ARM 17.30.1371, DEQ included a Fact Sheet in the public notice. The purpose of the Fact Sheet is to explain the legal basis and technical and policy issues considered in renewing this permit. DEQ also has the obligation to hold public hearings when there is found to be significant public interest in the permit, as required by ARM 17.30.1373 & .1374. This was described in the public notice. No request for a public hearing was made, and no significant public interest for a public hearing has been expressed; therefore, DEQ does not plan to hold one for this permit renewal.

Don Bennett

COMMENT #34: I want to express my concerns that the current ownership of the Columbia Falls Aluminum Plant (Glencore) has taken advantage of the Columbia Falls community. Our pristine water and the surrounding natural beauty of Columbia Falls deserve the respect of our hard working heritage. A cleanup of the CFAC site is absolutely necessary and the responsible thing to do.

I understand that many of the current and future problems were created from past actions before Glencore was involved. I also understand that these risks were part of the purchase price that Glencore paid when the purchase transaction took place.

I have personally dealt with several layers of management within the Glencore management team and I have found that they have consistently spun a web of false intentions that have done nothing but postpone the inevitable realization that the plant will never reopen and that their ultimate goal involved postponing and/or transferring the real and perceived environmental hazards to someone else.

I ask that Glencore be a responsible corporate citizen and do the right thing. I also ask the State of Montana to step up, make sure you protect our citizens and reach a fair resolution to the issues in a way that promotes a win/win for Glencore, Columbia Falls and all of Montana.
Response #34: Thank you for your comments, they are hereby noted in the public record. In addition, DEQ wants to note that issuance of this permit does not influence, impede, or impact investigation and eventual clean-up under CERCLA.

**Tom Kurdy**

**COMMENT #35:** I am writing to express my concern with the Columbia Falls Aluminum Company and your handling of the permit process and lack of due diligence in protecting our environment. The potential danger to the Flathead River and Flathead Lake is serious and certainly warrants your attention. It is hard for me to understand what other permits could have been more important and worthy of your time than those for the CFAC.

Hoping it is not already too late, I urge you to get with the program, due your job and ensure our precious resources our not being contaminated.

Response #35: Thank you for your comments, they are hereby noted in the public record. See previous comments. Also, DEQ wants you to note that the permit implements and protects the applicable current water quality standards.

**John & Rachel**

**COMMENT #36:** Any check of pollution at CFAC should include checking for mercury in the bottoms of the three cooling ponds at the river, and in the ground where the 30 old water treatment towers were for treating potline gases. Years ago the rectifier used mercury arc rectifiers which were periodically rebuilt. The old potline water treatment towers had mercury flow meters. Each of the 30 flow meters contained approximately 1-1/2 to 2 quarts of mercury (approximately 11 to 15 GALLONS of mercury total), and it is not known what happened to the mercury when the towers were scrapped. Also, when the flow meters were occasionally cleaned, the mercury containers were steamed cleaned in the paint booth which has a floor drain, and the mercury coated gloves and rags were put in the trash which went to the dump.

Another potential source of pollution at CFAC is the used oil leaking into the tunnel north of casting. The tunnels are under the potlines basement (running east and west) and at casting joins the one between the rectifier and the paste plant (north and south). The source of the oil is believed to be from an underground waste oil tank where the garage was originally located.

Response #36: Thank you for your comments, they are hereby noted in the public record. In addition, your comments were forwarded to Rob Parker, Site Assessment Manager with EPA Region 8, who is currently conducting a site investigation at CFAC.

For your information, EPA provided the site assessment report as a public comment (see above comment); the report included mercury analysis for ground water and surface water near the landfills, north and south percolation ponds, sediment, ground water on-site and off-site, surface water, and soil samples. The highest mercury concentration for samples from six ground water monitoring locations was 0.77 µg/L found at MW-03, which is located to the west of the West Landfill/ Wet Scrubber Sludge Pond. The other five land-fill area ground water wells, the north and south percolation ponds, the other on-site and off-site
ground water wells, and surface water samples had nondetect at <0.2 µg/L mercury. The highest concentration in the sediment was 0.54 mg/Kg at SD-21 (south percolation ponds). However, neither mercury nor oil disposal/release belongs in this MPDES permit, which regulates discharge from point sources. EPA is the correct venue for addressing site contamination from past practices.

Mary Ann Carlson

COMMENT #37: I don't understand why CFAC has not had to be permitted for waste water discharges since 1999. The tailing ponds contain cyanide and ammonia as do the landfills on the property. The property sits right on the middle fork of the Flathead River. Why is the DEQ not realizing that the river is at great danger from their laxness??? DEQ needs to make the waste water permit for CFAC a priority.

Response #37: Thank you for your comments, they are hereby noted in the public record. In addition, please see previous comments.

Michael Shepard

COMMENT #38: We saw the article concerning the permit application regarding CFAC's "process" application renewal. I am adamantly against any extension that does not push for the EPA cleanup to start. This plant has been idle now for soon to be 5 years, with no signs of the foreign owners even starting a clean up. Any permit should be most restrictive in any of the outfalls, which would cover all the normal aluminum industry compounds, plus the "cocktails" that are now showing up at all sites in the Pacific Northwest at the 9 other old smelter sites. As long as you address these, I am fine with your process. My background is being the previous Purchasing Manager at that location from 1979 to 1985, and am very familiar with all the problems associated with the aluminum reduction process.

Response #38: Thank you for your comments, they are hereby noted in the public record.
## Attachment #2: CFAC - Effluent RP for Outfall 007 (Including consideration for GW Mixing)

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<th>$Q_d$ (discharge flow (mgd))</th>
<th>Aluminum</th>
<th>Antimony</th>
<th>Copper</th>
<th>Nickel</th>
<th>Benzo(a)pyrene</th>
<th>Cyanide</th>
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<td>0.030&lt;</td>
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<td>6.2</td>
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<td>Projected Max Conc @ Discharge (mg/L)</td>
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<td>0.0057&lt;</td>
<td>0.0062&lt;</td>
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<td>0.0062</td>
<td>0.028</td>
<td>0.001</td>
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<td>0.90</td>
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<td>Projected Max Conc. (ug/L)</td>
<td>280</td>
<td>5.7</td>
<td>6.2</td>
<td>28</td>
<td>1</td>
<td>167</td>
<td>899</td>
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</table>

| $Q_s$ (7Q10 (cfs)) | 1,250 | 1,250 | 1,250 | 1,250 | 1,250 | 1,250 | 1,250 |
| Acute Dilution Allowed | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Chronic Dilution Allowed | 10% | 10% | 10% | 10% | 10% | 10% | 10% |
| Acute stream flow dilution (mgd) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Chronic stream flow dilution (mgd) | 81 | 81 | 81 | 81 | 81 | 81 | 81 |

| $C_s$ (Upstream Concentration - 75th percentile (ug/L)) | 100 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 185 |

| $C_r$ (Acute Concentration After Mixing (ug/L)) | 280 | 5.7 | 6.2 | 28 | 0.62 | 167 | 899 |
| Chronic Concentration After Mixing (ug/L) | 104 | 0.1 | 0.1 | 0.61 | 0.014 | 8.5 | 201 |

### Circular DEQ-7 Stream Standard (ug/L)

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### Reasonable Potential (RP)? (if $C_r >$ Standard)

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1. Max observed effluent concentrations for Outfall 007 were estimates provided in application Form 2C (submitted August 8, 2013). The data for Benzo(a)pyrene on Form 2C, page V-6 was corrected for Outfall 007 to reflect the maximum observed monitoring data in Table 2C-3, of <0.1 μg/L.
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<th>Nickel</th>
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<td>GW Background Conc - 75th percentile (mg/L)</td>
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<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
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</tr>
<tr>
<td>Chronic Dilution Allowed</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Acute stream flow dilution (mgd)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8.1</td>
</tr>
<tr>
<td>Chronic stream flow dilution (mgd)</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
<td>81</td>
</tr>
<tr>
<td>C&lt;sub&gt;s&lt;/sub&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upstream Concentration - 75th percentile (ug/L)</td>
<td>100</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>5.0</td>
<td>185</td>
<td>35</td>
</tr>
<tr>
<td>C&lt;sub&gt;r&lt;/sub&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cr = (Q&lt;sub&gt;d&lt;/sub&gt;C&lt;sub&gt;d&lt;/sub&gt; + Q&lt;sub&gt;s&lt;/sub&gt;C&lt;sub&gt;s&lt;/sub&gt;) / (Q&lt;sub&gt;d&lt;/sub&gt; + Q&lt;sub&gt;s&lt;/sub&gt;)</td>
<td>249</td>
<td>6.3</td>
<td>5.8</td>
<td>26</td>
<td>0.58</td>
<td>176</td>
<td>4,165</td>
<td>6,836</td>
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<td>Chronic Concentration After Mixing (ug/L)</td>
<td>104</td>
<td>0.2</td>
<td>0.2</td>
<td>0.8</td>
<td>0.017</td>
<td>10</td>
<td>304</td>
<td>899</td>
</tr>
<tr>
<td>Circular DEQ-7 Stream Standard (ug/L)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td>750</td>
<td>na</td>
<td>14.0</td>
<td>469</td>
<td>na</td>
<td>22.0</td>
<td>na</td>
<td>3,150</td>
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<tr>
<td>Chronic</td>
<td>87</td>
<td>na</td>
<td>9.3</td>
<td>52</td>
<td>na</td>
<td>5.2</td>
<td>na</td>
<td>1,410</td>
</tr>
<tr>
<td>Human Health</td>
<td>na</td>
<td>na</td>
<td>6.6</td>
<td>1300</td>
<td>100</td>
<td>0.038</td>
<td>140</td>
<td>na</td>
</tr>
<tr>
<td>Reasonable Potential (RP)? (If Cr &gt; Standard)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Chronic</td>
<td>YES</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Human Health</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

Footnote:
(1) Max observed effluent concentrations for Outfall 009 were estimates provided in application Form 2C (submitted August 8, 2013). The data for Benzo(a)pyrene on Form 2C, page V-6 was corrected for Outfall 009 to reflect the maximum observed monitoring data in Table 2C-3, of < 0.1 μg/L.
## Attachment #5 - WQBEL Development

### WQBELs (µg/L)

<table>
<thead>
<tr>
<th>Acute Multiplier</th>
<th>Chronic Multiplier</th>
<th>Acute (LTA)</th>
<th>Chronic (LTA)</th>
<th>Minimum (LTA)</th>
<th>MCL</th>
<th>AML</th>
<th>MDL/AML Multiplier</th>
<th>Acute ALS</th>
<th>Chronic ALS</th>
<th>Human Health ALS</th>
<th>Human Health AML</th>
<th>Human Health MDL</th>
<th>Human Health MDL/AML Multiplier</th>
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<tbody>
<tr>
<td>3.11</td>
<td>1.55</td>
<td>2.01</td>
<td>143</td>
<td>71</td>
<td>NA</td>
<td>NA</td>
<td>118</td>
<td>78</td>
<td>9.5</td>
<td>140</td>
<td>70</td>
<td>70</td>
<td>118/78</td>
</tr>
<tr>
<td>3.11</td>
<td>1.55</td>
<td>2.01</td>
<td>3.07</td>
<td>22.9</td>
<td>10.9</td>
<td>140</td>
<td>3.11</td>
<td>1.55</td>
<td>2.01</td>
<td>118</td>
<td>78</td>
<td>9.5</td>
<td>140</td>
</tr>
<tr>
<td>3.07</td>
<td>2.01</td>
<td>118</td>
<td>78</td>
<td>9.5</td>
<td>140</td>
<td>70</td>
<td>3.11</td>
<td>1.55</td>
<td>2.01</td>
<td>118</td>
<td>78</td>
<td>9.5</td>
<td>140</td>
</tr>
</tbody>
</table>

### Footnote:

1. 75th Percentile of upstream concentration
2. Qa = Upstream flow /QH x % dilution allowed + Ground Water Dilution
3. If Cs > Cr, then WLA = Cr

### Standards (C<sub>S</sub>)

<table>
<thead>
<tr>
<th>Standards</th>
<th>Acute</th>
<th>Chronic</th>
<th>HH</th>
<th>Background Stream Conc&lt;sup&gt;(b)&lt;/sup&gt;</th>
<th>Q&lt;sub&gt;H&lt;/sub&gt;</th>
<th>Acute Dilution</th>
<th>Chronic Dilution</th>
<th>GW</th>
<th>Acute</th>
<th>Chronic</th>
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<tbody>
<tr>
<td></td>
<td>µg/L</td>
<td>µg/L</td>
<td>µg/L</td>
<td>µg/L</td>
<td>µg/l</td>
<td>%</td>
<td>%</td>
<td>µg</td>
<td>µg/l</td>
<td>µg/l</td>
</tr>
<tr>
<td>Outfall 005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>750</td>
<td>87</td>
<td>NA</td>
<td>100</td>
<td>1250</td>
<td>0%</td>
<td>10%</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Cyanide</td>
<td>22</td>
<td>5.2</td>
<td>140</td>
<td>5</td>
<td>1250</td>
<td>0%</td>
<td>10%</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Outfall 007</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>750</td>
<td>87</td>
<td>NA</td>
<td>100</td>
<td>1250</td>
<td>0%</td>
<td>10%</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Cyanide</td>
<td>22</td>
<td>5.2</td>
<td>140</td>
<td>5</td>
<td>1250</td>
<td>0%</td>
<td>10%</td>
<td>0</td>
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<td>Outfall 009</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum, Dissolved</td>
<td>750</td>
<td>87</td>
<td>NA</td>
<td>100</td>
<td>1250</td>
<td>0%</td>
<td>10%</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Cyanide</td>
<td>22</td>
<td>5.2</td>
<td>140</td>
<td>5</td>
<td>1250</td>
<td>0%</td>
<td>10%</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Ammonia</td>
<td>3,150</td>
<td>1,410</td>
<td>NA</td>
<td>35</td>
<td>1,250</td>
<td>1%</td>
<td>10%</td>
<td>0.1</td>
<td>8.27</td>
<td>81.0</td>
</tr>
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</table>

### Wasteload Allocations (C<sub>I</sub>)

<table>
<thead>
<tr>
<th>WLA = Cd = Cr + (Qs/Qd x (Cr-Cs))</th>
<th>Acute</th>
<th>Chronic</th>
<th>HH (WLA&lt;sub&gt;H&lt;/sub&gt;)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>µg/L</td>
<td>µg/L</td>
<td>µg/L</td>
</tr>
<tr>
<td>Acute (WLA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic (WLA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HH (WLA&lt;sub&gt;H&lt;/sub&gt;)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### WQBEL Development

- **Outfall 005**
  - Aluminum, Dissolved: 750 µg/L, 87 µg/L, NA
  - Cyanide: 22 µg/L, 5.2 µg/L, 140 µg/L

- **Outfall 007**
  - Aluminum, Dissolved: 750 µg/L, 87 µg/L, NA
  - Cyanide: 22 µg/L, 5.2 µg/L, 140 µg/L

- **Outfall 009**
  - Aluminum, Dissolved: 750 µg/L, 87 µg/L, NA
  - Cyanide: 22 µg/L, 5.2 µg/L, 140 µg/L
  - Ammonia: 3,150 µg/L, 1,410 µg/L, NA
EXHIBIT 15
September 18, 2014

Catherine A. Laughner
Browning, Kaleczyc, Berry & Hoven, P.C.
801 W. Main Street, Suite 2A
Bozeman, MT 59715-3336

RE:       In the Matter of Columbia Falls Aluminum Company’s Appeal of
MPDES Permit No. MT0030066 Case No. BER 2014-06 WQ

Dear Cathy:

The Department of Environmental Quality (“DEQ”) is in receipt of your appeal of Permit No.
MT0030066, on behalf of Columbia Falls Aluminum Company, LLC (“Appellant”). The appeal document,
filed August 22, 2014 with the Board of Environmental Review, identifies contested conditions of the
newly issued permit. Based upon DEQ’s review of the appeal document, as well as the renewed Permit,
dated July 25, 2014, DEQ has concluded the stayed conditions of Permit No. MT0030066 are as follows:

1. Changes to the previously designated mixing zones:
   a. The delineation of the mixing zones, as identified on Figures 1 - 3 and referenced on pages 3
      & 4, will be stayed. During the pendency of the Board appeal, the previously designated
      mixing zones, as identified in Figures 1 & 2 from the previous MPDES permit (effective
      February 1, 1999), will remain in effect.

2. The description of Outfall 006:
   a. The description of Outfall 006 on page 3 will be stayed. During the pendency of the Board
      appeal, the description of Outfall 006 as described on page 6 of the previous MPDES permit
      will remain in effect.

3. Failure of the permit to account for treatment achieved by the pond system and by attenuation of
   pollutants by natural soil and groundwater:
   a. Effluent limits for Outfall 007 will be stayed.
   b. Effluent limits for Outfall 009 will be stayed.

4. Compliance point for the acute aquatic life standard for total cyanide:
   a. Cyanide effluent limits for Outfall 006 will be stayed.

DEQ has not identified any other conditions of the Permit which must be stayed as the result of the
appeal. As Appellant operates an existing facility or source, all other conditions of the renewed permit
remain fully effective and enforceable. ARM 17.30.1379 (2).

EXHIBIT 15
Appellant recently registered to submit Discharge Monitoring Reports (DMRs) electronically through NetDMR. DEQ will make changes to the NetDMR reporting system, as necessary, to reflect the stayed conditions. Typically, these changes take up to 48 hours to appear within NetDMR.

If you have any questions, please contact me at 444-4009 or kmoser2@mt.gov.

Best Regards,

[Signature]

Kurt R. Moser
Legal Counsel

cc: Steve Wright, CFAC Facility Contact (2000 Aluminum Drive, Columbia Falls, MT 59912)
Jon Kenning, DEQ
Paul Skubinna, DEQ
Laura Andersen, DEQ
File
EXHIBIT 16
Kurt R. Moser  
Department of Environmental Quality  
P.O. Box 200901 
Helena, MT 59620  
Phone: (406) 444-4009  
Email: kmoser2@mt.gov

Attorney for the Department

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW  
OF THE STATE OF MONTANA

IN THE MATTER OF:  
COLUMBIA FALLS ALUMINUM  
COMPANY'S (CFAC) APPEAL OF  
DEQ'S MODIFICATIONS OF  
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT NO.  
MT0030066, COLUMBIA FALLS, FLATHEAD COUNTY, MT.

Case No.: BER 2014-06 WQ

DEQ'S RESPONSES TO CFAC'S  
FIRST SET OF DISCOVERY REQUESTS

COMES NOW the Montana Department of Environmental Quality ("DEQ"),  
through counsel, and submits the following responses to Appellant Columbia Falls  
Aluminum Company’s ("CFAC") First Set of Discovery Requests:

GENERAL OBJECTIONS

1. DEQ objects to these Requests to the extent they seek to require DEQ to produce documents not in DEQ’s care, custody, or control or to answer on behalf of other parties.

DEQ’s Responses to CFAC’s First Discovery Requests
2. DEQ objects to these Requests to the extent they seek to require DEQ to produce documents or other information protected from disclosure by the attorney-client privilege, the attorney work product doctrine, or any other privilege or doctrine.

3. DEQ objects to the definition of seeps that has been provided in these Discovery Requests. DEQ’s responses using the word seep or seeps are based upon the common understanding of the terms and the context of how those terms have been used in the history of MPDES Permit No. MT0030066 through the issuance of the new permit on July 25, 2014.

These Requests for Admission, Interrogatories, and Requests for Production are answered subject to and without waiving these general objections, which are incorporated in the below answers and responses.

**INTERROGATORIES**

**INTERROGATORY NO. 1:** In a letter to Steven Wright dated May 2, 2013, MDEQ Environmental Science Specialist Christine Weaver stated the MDEQ’s position that Outfall 006 is “not a regulated outfall as it is currently described and needs to be reconfigured.” This determination is contrary to: (a) the letter from EPA Water Program Team Leader William E. Engle, P.E., to Steve D. Wright, CFAC Environmental Manager, dated November 4, 1996, which states: “EPA has made a determination that the seeps into the Flathead River constitute an unpermitted discharge and will need to be addressed in the re-drafted MPDES permit.”; (b) the letter from MDEQ Administrator John L. Arrigo to Carol Rushin, EPA Office of Enforcement, Compliance and Environmental Justice, dated January 8, 1997, which states: “The Department of Environmental Quality acknowledges that the unauthorized seep discharge identified on property owned by CFAC is a discharge of wastes requiring a discharge permit under Section 75-5-605(2)(b) MCA of the DEQ’s Responses to CFAC’s First Discovery Requests
Montana Water Quality Act.”; and, (c) the letter from Timothy Byron, MDEQ Permitting & Compliance Division to Steve Right dated March 31, 1997, which states: “…the EPA requires that the seep discharge be listed as an outfall and assigned specific effluent limits.” Please explain how the Department reached its conclusion that Outfall 006 is “not a regulated outfall” in light of the above referenced prior determinations.

**ANSWER:** The Interrogatory seems to mischaracterize DEQ’s May 2, 2013 letter by taking a phrase out of context; on that basis, DEQ objects to this Interrogatory based upon its form. Without waiving the foregoing objection, and in respect thereof, DEQ’s May 2, 2013 letter stated, in part, that “Outfall 006 is not a regulated outfall as it is currently described and needs to be reconfigured.” This statement indicates that as Outfall 006 was described on CFAC’s August 4, 2003 application, CFAC would not be afforded coverage in a renewed permit, unless CFAC provided additional information to the Department. DEQ indicated that it was CFAC’s responsibility to identify all outfalls and appropriate monitoring locations for documenting compliance with the renewed permit’s water quality based effluent limits. The referenced statement, when read in its proper context, is not contrary to the three referenced letters. The three quotes from letters referenced under subparts (a), (b), and (c) must also be read in context.

The basis for the November 4, 1996 letter from William Engle (EPA) to CFAC was an inspection conducted by EPA and DEQ on September 19, 1996. The Inspection Report, which was attached to the November 4, 1996 letter, stated that “[t]he unpermitted seeps discharging into the Flathead River must be addressed. This
must be done either through obtaining a MPDES permit for the discharges, which will require that the discharges be treated to meet designated standards or they must cease. This probably means that they need to be captured prior to discharge to the River and pumped to a location where they are not discharging to the River.” Corrective Action Item No. 4, EPA Region VIII – Inspection Report. The November 4, 1996 letter is neither contrary nor inconsistent with DEQ’s May 2, 2013 letter.

The basis for the January 8, 1997 letter from John Arrigo (DEQ) to Carol Rushin (EPA) was to inform EPA of DEQ’s progress in addressing the unauthorized discharge that was occurring through the then identified seeps. The January 8, 1997 letter informed EPA that DEQ considered the seep discharges to be unauthorized and that DEQ would either require an MPDES permit or would require CFAC to eliminate the discharges. The letter further qualified that “[it] is unknown whether the discharge will be able to meet effluent standards because of undefined variables required to characterize the discharge.” Therefore, the January 8, 1997 letter is neither contrary nor inconsistent with DEQ’s May 2, 2013 letter.

The basis for the March 31, 1997 letter from Timothy Byron (DEQ) to Steve Wright (CFAC) was to address an on-going enforcement action. The letter explained that the seep discharge “was never assigned an outfall number because the volume and concentration are not controlled by plant operations and effluent limits are not contained in federal regulations (40 CFR Subchapter, Part 421, Subpart B) for primary aluminum smelters.” The letter reiterated that EPA did not consider “the seeps to be authorized by the [then] current MPDES permit” and that EPA wanted permit coverage for the seep, including the development of specific effluent limits. DEQ’s
May 2, 2013 letter does not represent that the seep discharge could not be regulated under the renewed permit. However, as mentioned above, DEQ indicated that it would be CFAC’s responsibility to identify all outfalls and appropriate monitoring locations for documenting compliance with the renewed permit’s water quality based effluent limits. Since CFAC did not provide this additional information, the configuration of Outfall 006 was modified to appropriately represent CFAC’s application. The March 31, 1997 letter is neither contrary nor inconsistent with DEQ’s May 2, 2013 letter.

**INTERROGATORY NO. 2:** Please state the basis for the MDEQ’s statement in the 2014 Response to Comments that: “DEQ is not permitting historical disposal practices or release of contamination through general site ground water flow,” when Permit MT-0030066, page 6 signed by F. Shewman in 1999 lists Outfall 006 as “ground water flowing beneath the plant site and discharging to surface water in the Flathead River along a reach extending from Latitude 48 North, 23’18”, Longitude 144 East, 7’19” to Latitude 48 North, 23’13”, Longitude 144 East, 9’04”. The ground water receives wastewater from the north pond, south ponds, west pond, plant drywells, landfills used for historical waste disposal practices . . . ”

**ANSWER:**

DEQ’s Response to Comments (July 25, 2014), Response No. 5, indicate that the renewed permit changed the outfall identifications for the site.

When DEQ issues MPDES permits for point sources, under Title 17, chapter 30, subchapter 13, ARM, DEQ must evaluate and apply appropriate technology-based standards and limitations (TBELs) and must ensure that water quality standards are
protected by developing any necessary water quality based effluent limitations (WQBELs). In DEQ’s letter of May 2, 2013, DEQ informed CFAC it was their responsibility to determine if the landfills constituted point sources and, if so, to apply for coverage and provide an identification of landfill effluent monitoring locations; CFAC did not supply any landfill effluent monitoring locations.

If CFAC had identified appropriate landfill monitoring locations, DEQ could have required CFAC to monitor landfill effluent and meet, at a minimum, TBELs at the last point of control prior leaving the landfill location. Both EPA and Montana regulations require that MPDES permits include conditions that meet all applicable TBELs, at a minimum, and any more stringent effluent limitations necessary to meet applicable WQBELs at the point of discharge.

**INTERROGATORY NO. 3:** In the 2014 Response to Comments, the MDEQ states: “DEQ is not permitting historical disposal practices or release of contamination through general site ground water flow. This is regulated by other programs, not MPDES.” Please state what “other programs” preclude coverage under an MPDES Permit.

**ANSWER:** DEQ’s response to the comment means that the MPDES program is limited in scope as to what it addresses. The scope of the permit is determined by the MPDES program and its underlying authorities. DEQ was not trying to say that other program authorities preclude coverage under an MPDES permit. There are other programs that may address releases of contamination outside the scope of this permit. Those programs include the State and Federal Superfund programs, the State Hazardous Waste Program (Montana Hazardous Waste Act), and possibly others.
depending upon the particular release at issue, e.g., petroleum releases, asbestos, etc.

**INTERROGATORY NO. 4:** Please describe how the MDEQ’s 2014 statement that: “DEQ is not permitting historical disposal practices or releases of contamination through general site ground water flow” is consistent with the MDEQ’s 1998 Statement of Basis, which states: “Under the stipulations of MPDES permit MT-00330066 CFAC implemented all reasonable land, soil, and water conservation practices by recontouring capping, and revegetating the closed landfill to reduce infiltration from precipitation.”

**ANSWER:** DEQ’s Statement of Basis dated November 12, 1998 and prepared by Timothy Byrcn, does not contain the referenced language.

**INTERROGATORY NO. 5:** In preparing the draft 2014 Permit, please describe how the MDEQ evaluated the documentation of cyanide destruction contained in the MDEQ’s 1999 Statement of Basis and in CFAC’s 1998 Mixing Zone application?

**ANSWER:** In answering this Request for Admission, DEQ assumes CFAC is referring to the Statement of Basis dated November 12, 1998, prepared by Timothy Byron. DEQ reviewed the 1998 Statement of Basis; the extent of the documentation of cyanide (CN) destruction was a statement in Part D, “Outfall 006 probably receives some treatment due to CN attenuation in the aquifer medium,” and a generalized statement in Table 12. Water Quality Assessment that stated “CN is not persistent in surface water due to photodegradation and volatilization...” The SOB also referred to the mixing zone application.

DEQ reviewed CFAC’s mixing zone application, *Attachment A. Application for Groundwater and Surface Water Mixing Zones* dated August 1998 (Mixing Zone Study)
and specifically noted the description of cyanide decay mechanisms elaborated in section 3.10.4. DEQ notes that mixing zones are used for dilution and not for treatment.

**INTERROGATORY NO. 6:** In preparing the 2014 draft Permit, please describe the methodology the MDEQ utilized to evaluate the volatilization and destruction of cyanide in surface water exposed to sunlight?

**ANSWER:** CFAC did not demonstrate that cyanide would naturally dissipate in the Flathead River to a sufficient degree in order to avoid acute toxicity. DEQ also evaluated CFAC’s monitoring data which indicated that CFAC had been discharging water into the Flathead River at acutely toxic amounts.

CFAC did not provide any specific documentation of cyanide decay in the Flathead River, other than a generalized statement in 1998 Statement of Basis, Table 12. Water Quality Assessment that stated “CN is not persistent in surface water due to photodegradation and volatilization...” and the general description of cyanide decay mechanisms set forth in the 1998 Mixing Zone Study.

However, DEQ also noted that the 1998 Mixing Zone Study provided that “[c]yanide concentrations at station RIV-2 are variable but are typically higher than the Aquatic Life Standard for cyanide during low flow conditions and typically lower but occasionally higher than the Aquatic Life Standard during high flow conditions.” River monitoring station RIV-2 is located within the surface water mixing zone at the upstream end of the backwater area along the north bank of the Flathead River. DEQ noted in the 2014 Fact Sheet that CFAC exceeded the acute aquatic life standard for cyanide in the surface water mixing zone with a maximum concentration of 53 ug/L at RIV-2, and that it was unknown at what point downstream the river would meet the

In preparing the 2014 draft permit, DEQ considered historic monitoring data and the lack of site-specific data demonstrating the extent and rate of the volatilization and destruction of cyanide in the Flathead River. DEQ notes that mixing zones are used for dilution and not for treatment.

**INTERROGATORY NO. 7:** Please state in detail the rational the MDEQ employed to determine in 2014 an acute mixing zone was not appropriate for cyanide.

**ANSWER:**

See DEQ’s Response to Comments, Response to Comment No. 17. In general, an acute mixing zone (zone of initial dilution) is not granted for toxic and persistent substances. ARM 17.30.506(2) (d). To grant an acute mixing zone, the discharger must demonstrate to DEQ that allowing minimal, initial dilution will not threaten or impair existing beneficial uses. ARM 17.30.507(1) (b).

DEQ first granted CFAC a surface water mixing zone under the terms of the 1999 MPDES Permit (although DEQ’s 2014 Response to Comments indicates, in error, that a surface water mixing zone was first granted in 1994, See Page 10, Response to Comments). Therefore, the surface water mixing zone is not subject to the limitations for renewing mixing zones found at ARM 17.30.505 (1) (c).

Additionally, DEQ also noted that the 1998 Mixing Zone Study provided that “[c]yanide concentrations at station RIV-2 are variable but are typically higher than the Aquatic Life Standard for cyanide during low flow conditions and typically lower but occasionally higher than the Aquatic Life Standard during high flow conditions.” River monitoring station RIV-2 is located within the surface water mixing zone at the
upstream end of the backwater area along the north bank of the Flathead River. DEQ noted in the 2014 Fact Sheet that CFAC exceeded the acute aquatic life standard for cyanide in the surface water mixing zone with a maximum concentration of 53 ug/L at RIV-2, and that it was unknown at what point downstream the river would meet the standard. Page 31, 2014 Fact Sheet.

Furthermore, DEQ considered that no mixing zone will be granted if it would threaten or impair existing beneficial uses. ARM 17.30.506(1). According to Page 14 of the 1998 Mixing Zone Study, “[d]uring low flow conditions, the [backwater] channel does not receive any inflow from the Flathead River and forms a backwater area where little or no mixing with the Flathead River occurs.” During the 2014 renewal, DEQ did not believe the information provided by CFAC in the 1998 Mixing Zone Study was sufficient to demonstrate that the levels of cyanide discharged from Outfall 006 would not threaten or impair existing beneficial uses in the Flathead River, including the backwater zone. In the 1999 MPDES permit application process, the issues were addressed by CFAC mainly through a literature review referenced in the 1998 Mixing Zone Study. For example, Section 3.10.1 of the Mixing Zone Study addressed biologically important areas and concluded that the backwater area could not be a fish spawning or nursery area for trout species, relying on a three-year FWP study from 1979-1981. However, the Mixing Zone Study did not address other fish species that can be found in the Flathead River. Another example was in Section 3.10.4 of the Mixing Zone Study, where CFAC addressed the toxicity and persistence of cyanide. This discussion was based wholly upon a literature review, with no site-specific evidence of the state of the cyanide cycle in the backwater or mixing zone area.
INTERROGATORY NO. 8: In determining that an acute mixing zone was not appropriate for cyanide, describe how the MDEQ considered the toxicity of metal cyanide complexes versus the toxicity of free cyanide.

**Answer:** DEQ did not consider the toxicity of metal cyanide complexes versus the toxicity of free cyanide in denying the acute mixing zone and associated dilution. In Circular DEQ-7, numeric water quality standards for cyanide are expressed as total cyanide and therefore DEQ evaluates toxicity based upon total cyanide.

INTERROGATORY NO. 9: In preparing the 2014 Permit, please describe how the MDEQ considered historical information showing that the ongoing groundwater discharge under CFAC's previous permits has resulted in no observed impacts to the Flathead River.

**Answer:** In developing permit effluent limits, DEQ must determine if pollutants are discharged at levels which will cause, or have the reasonable potential to cause, or contribute to an excursion above any water quality standard and does not develop effluent limits based upon observed impacts. In preparing the 2014 MPDES Permit, DEQ was not aware of any historical information that shows no observed impacts to the Flathead River from CFAC. For example, historical data demonstrates that CFAC has been discharging cyanide into the Flathead River at concentrations that are acutely toxic to fish and aquatic life.

INTERROGATORY NO. 10: Please list all other MPDES permits the MDEQ has issued in the past 10 years that contain discharge limits or monitoring for cyanide. For each permit listed, please state the effluent limits that were contained in the permit, and whether they provided for an associated cyanide mixing zone.
ANSWER:

DEQ searched the ICIS database for other MPDES permits that had limits or monitoring for cyanide within 10 years. There were 37 individual MPDES permits and five stormwater general permit authorizations that included cyanide in the parameters monitored. See Attachment 1. List of Other MPDES Permits Issued in the Past 10 Years Containing Discharge Limits or Monitoring for Cyanide. Of these, only one permit issued in the past 10 years had cyanide limits: MT0030015 – M&W Milling & Refining has a limit of 5.0 µg/L (0.005 mg/L) Cyanide, Total (as CN) based on the RRV at the time of renewal (2013) and no mixing zone.

INTERROGATORY NO. 11: The City of Columbia Falls discharges to the Flathead River approximately four miles downstream of CFAC under MPDES Permit # MT0020036. This permit provides a mixing zone extending 6,000 feet downstream for ammonia and total residual chlorine. Please provide the rationale the MDEQ utilized in determining an acute mixing zone in the Flathead River for cyanide is inappropriate while a mixing zone for ammonia in the Flathead River is appropriate.

ANSWER: DEQ has had a long-standing policy of granting mixing zones for ammonia and chlorine, based on the knowledge that these parameters exhibit a first order rate of decay. Furthermore, granting a mixing zone does not correlate to granting full dilution with the receiving water; DEQ will typically grant an alternative mixing zone for ammonia and chlorine that allows for 10% of the 7Q10 (chronic) and 1% of the 7Q10 (acute) as dilution with the discharge to determine RP and develop WQBELs. ARM 17.30.515 (1) (d).

DEQ has no established protocol for granting mixing for cyanide. Furthermore,
the discharge from Outfall 006 is to a backwater area of the Flathead River that has been described by CFAC as having no flow at times of low flow in the main part of the Flathead River. This is different than Columbia Falls Wastewater Treatment Plant (WWTP) since its discharge is to the main stem of the Flathead River.

**INTERROGATORY NO. 12:** As described in Table 32 of the CFAC Statement of Basis for the 2014 Permit, the acute water quality standard for ammonia is 3.15 mg/L, whereas the City of Columbia Falls’ MPDES Permit described in Interrogatory No. 11 allows the discharge of a monthly average of 40.0 mg/L. Please state the basis upon which the MDEQ determined the acute mixing zone in the Flathead River for the City of Columbia Falls was appropriate and what information MDEQ considered.

**ANSWER:**

DEQ has had a long-standing policy of granting mixing zones for ammonia and chlorine, based on the knowledge that these parameters exhibit a first order rate of decay. Granting a mixing zone does not correlate to granting full dilution with the receiving water; DEQ will typically grant an alternative mixing zone for ammonia and chlorine that allows for 10% of the 7Q10 (chronic) and 1% of the 7Q10 (acute) as dilution with the discharge to determine RP and develop WQBELs. ARM 17.30.515 (1) (d).

The renewed permit for the City of Columbia Falls WWTP, effective May 1, 2010, included final effluent limits for ammonia of 30.7 mg/L average monthly and 40.9 mg/L average weekly. This was derived using the US EPA’s 1991 Technical Support Document (TSD) mass-balance method to calculate a wasteload allocation, based on the 10% & 1% dilution factors. See MPDES permit #MT0020036 Statement of Basis Attachment C-2 (December 14, 2009).
INTERROGATORY NO. 13: In Response to Comment #17 regarding MDEQ’s denial of a total cyanide acute surface water mixing zone, the MDEQ states “there is no actual biological data from the Flathead River to demonstrate that the discharge does not impair beneficial uses, including macroinvertebrates, amphibians, birds, or mammals.” Please describe what types of studies, monitoring, and data collection activities the MDEQ would accept that would yield “actual biological data” to support an assessment of an acute mixing zone.

ANSWER:

DEQ has several Standard Operating Procedures (SOPs) that describe acceptable biological monitoring techniques. The SOPs can be found online at:

http://deq.mt.gov/wqinfo/qaprogram/sops.mcpx. These SOPs are:

WQPBWQM-020 – Water Quality Planning Bureau Field Procedures Manual for Water Quality Assessment Monitoring

WQPBWQM-009 – Macroinvertebrates

WQPBWQM-010 – Periphyton

DEQ also has water-related publications that include stream and river assessments that can be found online at:


INTERROGATORY NO. 14: Does the MDEQ consider Whole Effluent
Toxicity test results to be “actual biological data” that can be used to demonstrate that effluent water does not impair beneficial uses or cause acute toxicity? If not, please explain the rational for this conclusion.

**ANSWER:** No. DEQ considers Whole Effluent Toxicity (WET) testing to be a predictive tool to determine toxicity of a discharge at a specific period of time. This laboratory test can be one source of information to determine the expected toxicity of the discharge on the receiving water, but it is not actual biological data for the specific receiving water.

**INTERROGATORY NO. 15:** Does the MDEQ consider Whole Effluent Toxicity tests to be an accurate and valid assessment of the potential acute toxicity of an effluent?

**ANSWER:** Yes, to the extent that the sample is representative of the effluent during all conditions.

**INTERROGATORY NO. 16:** Does the MDEQ deny the 1999 MPDES permit issued to CFAC permitted the release of groundwater containing cyanide from onsite landfills to the Flathead River?

**ANSWER:** DEQ objects to this Interrogatory because it is vague and ambiguous. Without waiving the foregoing objection, and in respect thereof, DEQ answers as follows:

The 1998 Statement of Basis, dated November 12, 1998, stated that the principal source of cyanide present in site groundwater was a former solid waste landfill located north of the former fluoride sludge pond. To the extent the 1999 MPDES Permit covers specific releases, the document speaks for itself. DEQ notes that such releases may not
be considered “permitted’ for all purposes in all contexts. The 1999 MPDES Permit did not contain permitted effluent limits for cyanide.

REQUEST FOR PRODUCTION NO. 1: Please provide copies of all study plans and final reports submitted within the past 10 years where actual biological data was collected and used to evaluate the appropriateness of an acute mixing zone to MDEQ satisfaction.

RESPONSE: There have been no study plans or final reports submitted within the past 10 years where actual biological data was collected and used to evaluate the appropriateness of an acute mixing zone.

REQUEST FOR PRODUCTION NO. 2: Please provide copies of other MPDES permits issued by the MDEQ in the past 10 years that included monitoring after treatment by ponds and before dilution by groundwater.

RESPONSE:

The following permits include monitoring after treatment by ponds and before dilution by groundwater:

- MT0020401 – City of Three Forks WWTF. “Self-monitoring of effluent discharged for Outfall 001 shall be conducted at the splitter valve structure...” which follows two facultative lagoons and precedes I/P cells.
- MT0021849 – City of Sidney WWTF. “Self-monitoring of effluent discharged from Outfall 001 shall be conducted after the primary lagoon cell treatment prior to discharge into the second cell...”

Copies of these permits may be viewed online at http://deq.mt.gov/wqinfo/mpdes/majorpermits.mcpx.

REQUESTS FOR ADMISSION

REQUEST FOR ADMISSION NO. 1: Please admit that the Montana mixing zone rules do not contain a definition of the term “discharge.”

RESPONSE:
Deny. The specific mixing zone rules incorporate additional definitions found at Section 75-5-103, MCA and Title 17, chapter 30, subchapters 6 and 7, ARM. A definition of discharge is found at ARM 17.30.602 (8).

**REQUEST FOR ADMISSION NO. 2:** Please admit that mixing zones are not limited to point source discharges.

**RESPONSE:**

Deny. Mixing zones granted as part of MPDES permitting are limited to point source discharges.

**REQUEST FOR ADMISSION NO. 3:** Please admit that historical landfill practices are not precluded from mixing zone coverage.

**RESPONSE:**

DEQ objects to the Request for Admission because it is vague and ambiguous and calls for speculation. Without waiving the foregoing objections, and in respect thereof, DEQ admits that if historical landfill practices are eligible to receive permit coverage, then a mixing zone request could be considered and potentially be granted (e.g., a leachate collection system, provided DEQ also determines that a mixing zone is appropriate). DEQ denies this Request for Admission in part because historical landfill practices are precluded from mixing zone coverage when such sources are ineligible to receive permit coverage under Title 17, chapter 30, subchapter 13, ARM, or when DEQ determines that a mixing zone is not appropriate under Title 17, chapter 30, subchapter 5, ARM.

**REQUEST FOR ADMISSION NO. 4:** Please admit that CFAC’s 1998 Mixing Zone Application and the MDEQ’s 1999 Statement of Basis specifically addressed all
criteria listed in ARM 17.30.506, and the MDEQ considered these factors in granting an acute mixing zone for cyanide in the 1999 permit.

**RESPONSE:**

In answering this Request for Admission, DEQ assumes CFAC is referring to the Statement of Basis dated November 12, 1998, prepared by Timothy Byron. Admit.

**REQUEST FOR ADMISSION NO. 5:** Please admit that cyanide exists in a number of chemical forms and that those forms have different toxicities.

**RESPONSE:**

Admit.

**REQUEST FOR ADMISSION NO. 6:** Please admit that cyanide is broken down and attenuated by a number of geochemical processes, including oxidation, photolysis, chemical and biological degradation, and volatilization.

**RESPONSE:**

Admit.

**REQUEST FOR ADMISSION NO. 7:** Please admit that Mont. Code Ann. § 75-5-103(25)(b) allows coverage for a variety of contaminant releases, including seepage, drainage, infiltration, or flow under Montana pollution discharge permit rules.

**RESPONSE:**

Deny. Mont. Code Ann. § 75-5-103 (25) (b) defines a category of Outstanding Natural Resources Waters designated by the Board through procedures set forth at Mont. Code Ann. § 75-5-316 and approved by the legislature. Furthermore, as a definition, it does not allow coverage for contaminant releases.

**REQUEST FOR ADMISSION NO. 8:** Please admit that CFAC has informed
MDEQ of the nature of the groundwater seeps, that there are numerous seeps, and that seeps occur both above and below the water table.

**RESPONSE:**
Admit.

**REQUEST FOR ADMISSION NO. 9:** Please admit that MDEQ has observed the seeps firsthand in the field and observed numerous seeps occurring.

**RESPONSE:**
Admit.

**REQUEST FOR ADMISSION NO. 10:** Please admit that the MDEQ’s 1999 Statement of Basis describes groundwater discharge and seeps as “Ground water discharges continuously to the backwater channel as discrete riverbank seeps as well as more diffuse.”

**RESPONSE:** In answering this Request for Admission, DEQ assumes CFAC is referring to the Statement of Basis dated November 12, 1998, prepared by Timothy Byron. DEQ admits that the 1998 Statement of Basis contains a statement as follows, “Ground water discharges continuously to the backwater channel as discrete riverbank seeps as well as more diffuse flow.” DEQ denies that the statement describes the seeps as more diffuse, and to that extent the statement speaks for itself. DEQ admits the statement describes groundwater discharging from the riverbank as discrete seeps and as more diffuse flow. DEQ further denies any implication from this Request for Admission that DEQ’s description of groundwater discharge and seeps in the 1998 Statement of Basis was limited to the quoted phrase.

**REQUEST FOR ADMISSION NO. 11:** Please admit that MDEQ was aware
that cyanide and fluoride from historical landfill practices discharged through
groundwater to seeps that enter the Flathead River.

RESPONSE:

DEQ objects to this Request for Admission because it is vague and ambiguous
and to the extent the Request calls for a legal conclusion. Without waiving the
foregoing objections, and in respect thereof, Admit.

REQUEST FOR ADMISSION NO. 12: Please admit that the north and south
pond systems provide primary treatment in the form of filtration and removal of
particulates that contain metals and other regulated chemicals.

RESPONSE: DEQ objects to this Request for Admission because the term
“filtration” is vague and ambiguous. Without waiving the foregoing objection, and in
respect thereof, DEQ admits that the north and south ponds provide primary treatment,
through settling, of the wastewater deposited therein and that such primary treatment may
filter and remove some particulates that contain metals and other regulated chemicals.
DEQ has insufficient knowledge to determine the effectiveness of such primary treatment
and therefore denies that all suspended solids and organic matter, and the metals or other
regulated chemicals attached thereto, are filtered or removed by the north and south
ponds.

DEQ reserves the right to supplement and amend these discovery responses and
answers pursuant to the Montana Rules of Civil Procedure and ARM 1.3.217.

DATED this 27TH day of July, 2015.

KURT R. MOSER
Legal Counsel

DEQ’s Responses to CFAC’s First Discovery Requests       Page 20 of 21
CERTIFICATE OF SERVICE

I hereby certify that this 27th day of July, 2015, I caused to be served a true and correct copy of the foregoing document and any attachments to all parties or their counsel of record as set forth below:

Catherine A. Laughner [xx] U.S. Mail, postage prepaid
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Attorneys for Appellant Columbia Falls Aluminum Company

Hillary Houle, Administrative Assistant
MT Department of Environmental Quality
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<td>DECKER COAL CO (EAST MINE)</td>
<td>SEMIANNUAL MONITORING</td>
<td>00720</td>
<td>Cyanide, total [as CN]</td>
<td>&lt; 0.05 mg/L</td>
<td>&lt; 0.05 mg/L</td>
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<tr>
<td>MT0027430</td>
<td>ROCHESTER WWTP</td>
<td>SEMI ANNUAL METALS MONITORING</td>
<td>00720</td>
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<tr>
<td>MT0026429</td>
<td>MONTANA TUNNELS MINING INC</td>
<td>SEMI ANNUAL METALS MONITORING</td>
<td>00720</td>
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<td>MT0030252</td>
<td>TVX MINERAL HILL INC-TVX MINERAL HILL MINE</td>
<td>TREATED TAILINGS WATER</td>
<td>32019</td>
<td>Cyanide and thiosulfate - total</td>
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<td>NO31<strong>E</strong></td>
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<tr>
<td>MT0030267</td>
<td>ROC RESOURCES - ROCK CREEK MINE</td>
<td>ANNUAL MONITORING REPORT</td>
<td>00720</td>
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<td>MT0030467</td>
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<td>00720</td>
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<td>FIDELITY - TONGUE RIVER PROJECT WTF</td>
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<td>MT0031563</td>
<td>JAMES GUERCIO OW RANCH</td>
<td>QUARTERLY MONITORING AT OUTFALL 005</td>
<td>00720</td>
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37 Individual Permits

MTR30012 | GOLDEN SUNLIGHT MINES INC | STORM WATER DISCHARGE | 78248 | Cyanide, total recoverable | 0 mg/L | 0 mg/L |
MTR300085 | SEVEN-UP PETE, JOINT VENTURE - SEVEN-UP PETE PROPERTY | SEVEN-UP PETE CREEK | 78248 | Cyanide, total recoverable | NO31**E** | NO31**E** |
MTR300088 | NEWMONT NORTH - MCDONALD PROJECT | LANDERS FORK | 78248 | Cyanide, total recoverable | NO31**E** | NO31**E** |
MTR300139 | ROY MOEN - M&W MILLING AND REFINING | STORM WATER DISCHARGE | 78248 | Cyanide, total recoverable | < 0.01 mg/L | < 0.01 mg/L |
MTR300199 | GOLDEN SUNLIGHT MINES | STORM WATER DISCHARGE | 78248 | Cyanide, total recoverable | 0 mg/L | 0 mg/L |
EXHIBIT 17
BEFORE THE BOARD OF ENVIRONMENTAL REVIEW

OF THE STATE OF MONTANA

IN THE MATTER OF:            ) CASE NO.
COLUMBIA FALLS ALUMINUM      ) BER 2014-06 WQ
COMPANY'S (CFAC) APPEAL OF   )
MONTANA POLLUTANT DISCHARGE  )
ELIMINATION SYSTEM PERMIT NO.)
MT0030066                    )

DEPOSITION OF CHRISTINE WEAVER

BE IT REMEMBERED, that the deposition upon
oral examination of CHRISTINE WEAVER, appearing at
the instance of Appellant, was heard at the law
offices of Browning, Kaleczyc, Berry & Hoven, 800
N. Last Chance Gulch, Suite 101, Helena, Montana,
on the 8th day of October, 2015, beginning at the
hour of 9:00 a.m., before Laurie Crutcher,
Registered Professional Reporter, Notary Public.

* * * * *

LESOFSKI COURT REPORTING, INC., 406-443-2010
# In the Matter of:
Columbia Falls Aluminum Company's (CFAC) Appeal

## Appearance

**ATTORNEY APPEARING ON BEHALF OF THE APPELLANT:**

**MR. W. JOHN TIETZ, ESQ.**
Attorney at Law
Browning, Kaleczyc, Berry & Hoven, PC
801 W. Main, Suite 2A
Bozeman, MT 59715-3336

**ATTORNEY APPEARING ON BEHALF OF THE DEPARTMENT:**

**MR. KURT R. MOSER, ESQ.**
Special Assistant Attorney General
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620

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<td>57 - Response to Comments</td>
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<td>59 - Response to Comments</td>
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**Min-U-Script®**

**LESOFSKI COURT REPORTING, INC., 406-443-2010**

(1) Pages 2 - 5
WHEREUPON, the following proceedings were had and testimony taken, to-wit:

CHRISTINE WEAVER, having been first duly sworn, was examined and testified as follows:

EXAMINATION

BY MR. TIETZ:

Q. Could you state your full name and business address for the record, please.
A. My full name is Christine Ann Weaver, Christine with a C-H, and I work at the Montana Department of Environmental Quality, Metcalf Building, 1520 East Sixth Avenue, in Helena, Montana.

Q. Is it all right if I call you Christine today?
A. Yes.

Q. Have you ever had your deposition taken before?
A. Never.

Q. I'm sure you've talked to your Counsel about the process, but I just want to make sure that we're clear on a couple ground rules. The first and most important is that we have a Court Reporter that is taking down everything we say, and it is a transcript of what we say verbally, and so it is very important that you respond with yes's and no's. Nods of the head and "uh-huh" are very hard for the Reporter to interpret. So it's always important to verbalize your answers. All right?
A. Yes.

Q. And during the course of this, I'm certain that I will garble at least one question, probably many. If you don't understand what I'm asking you, or you want me clarify or repeat or rephrase it, please ask me to do so. Okay?
A. Okay.

Q. If I ask you a question and you answer it, I'm going to presume that you understood my question; is that fair?
A. Yes.

Q. I don't know quite how long we're going to go today. I've got quite a number of exhibits we're going to go through. If you need a break at any time, you let me know. Generally my brain starts to fade out after about an hour, and so I generally like to take about a ten or fifteen minute breather every hour or so, and so I'll kind of work on that schedule, but if you need a break before that or anything else, just let me know. I would ask that you finish answering the question that's been posed to you, and then we'll take a break. All right?
A. All right.

Q. How did you prepare for your deposition today?
A. Starting most recently, I spoke with Kurt on standards of what you are expected to do and bring. The other thing that we did that was a large part of the time was preparing all of the documents, which I believe you have everything other than the privileged documents, and that I consider part of getting ready for the deposition.

Q. Did you go back and review the Response to Comments and --
A. Yes.

Q. And did you review the prior drafts of that Response to Comments?
A. No.

Q. So pretty much just the final draft?
A. Yes.

Q. And same with the fact sheet. Did you review the fact sheet prior to the deposition?
A. Yes.

Q. And did you review them to go over and recall the process that you went through?
A. Not really.

Q. And you reviewed the permit?
A. Yes.

Q. Any other documents that you looked at in preparation for today?
A. The emails that I had in my record for CFAC, trying to recall. There were a lot of documents. The mixing zone, the 1998 mixing zone study; the 1998 fact sheet; the 1999 permit. Essentially skimmed the administrative record.

Q. Did you review any of the expert reports that have been produced in this case?
A. Jim Lloyd's I read. Others I skimmed briefly.

Q. And other than Counsel, anybody else that you talked to in preparing for the deposition today?
A. For my deposition today, only Counsel.
1. MR. TIETZ: I'm going to try to keep things in order here to the best of my ability.

2. I'm going to mark Deposition Exhibit 27.

3. (Whereupon, Deposition Exhibit No. 27 was marked for identification)

4. Q. (BY MR. TIETZ) The reason it's 27 is we're doing all of the exhibits sequentially in this matter. So I'll hand you, and I'll represent to this is a copy of what I believe to be your CV that Counsel produced to me a few days ago. Can you just take a look at that and confirm that that is your most recent CV.

5. A. Yes, it is.

6. Q. So you have been in the Water Protection Bureau since 2008?

7. A. Yes.

8. Q. And you started it looks like with DEQ initially in August 2005?


10. Q. And prior to being in Montana, you were in Rhode Island and it looks like in the New England area?

11. A. Yes.

12. Q. In any of your previous jobs prior to starting with DEQ, did those jobs involve writing environmental discharge permits, air, water permits?

13. A. Not writing permits, no.

14. Q. Did they involve working with the permits?

15. A. Yes.

16. Q. Can you tell me kind of generally what you did in regard to permits in those prior jobs.

17. A. Working most recent backwards, the Teknor Apex Company, I would review or prepare depending on -- we had several facilities. Let me back up. I was in Corporate. There were a number of facilities, some of which did not have full-time environmental people, so I would assist or do permit applications, review permits when they were issued to us, and essentially make sure the facilities could comply with those permits.

18. I believe the most relevant also previous is the Massachusetts DEP. I was with air quality, but I was a compliance inspector, which meant reading and interpreting permits, and doing compliance inspections, developing enforcement, etc.

19. Q. And that was in the air quality side?

20. A. Yes.
<table>
<thead>
<tr>
<th>Q.</th>
<th>A.</th>
</tr>
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<tbody>
<tr>
<td>1.</td>
<td>Not an appeal, no.</td>
</tr>
<tr>
<td>2.</td>
<td>So Teknor never appealed any of the permits that it was issued in that ten period that you were there, that you were involved in?</td>
</tr>
<tr>
<td>3.</td>
<td>Not that I was involved. I don't believe so, no.</td>
</tr>
<tr>
<td>4.</td>
<td>So during your time in the Air Quality Bureau at Montana DEQ, 2005 to 2008, you were reviewing and preparing air quality permits; is that correct?</td>
</tr>
<tr>
<td>5.</td>
<td>Yes.</td>
</tr>
<tr>
<td>6.</td>
<td>And how many permits do you think that you worked on in that time in the Air Quality Bureau?</td>
</tr>
<tr>
<td>7.</td>
<td>I don't know. I could estimate over ten.</td>
</tr>
<tr>
<td>8.</td>
<td>And of those ten, how many of those did you basically shepherd through from start to finish?</td>
</tr>
<tr>
<td>9.</td>
<td>All of them.</td>
</tr>
<tr>
<td>10.</td>
<td>And were any of those permits appealed?</td>
</tr>
<tr>
<td>11.</td>
<td>No.</td>
</tr>
<tr>
<td>12.</td>
<td>When you moved over to the Water Protection Bureau in August 2008, were you provided with any specific training by MDEQ to become a permit writer?</td>
</tr>
<tr>
<td>13.</td>
<td>Yes.</td>
</tr>
<tr>
<td>14.</td>
<td>The first official specific training I listed on the back.</td>
</tr>
<tr>
<td>15.</td>
<td>other smaller things before that, but that was the first intensive training.</td>
</tr>
<tr>
<td>16.</td>
<td>And would the list that you have on the back of your CV, the recent training, would that account for all of the training you've received since you moved into the Water Protection Bureau in August 2008?</td>
</tr>
<tr>
<td>17.</td>
<td>Can you clarify what you mean by training?</td>
</tr>
<tr>
<td>18.</td>
<td>Sure. That's a valid point. So I guess I'm thinking of formal training where you would go to a workshop, or what we call a CLE, or some sort of training provided by either an outside entity or an inside entity that is formalized, as opposed to informal training where you're sitting with another permit writer and talking about stuff.</td>
</tr>
<tr>
<td>19.</td>
<td>I believe there were a few smaller things that were official training, but I can't recall what they were.</td>
</tr>
<tr>
<td>20.</td>
<td>So this would account for what we'll call the highlights?</td>
</tr>
<tr>
<td>21.</td>
<td>Yes.</td>
</tr>
<tr>
<td>22.</td>
<td>The major training that you received?</td>
</tr>
<tr>
<td>23.</td>
<td>Yes.</td>
</tr>
<tr>
<td>24.</td>
<td>And in terms of on-the-job training</td>
</tr>
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</table>
Q. Why don’t you repeat it again.
A. Why don’t you repeat it again.

Q. That’s where you became familiar with the Montana rules then?
A. No, I wouldn’t say that.

Q. How did you become familiar with the Montana rules regarding MPDES permits?
A. No, I wouldn’t say that.

Q. So did you have a lot of interactions with coworkers about the regulations and application of regulations to particular situations, those kinds of interactions?
A. Not on every permit, but yes, there were a number of issues that would come up, and how to approach them would be something we’d need to discuss.

Q. So if you were going through and you were working through a permit application, and you ran into something that was difficult or you had some question about, how would you seek input for that?
A. I tend to try to assemble a sketch of what I don't understand, like an issue summary, and then approach what I think is the appropriate level for the appropriate issue, whether it is management that needs to make a decision, coworkers to see what they've done, make a resolution based on that, and move forward.

Q. So in those informal trainings, working with mentoring with other permit writers, is that where you learned Montana statute, Montana rules, what the requirements were for Montana for MPDES permits?
A. No, not learned. Really put it together in order to make it a cohesive program. That's where I learned how to put it all together for someone else, was explain what I did.

Q. And John?
A. Melee Valette was a permit writer seated next to me, and John Wadhams next to her, and they had many years of experience. I would sit next to them.

Q. They say there's no way to learn a subject better than teaching it. So other than Tom Reid as a technical advisor particularly in complex issues, who else did you -- if you can recall, and I'm not looking for an inclusive list, just kind of idea. Who did you work with? Was it mostly other permit writers or supervisors? Do you recall any specifics that you worked with?
A. Can you ask what range of time, because seven years is --

Q. I guess between 2008 and 2010, the first couple years.
A. Melee Valette was a permit writer seated next to me, and John Wadhams next to her, and they had many years of experience. I would sit next to them.

Q. What was the first name?

Q. And John?
A. Wadhams, W-A-D-H-A-M-S. Jeff May was also another one specifically for WET tests, other things, too. And at the time Jenny Chambers was both our Bureau Chief and Section Supervisor, at least the beginning range of time you're talking about, and she was someone I would go to a lot.
In the Matter of:
Columbia Falls Aluminum Company's (CFAC) Appeal

1. of on the same basis. So it is my understanding that you're given a particular application to review and to write the permit for, and then the first thing you do is you evaluate, but then you generate the fact sheet, work through the fact sheet; once you've worked through the fact sheet and have a final fact sheet, then from the fact sheet you draft the actual permit. Is my understanding correct or am I missing something?

A. Yes, correct, except there is a first step that may or may not be part of what you're talking about, which is when we first receive -- let's say it is a renewal. When we first receive a renewal application, someone reviews for completeness, and issues a completeness letter that may or may not be the permit writer. So it can be the same part. Then the process you described is correct. Someone is assigned to do the permit, and what you described is correct.

Q. So it's also I guess my understanding that time that you came on in August 2008, there was quite a backlog of permit applications that needed to be processed; would that be accurate?

A. Correct.

Q. Do you remember being assigned this CFAC permit renewal?

A. No.

Q. It would be safe to say, wouldn't it, by February 11th, 2013, and you note that email that I got out of your records dated -- it's a chain -- February 11th, 2013, and you note that you started working on Columbia Falls renewal; do you see that?

A. Yes.

Q. Would this be approximately the time frame where you started working on the CFAC renewal?

A. I don't remember. I shouldn't do supposition.

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In the Matter of:
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<th>Answer</th>
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<td>Q. And you do that in all cases?</td>
<td>A. Yes.</td>
</tr>
<tr>
<td>Q. And so in CFAC specifically, you went back and looked at the prior permit and those documents with respect to the permitting effort?</td>
<td>A. That's rather broad. I've looked at some. I don't recall what specifically.</td>
</tr>
<tr>
<td>Q. I know I referred to it many times.</td>
<td>A. I know I did. I can't tell you when.</td>
</tr>
<tr>
<td>Q. In evaluating the application -- and in this case you had the permit that was issued in 1999, and then a 2003 renewal application, and then an updated supplemental application in 2013. Does the prior permit and the determinations that were made in this issuance of the final permit in July of 2014, do you recall ever referring back to this document?</td>
<td>A. I can't say I remember doing that.</td>
</tr>
<tr>
<td>Q. I'll represent to you that I've never seen a copy that had a date on it. I don't know whether that's just my own record, but I never have on this document ever found one that actually was dated. So do you recall reviewing this at the beginning of your evaluation of the backlogged permit?</td>
<td>A. I don't know what the policy was in 1998, but my review of the fact sheet from the 1998 to 1999 permit, and you don't write on the file copy, so I would have made myself a copy, and apparently I didn't make the last page where it said the date.</td>
</tr>
<tr>
<td>Q. Do you recall seeing this document before?</td>
<td>A. Yes, but it seems to be missing an end page. I believe this was in my working folder, so it may have been -- It was a copy, this document is a copy of the fact sheet from the 1998 to 1999 permit, and you don't write on the file copy, so I would have made myself a copy, and apparently I didn't make the last page where it said the date.</td>
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MR. MOSER: Objection, calls for a legal conclusion. Go ahead and answer if you can.  
A. Can you repeat the whole question again?  
Q. (BY MR. TIETZ) In the evaluation of the 2003 application and the 2013 reapplication to supplement to the application, does the determinations that the Department make have any precedential effect in how you evaluate those subsequent applications?  
A. MR. MOSER: Objection, calls for a legal conclusion again.  
A. Can you define precedential to me?  
Q. (BY MR. TIETZ) So in the prior determinations in the Statement of Basis for the 1999 permit, do you carry those determinations into your determinations for the 2003 permit or 2003 application?  
A. I don't believe any of the rules changed.  
Q. Did the policy change?  
A. I don't know what the policy was in 1998, but my review of the fact sheet and the permit from 1998 did not resemble anything that I've done in seven years. That's why I stumbled on policy. If that's a --  
Q. And in what respect?  
A. Well, the major one is that in issuing mixing zones, now there is always sort of two parts to it. There is a definition of boundaries, acute and chronic, etc., and then there is development of effluent limits where there is...
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| 1. **reasonable potential to exceed standards to**
| 2. protect outside of the mixing zone. And just for**
| 3. one example for your question, it seemed like the**
| 4. whole second half is missing in this 1998**
| 5. evaluation.**
| 6. Q. And second half meaning?**
| 7. A. **The evaluation of reasonable potential**
| 8. and development of water quality based effluent**
| 9. limits, if needed, to protect outside mixing zone**
| 10. wasn't presented in the fact sheet.**
| 11. Q. So I guess, just to understand what**
| 12. you're saying, are you saying that that analysis**
| 13. was conducted and it's not in this copy, or are**
| 14. you saying that analysis wasn't conducted?**
| 15. A. **I didn't see it anywhere.**
| 16. Q. So you're not saying that you've seen**
| 17. that analysis somewhere, and it is not in the copy**
| 18. that I've presented?**
| 19. A. **No, I'm not saying that.**
| 20. Q. So in evaluating a permit application in**
| 21. 2013, are you looking at it then essentially, for**
| 22. lack of a better term, in a vacuum, that is,**
| 23. everything has to be included in that permit?**
| 24. There is no carry over from the other permit? It**
| 25. needs to stand on its own?**
| 1. **A. Correct. It needs to stand on its own.**
| 2. Q. And if the applicant references back or**
| 3. incorporates those prior permitting efforts, the**
| 4. permitting applications in the prior permitting**
| 5. effort, does that have any bearing on your**
| 6. analysis of the current application?**
| 7. A. **In that it is available information, it**
| 8. has bearing as consideration for information.**
| 9. Q. And you are aware that in the 1998**
| 10. permitting effort for the 1999 permit, that CFAC**
| 11. as part of their application submitted what has, I**
| 12. think in the context of this litigation, been**
| 13. termed the mixing zone study?**
| 14. A. **Yes.**
| 15. Q. And did you review that study?**
| 16. A. **Do you want to define -- do you want to**
| 17. break it into when you're asking?**
| 18. Q. No. I'm asking: Did you review that**
| 19. study?**
| 20. A. **Yes.**
| 21. Q. And do you recall at what point in the**
| 22. process you reviewed that study?**
| 23. A. **I don't recall. I don't know.**
| 24. Q. And did you consider that study to be**
| 25. part of the application that you were evaluating?**
| 1. **A. I don't remember. I don't want to**
| 2. suppose. I don't remember.**
| 3. Q. So sitting here, you don't recall that**
| 4. you looked at and reviewed those documents, or**
| 5. included those documents, the reviews and the**
| 6. other materials submitted by CFAC in the 1998-1999**
| 7. permitting effort, as though they were part of the**
| 8. application that you were reviewing in 2013?**
| 9. A. **I don't remember.**
| 10. Q. Do you ever recall having any**
| 11. discussions with your supervisors or your**
| 12. coworkers with respect to including that**
| 13. information in the 2013 permitting effort?**
| 14. A. **The mixing zone study?**
| 15. Q. Yes.**
| 16. A. **I don't recall that specific**
| 17. conversation, no.**
| 18. (Whereupon, Deposition Exhibit No. 30**
| 19. was marked for identification)**
| 20. Q. (BY MR. TIETZ) I'm going to hand you**
| 21. what I've marked as Deposition Exhibit 30. I only**
| 22. have one of those. And this was included in the**
| 23. electronic files that were provided by Counsel,**
| 24. and the date on the document was June of 2011 from**
| 25. Tom to Greg regarding the contractor's permitting**

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| 1 then there is highlighted sections which appear to be the answers from Tom. Would you agree?  
2 A. That's how I read it, yes.  
3 Q. And based on other documents that I've seen and timeline, my presumption is that Tom is Tom Reid; would you agree with that?  
4 A. Yes.  
5 Q. And do you know who in that time frame Greg would have been?  
6 A. Tetratech, I believe. Greg I believe is a consultant with Tetratech, but other than that, I don't know.  
7 Q. And in looking at Item 4, the answer to their questions about water quality effluent limits, that Tom's opinion was that there was an option to not grant a mixing zone based on toxic and persistent requirements in the mixing zone rule; do you see that?  
8 A. Yes.  
9 Q. So were you aware at that time that Tom was opposed to inclusion of a mixing zone in the CFAC permit?  
10 A. I was aware that he did not think 006 should be a permitted outfall. In that case, there would not be a surface water mixing zone, it would be end of pipe. I don't know how to answer that exactly.  
11 Q. I'm just trying to establish I guess where in the process you became aware of the issue of those two things, how Outfall 006 was described and defined, whether it was a point source or not, and the issue of the inclusion of an acute surface water mixing zone, that those issues were kind of big issues in this permit?  
12 A. I don't remember that either.  
13 (Whereupon, Deposition Exhibit No. 31 was marked for identification)  
14 Q. (BY MR. TIETZ) I'm then providing Counsel a copy as well. We may refer back to some of these. We'll hang onto them. I'm going to hand you what I've marked as Deposition Exhibit 31, and this I obtained from the documents that were produced by DEQ, and this appears to be the fact sheet that was generated by the consultant. Do you know if you reviewed this document previously?  
15 A. I know I reviewed or skimmed one of the consultant's Fact Sheets, but I don't know if it was this.  
16 Q. When you started drafting the fact sheet for the CFAC permit, did you start with the prior work that the consultant did, or did you write the whole thing straight off on your own? Do you recall?  
17 A. I recall evaluating what to do, and then I know what I did do, but I don't recall the order of things.  
18 Q. What did you do?  
19 A. What I ended up doing is our standard fact sheet template, which is a much simpler version, and basically developing it as I would any other permit.  
20 Q. So when you reference the template, how complete is the template at the time that you basically pick it up to start drafting a fact sheet?  
21 A. It is a fairly rough template. Then what permit writers tend to do is take similar permits, and use that template for the specifics.  
22 Q. And you don't recall whether or not you incorporated or used this effort as a starting point for your effort?  
23 A. (Examines document) I don't remember.  
24 Q. Do you recall when you first engaged in conversation with Tom Reid with respect to the CFAC permit?  
25 A. No, I don't.  
26 Q. You did talk with Tom Reid over the course of the development of the CFAC permit; would that be accurate?  
27 A. I tend to take notes. If I can see some of my records I could tell you, but I don't remember anything other than what I recorded for you, or what you have.  
28 Q. But I guess just generally, Tom Reid was involved in the development of the permit; would that be accurate?  
29 A. As a reviewer who gave technical input, yes.  
30 Q. From the time you started at DEQ in the Water Quality Section, what was Tom Reid's position?  
31 A. Since I began, he was always the technical advisor. He was the person who was developing rule changes, and trying to work on draft policy manual type of thing. Technical advisor.  
32 Q. Was he ever your supervisor?  
33 A. Not me, no.  
34 Q. From the time that you started in Water |
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Christine Weaver
October 08, 2015

1. Quality until today, who were your supervisors, if you can remember?
2. A. (No response)
3. Q. Let me back up for a second before I -- how many supervisors did you have in that period of time?
4. A. I believe only four. Our structure is, or was, the permitting staff reported to Permitting Section Supervisor; the compliance side reported to a Compliance Section Supervisor; and then there was a Bureau Chief. So when I started, Jenny Chambers was Bureau Chief and Permitting Section Supervisor. Approximately a year later Paul Skubinna became a Permit Section Supervisor, and Jenny Chambers retained her Bureau Chief solely.
5. Q. Who was that that came in as Section Supervisor?
6. A. Paul Skubinna. Then Jenny left, Paul Skubinna was acting Bureau Chief, and Matt Kent was acting Section Supervisor. That is the time, that is the period that you see that first email, that February 2013. After that, there was six months as they worked out who was going to be managing. Paul Skubinna returned to being the Section Supervisor, and we haven't had one since; and Bob Habeck was the Bureau Chief. And then John Kenning became Bureau Chief for one year, and then John Kenning became Bureau Chief about a year and a half ago.
7. Q. Who is now?
8. A. It is vacant now.
9. Q. How long has it been vacant?
10. A. Approximately April of this year.
11. Q. And where did Paul go?
12. A. Great Falls municipalities.
13. Q. He left the Department?
14. A. Yes.
15. Q. Is Paul currently Section Supervisor?
16. A. No.
17. Q. Who is now?
18. A. It is vacant now.
19. Q. How long has it been vacant?
20. A. Approximately April of this year.
21. Q. And where did Paul go?
22. A. Great Falls municipalities.
23. Q. He left the Department?
24. A. Yes.
25. (BY MR. TIETZ) Christine, I'm going to hand you what I've marked as Deposition Exhibit 32.

(Whereupon, Deposition Exhibit No. 32 was marked for identification)

Q. (BY MR. TIETZ) And this is an email chain from you to and from Matt Kent April 9th, 2013, and Wednesday April 10, 2013, correct?
A. Correct.
Q. And at this point in time, Matt Kent would have been the Section Supervisor?
A. Yes.
Q. And it represents down on the email from you to Matt in the second line there, you find the CFAC renewal tricky, and you need some mid point discussion; do you see that?
A. Yes.
Q. I guess the first question then is: What did you find tricky about the CFAC renewal?
A. I don't know without reviewing.
Q. Okay. We're going to talk about the document, so attached to the email is a memorandum that you had prepared to Matt that has his comments in it, correct?
A. Yes.
Q. And so if you were to look at the memorandum which is dated April 9, 2013, what was it in the permit that was causing you -- that you were finding to be tricky?
A. The TBEL outfalls. Are you familiar with that term?
Q. I am.
A. Technology Based Effluent Limit. They were identified as outfalls. However, they expressed themselves to different onsite, shall we say, surface waters. And then the permit that I'm responsible for doing is a surface water permit. They didn't touch the surface water, they went through groundwater to the surface water. It's not unheard of, but this is trickier.
Q. Had you ever worked on a permit before that it had groundwater expressing to surface waters. And then the permit that I'm responsible for doing is a surface water permit. They didn't touch the surface water, they went through groundwater to the surface water. It's not unheard of, but this is trickier.
Q. Had you ever worked on a permit before that it had groundwater expressing to surface water?
A. Can I look at my resume again real quick?
Q. Absolutely.
A. You're asking me before I started working on CFAC?
Q. At any time prior to working on the CFAC permit, had you worked on one that was similar in that it had groundwater expressing to surface
Q. Outfall 006 should not be an outfall?

A. I was, as stated, not sure what to do, but my inclination at the first read of it was that it was from closed landfills or things that were of concern, but none specifically come to mind.

Q. Can you explain to me what your concerns were proposing to maintain both the groundwater mixing zone for cyanide and fluoride and surface water mixing zone for cyanide, correct?

A. Yes.

Q. Do you recall any other conversations with Matt Kent relative to that issue?

A. I know I did, but none specifically come to mind.

Q. Then on the next page it talks about the mixing zones, and at this point in time, you say that you were inclined to maintain both the ground water mixing zone and the surface water mixing zone for cyanide, correct?

A. Hold on. Let me read it, please.

Q. Tell me about that permitting effort in general terms.

A. Correct.

Q. The paragraph that you have under No. 3, mixing zones, correct? You've read that?

A. I just skimmed it, yes.

Q. So in the last two paragraphs of that section, it says, "I'm not sure what to do about a groundwater mixing zone for cyanide and fluoride -- but I believe they qualify. See my write-up on Page 22, and I am proposing to keep it," correct?

A. That is what I said, yes.

Q. So you would agree that at that time you were proposing to maintain both the groundwater and surface water mixing zones from the prior permit; is that correct?

A. I was, as stated, not sure what to do, but my inclination at the first read of it was yes, that at first blush it would appear that they are already covered under 002, 004, 005.

Q. And Matt Kent's opinion was that -- It says, "If they are discharging to State waters through this outfall, and they have applied for permit coverage for it, it should be permitted, no?" Do you see that?

A. Yes.

Q. Do you recall any other conversations with Matt Kent relative to that issue?

A. I know I did, but none specifically come to mind.
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1. Could be maintained.
2. Q. And did you have chance to read Matt Kent's comment with respect to the mixing zone? Yes.
3. A. Let me finish. (Examines document)
4. Okay. What was the question?
5. Q. Well, I just want to note that Matt Kent noted that if CFAC had requested a mixing zone in their renewal application -- which they did, correct?
6. A. Yes. (Examines document) Apparently, according to what I wrote.
7. Q. Well --
8. A. I would say, yes.
9. Q. Do you recall the applications that you reviewed, the 2003 application, 2013 submittals, that you reviewed as part of the CFAC permit?
10. A. Yes.
11. Q. It would be accurate to say that those applications contemplated, and in fact specifically requested, to maintain the mixing zones as they had been previously permitted, correct?
12. A. I'm not sure. If I could see them. But I can't say right now in the applications, the applications themselves, that they said that.
13. Q. Or draft fact sheet. And you noted there, and you quoted, "The permittee has not requested chronic or human health mixing zone for the discharge from Outfall 002, 004, or 005. Therefore no chronic or human health mixing zone has been granted," and then in bold, you said, "However, this is not true. The following request was made in a cover letter from CFAC dated July 30, 2003. In applying for renewal of the MPDES permit, CFAC is also requesting continued authorization for the surface and groundwater mixing zones;" do you see that?
14. A. Yes.
15. Q. Does that indicate to you that CFAC was in fact requesting continuation of the surface and groundwater mixing zones?
16. A. Yes.

Q. So in regard to Matt Kent's comment, since they had in fact requested renewal or continuation of the mixing zone, you had to determine if they qualified for one and if it is appropriate to grant one, correct?

MR. MOSER: Objection, calls for a legal conclusion.

MR. TIETZ: I'm asking her to confirm that that's what the comment says.

A. Yes.

(Whereupon, Deposition Exhibit No. 33 was marked for identification)

Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 33, which was marked for identification)

(Whereupon, Deposition Exhibit No. 33 was marked for identification)

Q. April 11, 2013. This is two days after the prior memorandum. And in this under your issues, the 006, you state, "The consultants proposed to eliminate Outfall 006, although they did not say why. After review of the archive files, I disagree -- the groundwater seeps to Flathead was the reason for the MPDES permit in 1993;" do you see that?

A. Yes.

Q. Do you know why in two days you changed your opinion about Outfall 006?

A. Only in general, that I did more review of the archive files or did review the archive files.

Q. Do you recall, sitting here today, what in those archive files caused you to change your opinion?

A. I don't remember specifically, no.

Q. At the bottom of the mixing zone, again, you quoted the same language that we talked about in your prior memo. And then you stated, "The 1998 permit assessed the request for mixing zone and provided a groundwater mixing zone for cyanide and fluoride, and surface water mixing zone for cyanide," and you reference Exhibits 1 and 2.

"ARM 17.30.505(1) states that DEQ must determine applicability of currently granted mixing zones, and the mixing zone will remain in effect unless evidence that it will impair existing or anticipated uses;" do you see that?

A. Yes.

Q. That would accurately reflect your opinion at the time?

MR. MOSER: Objection, calls for a legal conclusion. Go ahead and answer if you can.
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1. A. April 11, 2013, that was my opinion at the time, yes.

2. Q. (BY MR. TIETZ) And that you were proposing to keep the mixing zones?

3. A. Yes.

4. (Whereupon, Deposition Exhibit No. 34 was marked for identification)

5. Q. (BY MR. TIETZ) I only have one of those, too. I've handed you what I've marked as Deposition Exhibit 34. I represent to you that this was provided to me on the disc of documents that your Counsel provided last week.

6. MR. MOSER: I'm sorry. Is this the disc that I gave you on the day that you came to inspect documents?

7. A. (Complies)

8. Q. (BY MR. TIETZ) So these are the electronic documents, and this is the first document that I could find, at least the date stamp on it was April 2013. And so I guess my initial question is: Was this your initial draft of the fact sheet?

9. A. I believe so, based on the record.

10. Q. So just to help me understand kind of your process, in the disc of materials that were provided to me, and in the hard file that I reviewed, there were a number of versions of the fact sheet as it evolved from your first effort to the final fact sheet that was put out for public comment. What was your process for reviewing, saving -- You obviously didn't work just one document from beginning to end. So do you have a policy, or what was your procedure for saving these documents as you went through?

11. A. Administratively saving?

12. Q. Yes.

13. A. I am a file hoarder, much to the chagrin of my attorney. I tend to keep things in case my memory needs refreshing until I get time to clean it out. In that case I then go through the ones that I feel are like pivotal critical pieces, and keep that for later. You're talking in general, right?

14. Q. Yes.

15. A. However, it depends on timing and how rushed I am when I get to do this.

16. Q. There are, as I say, in the electronic file that we were provided, there was sequential drafts of the fact sheet, and we will go through the evolution of that fact sheet. But you were obviously saving them at a particular point in time, and then moving into another document and saving it, and then moving into another document and saving it. It didn't appear from the date stamps that were on the files that it was just a continual work through one single file.

17. Q. Did you have a process for doing that?

18. A. Is that the way you commonly work?

19. A. I think that's commonly how I will work.

20. Q. I copy, save as with a new date, as I'm working on things. Not for change in spelling, but once I was working forward on issues and made a decision on something else, and I would redate the fact sheet.

21. Q. So just to help me understand kind of your process, in the disc of materials that were provided to me on the disc of documents that your Counsel provided last week.

22. Q. (BY MR. TIETZ) So these are the electronic documents, and this is the first document that I could find, at least the date stamp on it was April 2013. And so I guess my initial question is: Was this your initial draft of the fact sheet?

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38. Q. So just to help me understand kind of your process, in the disc of materials that were provided to me, and in the hard file that I reviewed, there were a number of versions of the fact sheet as it evolved from your first effort to the final fact sheet that was put out for public comment. What was your process for reviewing, saving -- You obviously didn't work just one document from beginning to end. So do you have a policy, or what was your procedure for saving these documents as you went through?
Q. So prior to that, though, the document
call it, for public notice.
A. In general, only before we public notice
something, we're required to have an internal
review; and then we prepare the package, as we
call it, for public notice.
Q. So prior to that, though, the document
that?
A. Yes.
Q. There is a comment to the side there
that says, "Note. Need to discuss," do you see
that?
A. Yes.
Q. So my question is: Do you recall what
issue there you needed to discuss?
A. No. I have supposition, but no
recolleciton.
Q. Understanding that it is supposition,
what would you suppose, knowing yourself and your
review process, that would have been your
question?
A. Number one is I believe an indication
that the mixing zone wasn't granted until 1998,
periodic as far as routine.
Q. And then you have, in tan highlighting,
there is a statement there about, "Mixing zones
allowed under a permit issued prior to April 29th,
1993 will remain in effect unless there is
evidence that previously allowed mixing zones will
impair existing or anticipated use;" do you see
that?
A. Yes.
Q. -- Section Supervisor and your peers?
A. Peers.
Q. Do you know if this particular permit
review team which consists of your --
goes through final review, is that your decision?
A. For the draft, it is my recommendation,
which is a decision, yes.
Q. And that recommendation decision then is
reviewed prior to going out to public comment?
A. Correct.
Q. And that review at the end prior to
going to public comment, what's the extent of that
review? Who is involved in that review?
A. In the time period we're speaking --
Q. Yes. And this isn't a general question.
This is a question specific to the CFAC permit.
So at the point that it was, in your opinion, was
that it was ready to go, is that the point that
you would have sent it to review?
A. Yes. Matt Kent as the acting Section
Supervisor; this one I would have sent to Tom Reid
because of the history in the applications; and
periodic you mean occasional?
Q. Yes.
A. Yes.
Q. Were there any set points where you were
required to put your work product out for review?
A. In general, only before we public notice
the permit review team.
Q. Who was on the permit review team?
A. Jeffrey Ward who is no longer with the
Department, John Wadhams who just retired, and
Jeff May.
Q. And do you know if the draft or the fact
sheet is reviewed by upper management at DEQ prior
to public comment?
A. I know that depending on the facility,
they'll have varying levels of scrutiny. They
don't have time to read every one, do the entire
fact sheet.
Q. Do you know if this particular permit
went through a higher level of scrutiny?
A. I don't know. At the very beginning,
Paul Skubinna was the acting Bureau Chief, if
that's what you mean by upper, because we still
have higher than that.
Q. I guess my question would be then: If
we talk about the various levels, so you have your
review team which consists of your --
A. Peers.
Q. -- Section Supervisor and your peers?
A. Yes.
Q. So from upper management, what would you
1. Do you consider to be upper management?

2. A. The next level is Bureau Chief, which that's what I was going to respond for. Above that is the Division Administrator, etc., and they would not review it, to my knowledge. I don't ask them to.

3. Q. Were you involved in any conversations or meetings with the Bureau Chief with respect to the review of the CFAC permit at any point in time?

4. A. When Paul Skubinna was acting Bureau Chief -- I'm sorry. The timeline gets funny. I spoke to Paul Skubinna, but I can't remember his role, whether he was back as Section Supervisor or the Bureau Chief. And I don't recall talking to Bob Habeck as Bureau Chief. And I don't even remember if --

5. Q. Was John Kenning the Bureau Chief at the time that was going through review?

6. A. At the time it was going out final -- I believe he came on in spring of 2014. I believe the fact sheet went out by February 2014.

7. Q. Agreed. The date I have for that is February 13th, 2014.

8. A. So not for the issuance of the fact sheet, John Kenning was not consulted, no.

9. Q. But Kenning would have been then Bureau Chief at the time that the final permit and Response to Comments would have been issued; would that be correct?

10. A. Yes.

11. Q. And you recall having any conversations with John Kenning regarding this CFAC permit?

12. A. Not specifically, no.

13. Q. And do you know if prior to the fact sheet going out for public comment, it went through legal review?

14. A. We consulted for parts with legal review. I do not know what the Section Supervisor may have done as far as reviewing the whole thing. I don't remember if I did know.

15. Q. Were you ever involved in any conversations with the Legal Department regarding the review of the permit prior to the issuance of the final permit and Response to Comments? I'm not asking you the substance of that. I just want to know if you actually had those conversations.

16. A. I can't remember. As an aside, it has been really crazy the last year and a half at our Department.

17. MR. TIETZ: Let's take five minutes.

18. (Recess taken)

19. Q. (BY MR. TIETZ) So if you turn to Page 24 of what was marked as Exhibit 34, and in this paragraph there, you note that, "The previous permit granted a source specific groundwater mixing zone for cyanide and fluoride," and then you note, "CFAC provided the required demonstration as part of the previous permit renewal application in 1998."

20. A. Where do you see that? Oh, right after Exhibit 1?

21. Q. Right.

22. A. (Examines document)

23. Q. And then you go on and note, "There were no existing drinking water supply wells," and the monitoring of the well was conducted, which demonstrates that HHS --- human health standards, correct?

24. A. Correct.

25. Q. That's what HHS is -- "were not exceeded outside the designated mixing zone boundary," correct?

26. A. Yes.

27. Q. Then you went on to talk about the surface water mixing zones, which is just the next section or the next bolded, "surface water mixing zone" on Page 24?

28. A. Okay.

29. Q. The bolded section that says "surface water mixing zones"?

30. A. Yes.

31. Q. And under the portion that says, "Acute mixing zone," it stated that, "In general an acute mixing zone, zone of initial dilution, is not granted for toxic or persistent substances;" do you see that?

32. A. Yes.

33. Q. Are you aware that that is an incorrect recitation of the cited rule?

34. A. I am now, yes.
1 Q. And that statement "toxic or persistent substances" maintains all the way through the entire permitting process, correct?
2 A. Until Response to Comments, I believe.
3 Q. And if we want, we can jump up to the final permit or the final fact sheet, but that statement was included in the final fact sheet, correct?
4 A. I believe you.
5 Q. Do you know what the rule does say?
6 A. I believe it says "is not granted for toxic and persistent substances."
7 Q. And --
8 A. If I could see the rule, but something to that effect.
9 Q. So there is a copy of the rule as it is on your website as of this morning. (Provides document)
10 A. (Examines document)
11 Q. Go ahead and read the portion where it discusses that.
12 A. "506(2)(d). Toxicity persistence of substance discharge. Where a discharge of a parameter is in a concentration that is both toxic and persistent, it may be appropriate to deny a mixing zone."
13 Q. So you would agree that saying "both toxic and persistent" is substantially different than saying "toxic or persistent," correct?
14 A. Yes.
15 Q. And a question about persistence. Do you know where persistence is defined? Is it defined in the rules or in the statutes?
16 A. I have not seen it, no.
17 Q. How do you, or how does the department define persistence?
18 A. I don't believe we have a definition.
19 Q. I'm going to hand you what was marked as Deposition Exhibit 22 in one of the previous depositions, and ask you if you could identify that document.
20 A. It's a Technical Support Document, or we call TSD, from 1991.
21 Q. Are you familiar with that document?
22 A. Yes.
23 Q. What is the TSD?
24 A. It's a game plan for how to determine reasonable potential and develop water quality based effluent limits for MPDES permits for toxics.

1 Q. So that's basically the play book?
2 A. Yes.
3 Q. So on the last page there, I believe I have highlighted the definition of persistent.
4 A. (Examines document)
5 Q. If you could just read that out loud.
6 A. "Persistent pollutant is not subject to decay, degradation, transformation, volatilization, hydrolysis, or photolysis."
7 Q. So being that that's the TSD that the Department uses in drafting permits, and to my understanding persistence is not defined in statute or rule, would that be the definition of persistent the Department would use in evaluating an MPDES permit?
8 MR. MOSER: Objection, calls for speculation, calls for opinion.
9 MR. TIETZ: You can answer.
10 MR. MOSER: Go ahead.
11 Q. (BY MR. TIETZ) Just to make sure you understand the process, your Counsel is going to object to certain things, and unless he instructs you not to answer due to privilege, you go ahead and answer, and then we duke it out in front of the Hearing Examiner if there is some issue about the objection. So you can go ahead and answer.
12 A. Essentially I was going to say I don't know. It would be reasonable, but I'm not the one who makes the call.
13 Q. But you are the one who is making the call in deciding the parameters of CFAC's permit, correct?
14 A. Yes, for the first cut, I'm the one making the recommendations, so the call.
15 Q. And so the rules, the words in the rules have to have meaning, right?
16 A. Right.
17 Q. And so you have to be working off of a definition of both toxic and persistent in evaluating the applicability and appropriateness of an acute mixing zone, correct?
18 A. Could you say the whole question again?
19 MR. TIETZ: I'll ask you to read it back, and then if I need to rephrase it, I can.
20 (Whereupon, the pending question was read back)
21 Q. Not in a vacuum, but that is a consideration, yes.
22 A. It is a game plan for how to determine reasonable potential and develop water quality based effluent limits for MPDES permits for toxics.
1. Q. Which one or two?
2. A. Mercury and PCB's.
3. Q. What's your understanding of the --
4. A. Persistent and bioaccumulative.
5. Q. And do you know, can you distinguish
6. A. Persistent and bioaccumulative.
7. Q. Can you distinguish between the
8. A. Persistent and bioaccumulative aspects or tendencies of PCB's as
9. compared to the cyanide compounds?
10. A. In a general layman chemistry sense,
11. Q. If you were trying to establish that
12. A. If an XYZ compound came upon my desk,
13. Q. And I didn't know about it, and I wanted to find
14. out about it?
15. Q. Right. So if you were trying to make a
16. determination of whether or not cyanide or cyanide
17. compounds are persistent in the environment, is

1. rules have words, all of the rules have different
2. parameters to them, but the words, if they're not
3. defined within -- Strike that.
4. If a word is defined in the statute or
5. in the rules, that is the definition you work
6. from, correct?
7. A. Correct.
8. Q. And if the definition is not provided in
9. the statutes and the rules, do you look for
10. another source to define that term?
11. A. Yes. I would look for common use, for
12. instance, how is it commonly understood to be.
13. Q. Would you look to the TSD document?
14. A. I have not.
15. Q. I'm going to show you what has been
16. previously marked as Deposition Exhibit 23, and
17. ask you if you've seen that document before.
19. Q. Are you familiar with any of those
20. compounds that are listed in that document?
21. A. Several.
22. Q. Is your chemistry sufficient to be able
23. to distinguish those chemicals' persistence in the
24. environment as compared to cyanides?
25. A. One or two, but not all of them, no.

1. to your evaluation, you have to have a definition
2. of what toxic and persistent are to be able to
3. make an evaluation, don't you?
4. MR. MOSER: Objection, calls for a legal
5. conclusion.
6. A. What I would say is that the first cut
7. is in general an acute mixing zone is not granted
8. if it is toxic and persistent. It does not mean
9. the end of the story.
10. Q. (BY MR. TIETZ) Agreed, and I'm not
11. saying that it is. I'm just trying to establish
12. that if you're applying the rules to an
13. application, and making decisions in that
14. application on whether or not you're going to
15. approve an acute surface water mixing zone, and
16. the standard of or the rule that says it is not
17. granted for toxic and persistent pollutants, you
18. need to evaluate that against a definition of both
19. toxic and persistent, correct?
20. MR. MOSER: Objection, calls for a legal
21. conclusion.
22. A. Yes, that's the first cut I would
23. review. I could stop after that if it met that
24. toxic and persistent definition.
25. Q. (BY MR. TIETZ) Agreed. And all of the

MR. MOSER: Objection, calls for a legal
case?
Q. Understood. Did you do that in this
A. Mercury and PCB's.
Q. What's your understanding of the --
A. Persistent and bioaccumulative.
Q. And do you know, can you distinguish
A. Persistent and bioaccumulative.
Q. Can you distinguish between the
A. In a general layman chemistry sense,
yes.
Q. If you were trying to establish that
difference in a permit in a permitting effort, is
there anywhere in DEQ you would go to answer that
question?
A. If an XYZ compound came upon my desk,
and I didn't know about it, and I wanted to find
out about it?
Q. Right. So if you were trying to make a
determination of whether or not cyanide or cyanide
compounds are persistent in the environment, is

### Page 70

1. **Q.** Did you do anything, or did anyone in the Water Protection Bureau do anything, to evaluate the articles and the information that was provided?

2. **A.** Beyond reading? No.

3. **Q.** Correct.

4. **A.** No. I want to qualify. I don't know what's happened since the appeal. I'm talking up through response to comment.

5. **Q.** That's again a valid point. I'm trying to kind of work this through as linearly as possible. Obviously we're jumping around a little bit. But I really want to talk about the development of the fact sheet, and then we'll talk about the development of the Response to Comments.

6. **A.** Well, I'm sorry. We're talking about at the time that you're developing the fact sheet.

7. **Q.** Okay.

8. **A.** Okay.

9. **Q.** So do you know if anyone, yourself or anyone else in the Water Protection Bureau, did any sort of analysis or investigation into the persistence of cyanides?

10. **A.** I requested more data at one point from Steve Wright about what did they know for what happened since the appeal.

---

### Page 71

1. the first order rate of decay.

2. **Q.** Do you recall what the basis for that was? Why did you reach that conclusion?

3. **A.** Primarily speaking to Tom Reid, who is our technical advisor; also we had a draft policy manual that discussed when acute mixing zones could be used, specifically spelling out chlorine and ammonia.

4. **Q.** Do you recall what, if any, information was provided by CFAC in their 2003 or 2013, or quite frankly incorporated into the 1998 applications relative to cyanide and persistence?

5. **A.** Yes, overall. I could not quote the entire discussions, but the 1998 mixing zone study was the primary platform for presenting what cyanide did to defend their water quality assessment, and they had several pages on discussing the mechanisms, and what research papers had shown happened to cyanide.

6. **Q.** And what weight did you give that discussion in the discussion or your evaluation of the persistence of cyanide?

7. **A.** It is at least a leg of the stool. It was a consideration.

### Page 72

1. cyanide forms were being discharged and were within the river. I would have been the one doing it, and I don't believe I got -- other than review of the 1998 document, no, I don't believe I went further.

2. **Q.** So looking over in that same sentence under the acute mixing zone back to --


4. **Q.** Yes, on Deposition Exhibit 34. You cite the ARM that, "The discharger must demonstrate to DEQ that allowing minimal, initial dilution will not threaten or impair existing beneficial uses;"

5. **A.** Yes.

6. **Q.** In reference to the 1998 permitting effort, and the statement of basis that we talked about as Deposition Exhibit 29, do you agree that the Department made findings in that document that CFAC did in fact meet that standard?


8. **A.** Yes. Reading the 1998 statement of basis by Tim Byron, he had summarized water quality assessment, and the Department findings seemed to support his opinion to grant a mixing...
| 1  | zone. You're asking specifically for acute now or   | 1  | correct?  |
| 2  | you're asking for both? | 2  | A. I was not refuting it. |
| 3  | Q. (BY MR. TIETZ) I'm asking that with | 3  | Q. And if you go to Page 25, you did |
| 4  | respect to Tim Byron's 1998 statement of basis, | 4  | determine in the top paragraph there, in what |
| 5  | that in his table at Table 13, he noted | 5  | should be highlighted in yellow, "The standard |
| 6  | specifically for ARM 17.30.507(1)(b), which is | 6  | acute surface water mixing zone for cyanide will |
| 7  | what you cited there, which is Page 14 of that | 7  | be maintained unchanged with this renewal," |
| 8  | document. He states in the Department's findings | 8  | correct?  |
| 9  | that -- He makes a statement there of the | 9  | A. That's what I said in April 2013, yes. |
| 10 | Department's findings, correct? | 10 | Q. And so at that point in time, it was |
| 11 | A. Yes. | 11 | your opinion that the cyanide mixing zone was |
| 12 | Q. And that indication is that the | 12 | appropriate? |
| 13 | application in 1998 met that standard, correct? | 13 | A. Yes. |
| 14 | MR. MOSER: Objection, calls for a legal | 14 | Q. And do you recall at that time any other |
| 15 | conclusion, form of the question. Go ahead. | 15 | basis for continuing the mixing zone other than |
| 16 | A. It appeared to me he was talking a | 16 | what you articulated in your write-up? |
| 17 | little around it, but his finding did say that the | 17 | A. Give me a second. (Examines document) I |
| 18 | fish migration was not going to be impacted, so -- | 18 | don't remember anything specific, no. |
| 19 | Q. (BY MR. TIETZ) Just so the record is | 19 | (Whereupon, Deposition Exhibit No. 36 |
| 20 | clear when somebody goes back to read this | 20 | was marked for identification) |
| 21 | deposition, could you just go ahead and read the | 21 | Q. (BY MR. TIETZ) I'm going to hand you |
| 22 | finding into the record. | 22 | what I've marked as Deposition Exhibit 36, and ask |
| 23 | A. Yes. "Acute standards are exceeded. | 23 | you if you recognize this document.  |
| 24 | Propagation of aquatic life is the existing | 24 | A. Yes. |
| 25 | beneficial use conceivably affected by the cyanide | 25 | Q. And this is a letter dated May 2, 2013 |

| 1  | concentration. The portion of the Flathead River | 1  | that you sent to Steve Wright at CFAC requesting |
| 2  | in question is a fish migration route only. The | 2  | them to update their 2003 MPDES permit |
| 3  | area exceeding the acute cyanide standard extends | 3  | application, renewal application, correct? |
| 4  | from a length of 150 feet and a width of several | 4  | A. Yes. |
| 5  | feet, depending on flow. This limited extent will | 5  | Q. So I just want to make sure. We talked |
| 6  | not inhibit fish migration." | 6  | around this a little bit, but the draft of the |
| 7  | Q. So do you agree with that finding? | 7  | fact sheet that we were just talking about as |
| 8  | A. I agree that he found it in 1998. I as | 8  | Deposition 34 would have been drafted prior to |
| 9  | a permit writer would have liked more -- let me | 9  | your request for information on May 2, 2013; would |
| 10 | rephrase that. I'm assuming the only thing he | 10 | that be accurate? |
| 11 | worked from was the 1998 mixing zone study, and | 11 | A. Yes. |
| 12 | given that and his finding, it seems like a leap | 12 | Q. So how was this letter developed? I |
| 13 | to me. | 13 | guess my question is: How did you decide what |
| 14 | Q. If you look at the last paragraph on | 14 | information you were going to put in this letter |
| 15 | Page 24, jumping back to Deposition Exhibit 34, | 15 | specifically requesting from CFAC to update their |
| 16 | you state in the last sentence of that last | 16 | application from 2003? |
| 17 | paragraph, "However, based on information provided | 17 | A. As I generally recall, I would create a |
| 18 | in the mixing zone application, the impacted area | 18 | fact sheet for discussion with the team, as you |
| 19 | has a limited extent 150 feet in length by several | 19 | mentioned, and it became apparent that not only |
| 20 | feet in width, and the elevated cyanide | 20 | was the data so old because, it was ten years old, |
| 21 | concentration is not expected to inhibit fish | 21 | but it is not how we do MPDES permits. We have |
| 22 | migration;" do you see that? | 22 | point sources discharging pollutants to the |
| 23 | A. Yes. | 23 | receiving water, so 002, 004, and 005 which were |
| 24 | Q. That would appear to indicate that you | 24 | their outfalls, we were trying to explain and |
| 25 | were endorsing that finding that Tim Byron made, | 25 | articulate more clearly that they will need to |
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<table>
<thead>
<tr>
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<th>Text</th>
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<tbody>
<tr>
<td>1</td>
<td>have monitoring for the TBELs, but that the</td>
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<tr>
<td>2</td>
<td>discharges actually to the north ponds and south</td>
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<tr>
<td>3</td>
<td>ponds, which are outfall 007, and in this instance</td>
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<td>4</td>
<td>we call it 008. We didn't know -- it ended up</td>
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<td>5</td>
<td>being 009 -- that we were going to have to have</td>
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<td>6</td>
<td>information on all the inputs to those outfalls</td>
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<td>7</td>
<td>because we need to develop water quality based</td>
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<td>8</td>
<td>effluent limits.</td>
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<td>9</td>
<td>So number one was to try to get at</td>
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<td>10</td>
<td>the fact we really didn't know what the outfalls</td>
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<td>11</td>
<td>were. And then on Page 2, it talks about kind of</td>
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<tr>
<td>12</td>
<td>the main issue from the regulatory side, to give</td>
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<tr>
<td>13</td>
<td>Steve a sense of the point source discharging</td>
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<td>14</td>
<td>pollutants. And we had a number of -- I can't</td>
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<td>15</td>
<td>say a number. We had had meetings, and I would</td>
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<td>16</td>
<td>have kept -- you would have -- which became</td>
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<td>17</td>
<td>apparent that CFAC, at least CFAC attorneys still</td>
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<td>18</td>
<td>wanted 006 as a permitted outfall.</td>
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<td>19</td>
<td>And we were trying to express that,</td>
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<td>20</td>
<td>well, we're going to need to have a point source</td>
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<td>21</td>
<td>and a monitoring spot for that point source to</td>
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<td>22</td>
<td>correlate effluent limits protective of the</td>
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<td>23</td>
<td>surface water and compliance points, which we had,</td>
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<td>24</td>
<td>as I said, we'd had meetings discussing that, so</td>
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<td>25</td>
<td>in a way, that was a summary below the regulatory</td>
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<table>
<thead>
<tr>
<th>Line</th>
<th>Text</th>
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<tbody>
<tr>
<td>1</td>
<td>Part of that says, &quot;Since the</td>
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<tr>
<td>2</td>
<td>groundwater monitoring wells proximate to the</td>
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<td>3</td>
<td>capped landfills at CFAC continue to show elevated</td>
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<td>4</td>
<td>cyanide and fluoride levels, CFAC may decide to</td>
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<td>5</td>
<td>request MPDES permit coverage of the landfill.</td>
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<td>6</td>
<td>(It is CFAC’s responsibility to identify all</td>
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<td>7</td>
<td>outfalls.) If so, you would need to identify</td>
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<td>8</td>
<td>monitoring locations for documenting ongoing</td>
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<td>9</td>
<td>compliance with future WQBELs,&quot; water quality</td>
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<td>10</td>
<td>based effluent limits. So that was that aspect of</td>
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<td>11</td>
<td>the letter.</td>
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<td>12</td>
<td>No. 2 is just trying to get updated and</td>
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<td>13</td>
<td>complete information on the discharge. Three was</td>
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<td>14</td>
<td>trying to get accurate and updated production</td>
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<td>15</td>
<td>estimates, given the complexity with partial</td>
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<td>shutdowns and shutdowns. And four was trying to</td>
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<td>17</td>
<td>clear up the fact that in the MPDES permitting</td>
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<td>18</td>
<td>realm, we deal with total recoverable for all</td>
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<td>19</td>
<td>metals except for aluminum, and the data I had was</td>
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<td>20</td>
<td>mainly dissolved and net, so I was trying to</td>
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<td>extract better data or more relevant data for my</td>
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<td>22</td>
<td>permitting needs.</td>
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<td>23</td>
<td>Q. Just so the record is clear, what is</td>
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<td>24</td>
<td>meant by net?</td>
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<td>25</td>
<td>aspect.</td>
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<table>
<thead>
<tr>
<th>Line</th>
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<tbody>
<tr>
<td>1</td>
<td>A. Given that water that they used would</td>
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<td>2</td>
<td>have some contamination already in it, when you</td>
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<td>3</td>
<td>get to very low levels of some metals for</td>
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<td>4</td>
<td>instance, the federal rules allow you to subtract</td>
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<td>5</td>
<td>out the input from the water that's not your</td>
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<td>6</td>
<td>pollution from your total effluent, recognizing</td>
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<td>7</td>
<td>you didn't put it in there.</td>
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<td>8</td>
<td>Q. And in this letter you did not request</td>
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<td>9</td>
<td>any additional information with regard to</td>
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<td>10</td>
<td>additional data for the mixing zones, correct?</td>
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<td>11</td>
<td>A. Correct.</td>
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<td>12</td>
<td>Q. Who was involved in the determination to</td>
</tr>
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<td>13</td>
<td>request these items, to request this information?</td>
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<td>14</td>
<td>A. Certainly Matt Kent was. Primarily</td>
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<td>15</td>
<td>myself and Matt Kent. And I don't remember if the</td>
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<td>16</td>
<td>rest of the team was involved. I don't recall.</td>
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<td>17</td>
<td>Q. Do you recall if Tom had any input in</td>
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<td>this?</td>
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<td>19</td>
<td>A. I don't. I retract that little bit. I</td>
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<tr>
<td>20</td>
<td>recall an email back and forth where Tom Reid</td>
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<td>21</td>
<td>supported Matt Kent's decision. I remember</td>
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<tr>
<td>22</td>
<td>talking to him.</td>
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<td>23</td>
<td>Q. With respect to?</td>
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<td>24</td>
<td>A. Needing to identify the specific point</td>
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<td>25</td>
<td>sources, which not the entire letter, but that</td>
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</table>
Q. And Paul suggested just using Tom, and I presume that's Tom Reid?
A. Yes.
Q. And at this point in time, and I think that it seems a little bit, but how involved had Tom been in this process up until this point?
A. I don't remember. A lot of things were done by email, and I do believe you have just about probably the entire sequence.
Q. I would say that the emails that pertain to this issue that I received are in here, so if there are other emails that were back and forth regarding these issues, and they're not in here, I didn't get them.
A. I don't have any more than what you have. So given the process, he should have been involved when I had a fact sheet being rounded up, but before this, I don't really remember sitting down to talk to him at all.
Q. At this point in time, in May 2013, had you worked with Tom very extensively?
A. As a mentor and technical advisor, yes, not as a side by side type of -- more of him telling me, is that what you mean?
Q. I'm just wondering what extent you'd have worked with Tom through May or at the time May 2013. You had worked with Tom, yes?
A. Yes, worked with him fairly often on an issue, or perhaps him reviewing a document and giving me comments.
Q. And what kind of relationship do you have with Tom?
A. He is a respected technical guru in our group. I'm the newcomer. I respected him and listened to him, but I didn't always agree with him.
Q. Did you get along with him?
A. Professionally we got along, yes.
Q. I've heard that Tom can be difficult to get along with sometimes. Has that been your experience?
A. Yes.
Q. In fact, I've heard that people have left the Department because of Tom's demeanor. Have you heard that?
A. I've heard that, but it wasn't since I've been there.
Q. What aspect of Tom's demeanor do you find to be a problem?
A. I am a negotiator personality wise. I need to understand the aspects of a problem, work out what the issues are, and then find a solution.
Q. Tom is an answers man. He needs to have a very rigid regulatory stance on everything. That's my opinion.
A. Yes. He sees things as right or wrong.
Q. (BY MR. TIETZ) So pretty much black and white?
A. Yes.
Q. And I know -- and we'll get into it a little bit here that you did have some -- I don't know if it's disagreements, but you definitely saw things in a different way with regard to mixing zones, and potentially with the landfills, and the Outfall 006. What were those discussions like with Tom?
A. You'd think I could remember, but I don't remember. In the beginning, I know from reviewing my memos, that I was gathering information from him and things, but I don't remember if we sat down to hash out specific like differences.
Q. (BY MR. TIETZ) Through the course of this, did you ever have a situation, or did you ever sit down with Tom and try to hash through the differences?
A. You'd think I could remember, but I don't remember. In the beginning, I know from reviewing my memos, that I was gathering information from him and things, but I don't remember if we sat down to hash out specific like differences.
Q. Did you ever engage either the Section Supervisor -- it probably would be the Section Supervisor either Paul or Matt -- through this process to help reconcile differences in opinion?
A. Yes. Again from brushing up on my memory when I was pulling together discovery documents, this time frame you're talking about I believe is when Paul Skubinna went back to being a Section Supervisor. I am not positive. But I was pulling Paul in saying, "I need you to go to the next meeting."
Q. Help be a buffer?
A. I wanted to make sure that I wasn't -- I
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Q. It was a long time ago. I don't remember. It doesn't mean he didn't. I don't remember with X, Y, or Z, or anything like that or --

Q. Yes, and most specifically with respect to the difference of opinion that you had with Tom with respect to CFAC's permit.

A. In the beginning, I was relying on his expertise and trying to sort out -- I mean this was a huge project to inherit. When I was given this project, I thought it was essentially done. When you're given an essentially done project that isn't your own, and you're reviewing it, and it is like I don't understand what going on. I think as I started to understand the grayness of some of these things, that Tom -- we should have talked before the meeting. I mean you're talking about the next memo, I think. But it wasn't a fight, it was just that things were stated that I wasn't fully comfortable stating because I didn't agree with.

Q. Can you give me any specifics there?

A. The only thing that I remember, and I do remember it from reviewing the documents, was Tom making this flat out statement that we were not going to be considering a mixing zone, and I was quite sure that hadn't been decided one way or the other.

Q. Did Tom ever articulate a basis for that decision or that opinion?

A. Historically, yes, back for the earlier days, I believe. It was because it was a general site. We don't just permit groundwater. Again, I have to go back to the point sources discharging pollutants. So in the beginning when I inherited the 2011 consultant's package, I believe that was the stance. I don't remember. It may -- if there was a reason, I don't know what it was. I don't remember.

Q. You don't recall Tom making statements that, "We can't do this because it doesn't meet with X, Y, or Z," or anything like that or --

A. It doesn't mean he didn't. I don't remember.

Q. I'm just looking for what he articulated to you.

A. It was a long time ago. I don't remember. I do remember what you were leading to on that one memo, though.

MR. TIETZ: We'll get to that. Before that, though.

(Whereupon, Deposition Exhibit No. 38 was marked for identification)

Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 38. And here you're stating -- This is again an email from you dated May 30th to Tom Reid and Paul Skubinna that you're thinking about Special Conditions for the CFAC landfills, correct?

A. Correct.

Q. So prior to this memo, obviously you were thinking about Special Conditions with respect to that. Had there been an opinion articulated that landfills just couldn't be point sources?

A. Not at that time, I don't believe. This is not a linear process, so I can't state with any certainty, but --

Q. Well, you're saying that you're thinking more about the Special Condition possibility for the CFAC landfills. That would indicate that you'd already had a conversation with one or both of those people with respect to Special Conditions for landfills.

A. Yes.

Q. Do you recall what the issue was you were trying to address by citing these sections of the CFR regarding additional Special Conditions?

A. If the landfills would be a permitted source -- and I don't know how clearly we had articulated in our own minds what, you know, as the point source discharging pollutants. I don't know how articulate it was on May 30th, 2013 -- but if the landfills ended up being a permitted source, how could we do effluent limits monitoring for them. And basically the way they are now you can't.

So then we started thinking about storm water rules, and how when you have certain different situations, EPA has recognized that you sometimes can't have the traditional effluent limit monitoring scenario. So we are exploring whether -- just skipping whether or not it should be. If it was a permitted outfall, what -- Every permit needs to have effluent limits monitoring to prove compliance with those limits and/or Special Conditions.
And specifically I remember talking about pump and treat, and whether at that point it would become a point source if they were removing groundwater from the landfills, treating it, and then discharging that treated groundwater, that would be a point source. So we were exploring that kind of thing, too.

Q. So this would have been kind of a point in the evolution of your decision making on whether or not the landfills could be considered a point source; would that be an accurate characterization?

A. Part of the evolution, yes.

Q. And you commented that the way they are now, they couldn't be considered a point source.

A. What aspect -- What do you mean by that, "the way they are now"?

Q. Back -- I forget how long ago --

A. Columbia Falls had basins where they captured at least runoff and maybe some groundwater treated for cyanide. I don't know why they stopped.

Q. Right now there is nothing -- there is no capture. There is a cap, but I'm talking about a point --

A. There is nothing that this is a spot where the effluent is leaving. I'm talking too much because documents that were produced by your Counsel, and to you that this came from the first disc of what I've marked as Deposition Exhibit 40.

Q. (BY MR. TIETZ) I'm going to hand you one that I only have one copy of. I'll represent (Whereupon, Deposition Exhibit No. 39 was marked for identification)

A. I don't recall.

Q. Do you recall if you ever got any response to this question?

A. Not in depth. My inclination is we talked to Doug Parker as a general -- just talking, but no specific questions or answers that I recall.

Q. (BY MR. TIETZ) I'm going to hand you (Whereupon, Deposition Exhibit No. 39 was marked for identification)

A. Yes. With an if, yes.

Q. You had stated in your answer before that the way they are now they couldn't be considered a point source, and I just was asking you what you meant by that. And I take it from what you just said because there is no leaching collection system?

A. Or any other spot, as asked in that May letter, any spot that they identify saying, "This is how we will monitor for effluent limits that you give us."

Q. So could you also characterize that as a compliance point?

A. Yes.

Q. And then you also commented that the permit has to have effluent limits monitoring, I think you said reporting. When you say that, that it has to have that, what requirements are you referring to?

A. If I could see 40 CFR 122.

Q. That's sufficient. You're saying that the federal CFR requires that?

A. Which by reference we incorporate in our rules.

Q. I'm not asking for anything more specific than that.

A. Okay.

Q. Do you recall, with respect to Deposition Exhibit 38, the memo there, ever getting any response to your information that you presented from Tom or Paul?

A. I remember that there was a response. I even think we might have talked about it. But I also know that it ended up being a no, but I don't remember specifically.

Q. Do you recall ever having conversations with CFAC with respect to collecting leachate, or a pump and treat, or any of those types of options?

A. Not in depth. My inclination is we talked to Doug Parker as a general -- just talking, but no specific questions or answers that I recall.

Q. (BY MR. TIETZ) I'm going to hand you (Whereupon, Deposition Exhibit No. 39 was marked for identification)

A. Yes. With an if, yes.

Q. And we talked a little bit about what netting meant earlier. What specifically was the issue here that was being discussed and that you were trying to address?

A. When I was developing their technology based effluent limits -- remember, there is the two. The technology based is the end of the pipe, prior to any dilution to any other waste stream. Previously they had had net, but the netting they used wasn't from the water that they were using. They were doing it wrong. And I didn't have any information to do it right. That was really it, I think.

Q. Do you recall if you ever got any response to this question?

A. I don't recall.

Q. Do you recall if you ever got any response to this question?

A. I don't recall.

Q. (BY MR. TIETZ) I'm going to hand you (Whereupon, Deposition Exhibit No. 40 was marked for identification)

Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 39. This is a May 30 email to Tom Reid and Paul Skubinna with respect to the net limitations could apply to the CFAC, correct?
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Q. So you have the enumerated paragraph, that would be Tom's response that was kind of there is his. After that first Paragraph 2, yes, that would be Tom's response that was kind of
dated outwards.

Q. So you have the enumerated paragraph, and then there is a portion after that would have been Tom's response?

MR. MOSER: This one?

MR. TIETZ: -- are in different colors.

I'm thinking it is almost noon.

MR. TIETZ: I think what I'm going to do, Kurt, if you have the hard file, this is I think that these comments are being in color. I think that these comments are in --

MR. MOSER: Do you remember where this came from? Was this from an attachment?

MR. TIETZ: No, it was --

A. Correct.

Q. And this would have been, just the date of this document, if I represent to you that CFAC submitted its updated application in July 26, 2013, this, your questions and Tom's responses, would have been after CFAC had submitted its application update, correct?

A. Correct.

(Whereupon, Deposition Exhibit No. 42 was marked for identification)

Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 42. And this appears to be -- Can you I guess explain what this is?

A. Yes. When we were out for internal review, typically it is a fact sheet -- it could be other things. When we route it to our team, we circle the people that will be given to, and they're expected to initial it and date when they reviewed it. And then they pass it on, and at the end of each person's review, the combined document gets returned to the permit writer.

Q. So in this case, it looks like Jeff May, Tom Reid, John Wadhams, and Jeff Ward --

A. Yes.

Q. -- Jeffrey Ward were reviewers?

A. Yes.

Q. This appears to be slightly cut off. Do you remember where this came from? Was this from an attachment?

A. Sometimes people make their own copies and send it separately.

Q. And so all of those combined comments are on this one document; is that correct?

A. Correct.

Q. Do you remember the major remaining issues, putting that together?

A. I do believe it is mine, but no, I don't remember preparing it.

Q. Do you remember the major remaining issues, putting that together?

A. I do believe it is mine, but I don't remember preparing this specific document either.

Q. So you have the enumerated paragraph, that would be Tom's response that was kind of there is his. After that first Paragraph 2, yes, that would be Tom's response that was kind of
dated outwards.

Q. So you have the enumerated paragraph, and then there is a portion after that would have been Tom's response?

A. Oh, yes.

Q. Under where it says, "PR," and it goes on to have text?

A. (Examines document) Yes, but I don't know which parts without really diving in, or we can see if we have color. But yes, it looks like he responded some of these places. Wait a minute. Hold on. Let me read this again. (Examines document) Yes, I guess after one, the whole thing there is his. After that first Paragraph 2, yes, that would be Tom's response that was kind of
dated outwards.

Q. So you have the enumerated paragraph, and then there is a portion after that would have been Tom's response?

A. (Examines document) Yes, request to review my draft fact sheet, and then specific questions that I wanted to talk over.

Q. And if I'm reading this correctly -- and tell me if this is your opinion -- that this is the email from Tom answering your enumerated questions. Would that be accurate? And the reason I say that is under -- do you see bullet point one?

A. Yes.

Q. The date stamp on the file says it was saved by you on May 29, 2013.

A. It seems accurate.

Q. So at that point in time, May, end of May 2013, would this accurately convey your opinions regarding the issues discussed here?

A. Yes.

(Whereupon, Deposition Exhibit No. 41 was marked for identification)

Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 41. This is an email from Tom Reid to you dated August 30, 2013, which appears to be in response to an email that you sent to Tom Reid and others on August 20, 2013 posing a series of questions; is that correct?

A. Yes.  When we were out for internal review, typically it is a fact sheet -- it could be other things. When we route it to our team, we circle the people that will be given to, and they're expected to initial it and date when they reviewed it. And then they pass it on, and at the end of each person's review, the combined document gets returned to the permit writer.

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A. Yes.

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A. Sometimes people make their own copies and send it separately.

Q. And so all of those combined comments are on this one document; is that correct?

A. Correct.

Q. Do you remember the major remaining issues, putting that together?

A. I do believe it is mine, but no, I don't remember preparing it.

Q. Do you remember the major remaining issues, putting that together?

A. I do believe it is mine, but I don't remember preparing this specific document either.

Q. I wish I put a date on it.

A. I do believe it is mine, but no, I don't remember preparing it.

Q. Do you remember the major remaining issues, putting that together?

A. I do believe it is mine, but I don't remember preparing this specific document either.

Q. I wish I put a date on it.

A. The date stamp on the file says it was saved by you on May 29, 2013.

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Q. -- Jeffrey Ward were reviewers?

A. Yes.

Q. This appears to be slightly cut off. Do you remember where this came from? Was this from an attachment?

A. Sometimes people make their own copies and send it separately.

Q. And so all of those combined comments are on this one document; is that correct?

A. Correct.

Q. Do you remember the major remaining issues, putting that together?
Q. But he did provide comment to you with regard to the 1998 mixing zone study?
A. Yes.

Q. Do you recall what his impressions were or what his concerns were?
A. In general, I recall that he thought they should update the study, and the 1998 at this point is quite old, even in 2013. He thought that the western part of the site wasn't fully -- the flow under the west part of the site wasn't fully established, that there might be more waxing and waning, and could be things towards Cedar Creek.

That's really all I remember.

Q. Were those comments provided in writing, do you know, or if they were more conversation?
A. He had provided me comments in writing on a copy of 1998 mixing zone study. I looked for it, and I don't have it anymore. He may have provided others. I don't recall. Amend my answer.

Q. On Page 2 of that document --
A. Exhibit 41?

Q. Actually let's do this different, because this post dates the review of the fact sheet. Let's turn to Exhibit 42. And the routing slip indicates that the review was conducted between August 19 and August 29, correct?
A. No. That was my intention. When we review these, when we circulate for review, we put down what date we started, so yes, August 19 was the start review date. You pass it on to one reviewer, you put when you wish it to end. So in this case, if you look below at the dates, you can see in order, Jeffrey Ward reviewed on 8/23, Tom Reid on 8/30; and then I don't know which order, but Jeff May and John Wadhams both signed on September 3rd.

Q. All but one started after you wanted it back. So there is a lot of comments throughout here. When you receive comments back like this, what do you do with this?
A. Well, in this specific case, I made comments over the comments. The purple that you see is my writing. In this case also I believe we had set up a meeting. I guess I don't remember if it was before or after I got the actual written comments back, though. When you ask in general, there is no in general. I have some that come waning, and could be things towards Cedar Creek.

So I'm trying to remember.

Q. Would there be any way, looking at this, of knowing whether or not somebody had given you additional comments or other comments electronically? Would they typically write on here, "Also see --"
A. No.

Q. Go back to Deposition Exhibit 41 for a moment. And this is dated August 30, and the question I had first was: In your initial email here on August 20 to Jeff May, and Paul Skubinna, and others, the second line there or second paragraph says, "I have given CFAC my best shot. It's time for group's review;" do you see that?
A. Yes.

Q. Then it says, "Chris Bow is reviewing the groundwork discussion and circulating the draft fact sheet to Team 2 and Tom Reid." How extensive of a review did Chris Bow do?
A. I recall that he reviewed the 1998 mixing zone study. That's all I really remember.

Q. Did he provide his comments or his impressions of that study?
A. He had provided it to me. I no longer have it.

THE WITNESS: I no longer have impressions of that study?

Q. Did he provide his comments or his mixing zone study. That's all I really remember.
A. I recall that he reviewed the 1998 draft fact sheet to Team 2 and Tom Reid. How extensive of a review did Chris Bow do?

Q. Go back to Deposition Exhibit 41 for a page. It was in the hard file. So
A. Correct.

Q. So in looking at the first page, the internal review routing slip, would it be accurate that each of the people that commented and the respective colors that they signed this off on; does that appear to be case?
A. That is typically the case. If they commented on this specific draft, it would -- Sometimes they'll just initial this that they've read it, but have given me electronic or whatever.

Q. With a fair number of comments, I mean back with, "You spelled this wrong."
A. He had provided me comments in writing back. So there is a lot of comments throughout here. When you receive comments back like this, what do you do with this?
A. Well, in this specific case, I made comments over the comments. The purple that you see is my writing. In this case also I believe we had set up a meeting. I guess I don't remember if it was before or after I got the actual written comments back, though. When you ask in general, there is no in general. I have some that come waning, and could be things towards Cedar Creek.

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A. I recall that he reviewed the 1998 mixing zone study. That's all I really remember.

Q. Did he provide his comments or his impressions of that study?
A. He had provided it to me. I no longer have it.
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1. there is extensive comments here, strike outs, whatnot. How do you evaluate whether you're going
to accept the comment, or what's your process for
 going through and evaluating the comments that are
made to you? Or let me specify. How did you do
that with this document?
7. A. I cannot give you an order. I would
look at each of the comments and see if it had
merit under the regulations. Many times there are
just things that have merit under the regulations
in different ways. So they may say left and they
may say right, and may still meet the letter of
the law. So then I kind of -- I'll try to break
it down into what is the issue to get to the end
point, which is developing an enforceable fact
sheet that will translate into a permit.
17. In this case, there was a few key
issues, as you've been pointing out, and I would
have, and I assume I did, have a meeting to
discuss those issues when I boiled it down.
21. Q. With the people who provided comments?
22. A. They're usually invited, and I don't
remember who, but for sure I always have key few.
24. If we have Section Supervisor at the time, and in
this case Tom Reid being the technical advisor. I
always also invite all the permit writers, but
there is not a rule of thumb that they have to
attend, and I don't remember if they did.
4. Q. So looking at some of the specific
comments, turning to Page 8 and 9. It looks like
in this effort you were considering an Outfall 14
that would cover the landfills; would that be
accurate?
9. A. (Examines document) It looks like I was
contemplating that, yes.
11. Q. And it was struck out, and a comment,
"Landfills are not outfalls." And referring back
to the comment sheet, it looks like those are
probably Tom Reid's comments; does that --
15. A. I agree.
16. Q. Did you ever have subsequent discussions
with Tom with regard to his statement, "Landfills
are not outfalls"?
19. A. I don't remember.
20. Q. Ultimately you decided not to include an
Outfall 14 covering the landfills, correct?
22. A. Correct.
23. Q. Why did you make that decision?
24. A. I'm sure there were more conversations.
25. You asked me if I recall them. But I come back to
the point sources discharging pollutants, and the
fact that there was no way to define where the
discharge was coming from these seven landfills
that are listed.
5. Q. And was that your personal conclusion?
6. A. Yes. By the time I got to this point,
yes, it was.
8. Q. Turning to Page 27. And it looks like
9. the comments on this page again were Tom Reid's?
10. A. It appears to me like that, too, except
for the purple, which is my writing.
12. Q. That's good to know. In the first
paragraph under "Acute mixing zone," Tom struck
out the whole sentence regarding, "The acute
mixing zone does not create a barrier to the
migration or translocation of indigenous
organisms." Do you know why he struck that?
18. A. I do not.
19. Q. You don't recall any discussions with
20. him about what his problem with that statement
21. was?
22. A. No.
23. Q. Then he strikes obviously the inclusion
24. of the acute mixing zone, and it says, "No MZ for
acute," correct?
extends a facility's permit. That's to us the import of a completeness. At that point in 2013 when we said we need to have updated information and requested it, they were still working on a complete application. It was just we were asking, "Please give us correct data for how you are now."

So that being said, there was review conducted, and I did have several emails to refine things as I went along if I needed it.

Q. And you would agree the Department has authority to request additional information after that completeness determination has been made, correct?

A. Yes.

Q. And do you know why there was never any request for additional information with regard to a water quality assessment?

A. No, we don't.

Q. No internal discussions or thoughts that you could ask for that information?

A. I recall Chris Bow thinking there should be a new mixing zone study, which implies also the water quality assessment information being provided, but I think it didn't go any further. I don't remember if there were reasons specifically.

Q. (BY MR. TIETZ) I guess the only other question I have there is he mentions Superfund in there. How much did the involvement in this, you, as far as you know, never requested that information or that update from CFAC?

A. Correct.

Q. I do note that nobody commented on the inaccurate description or recitation of the 17.30.506. So jumping back now to Deposition Exhibit 41, which was the memo or the email from Tom responding to your questions on August 30th, 2013, so that actually would have been the same day as his review, correct?

A. Correct.

Q. And under No. 2 on the second page, you don't need to read it out loud, but could you read that paragraph that starts, "Neither groundwater nor the landfills." Could you just read that to yourself. Tell me when you're done.

A. (Examines document) Just the paragraph starting with "Neither"?

Q. Yes, just that particular paragraph.

A. I read it once. I can read it again.

(Q Examines document) Okay. I've read it.

Q. My question is: Do you agree with that statement?

A. Frankly there is parts I don't understand what he's driving at, but there is parts that I agree with. "At this time after the evolution that result in this permit." I agree that -- Well, I part agree and part disagree. I agree that the landfills are not outfalls.

Q. I'm going to just break it down. Do you agree that seepage from the landfills are processed wastewaters?

A. There was a definition of processed wastewater in the 40 CFR. It is in my fact sheet and elsewhere.

Q. (MR. MOSER: Objection, calls for a legal conclusion.

A. I believe that seepage from landfills that are actively being added to may be considered processed wastewater, but my recollection of processed wastewater it says during manufacturing, and that caveat doesn't fit today's -- what's happening now with CFAC not operating.

Q. You would agree that there was never a request of CFAC to update the mixing zone study, correct?

A. Correct, by me that I know of. I have no authority to request additional information after the completeness determination has been made, correct?

Q. And do you know why there was never any request for additional information with regard to a water quality assessment?

A. No, we don't.

Q. No internal discussions or thoughts that you could ask for that information?

A. Since it isn't the route we took, I don't know if I agree or disagree. I don't know.

Q. The other question I have there is he mentions Superfund in there. How much did the involvement in this, you, as far as you know, never requested that information or that update from CFAC?

A. Correct.

Q. And under No. 2 on the second page, you don't need to read it out loud, but could you read that paragraph that starts, "Neither groundwater nor the landfills." Could you just read that to yourself. Tell me when you're done.

A. (Examines document) Just the paragraph starting with "Neither"?
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October 08, 2015
Christine Weaver

1. you made in the permitting?
   2. A. I might have been more careful to be
5. very articulate about what regulatorily I was
   4. doing.
   5. Q. Did it play a part at all in how you
   6. ultimately defined Outfall 006?
   7. A. I laid out options, in as much as I
   8. included consideration for the listing on my
9. evaluation. How did you exactly ask me?
   10. Q. Did the issue of Superfund and the
11. potential listing on the MPL, did that influence
12. your permitting decisions with regard to CFAC?
   13. A. It was a consideration. I don't think I
14. recall whether it influenced it. We kept our eyes
15. open. I don't remember it specifically
16. influencing one way or the other.
   17. (Whereupon, Deposition Exhibit No. 43
18. was marked for identification)
   19. Q. (BY MR. TIETZ) I'm going to hand you
20. what I've marked as Deposition Exhibit 43, and do
21. you recognize this document?
   22. A. I recognize it.
   23. Q. Did you produce this document then after
24. receiving the comments back on your draft fact
25. sheet?

1. A. I'm not sure. I say that because Tom
2. gave me an email on the 30th with a synopsis of
3. what he's saying, and I didn't get their comments
4. back until the 3rd. So I am not certain.
   5. Q. But this was contemplating having a
6. meeting on September 4th, 2013, yes?
   7. A. Yes.
   8. Q. And this would have been to your review
9. team?
   10. A. Yes.
   11. Q. So we talked a little bit about -- down
12. to No. 6, Mixing Zones, Chris Bow had concerns
13. with the 1998 mixing zone study, and we talked
14. about his concerns, correct?
   15. A. Yes.
   16. Q. And you say then, "We think they should
17. be required to update the mixing zone study during
18. the term of this permit for specific outfalls."
19. correct? Do you see that?
   20. A. Yes, I see that.
   21. Q. Why was that idea rejected?
   22. A. Frankly timing. This permit had been
23. expired 13 years at that point, I think. I'm not
24. sure. It had been expired a long time. And we
25. didn't think we'd get so much extra data it would

   1. revise or refine things, but we didn't think it
2. would be worth holding up for a year and a half
3. more.
   4. Q. The way the statement reads is,
5. "required to update the mixing zone study during
6. the term of this permit." So it seems that you
7. were contemplating the idea of creating a
8. condition in the permit to update the mixing zone
9. study over the five years of the permit, or during
10. the term of the permit, at which time it could be
11. reevaluated; would you agree with that reading?
   12. A. That's what it says. I don't remember
13. that discussion.
   14. Q. And then under surface water, you
15. propose a zero dilution for all except TRC, which
16. is what?
   17. A. Total residual chlorine.
   18. Q. And cyanide? It says, "Tom disagrees on
19. cyanide." Do you know, other than the comments
20. we've already talked about, anything else with
21. regard to Tom's disagreement with cyanide?
   22. A. No, just what we've talked about.
   23. Q. And then the last point under surface
24. water, Tom said, "No water quality assessment, so
25. no mixing zone." Do you have any idea where in
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1. Q. Just to make sure that the question is preserved, did you, under the authority of 17.30.506, request any information regarding mixing zone?

2. MR. MOSER: Objection, calls for a legal conclusion.

3. A. I'm looking through. Not expressly, no.

4. Q. There is a groundwater to surface water discussion, but that was not the focus of the questions.

5. (Whereupon, Deposition Exhibit No. 44 was marked for identification)

6. Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 44, and did you prepare this document?

7. A. Yes.

8. Q. This was for a discussion contemplated for October 24th, 2013, correct?


10. Q. Who was this document intended for?

11. A. Decision makers, but I don't know specifically. I don't remember.

12. Q. Under I guess Page 33, mixing zone, again, Tom's opinion was no acute mixing zone for cyanide. You state there that since you don't agree, you provided one percent due to cyanide degradation and other discussions from the 1998 mixing zone study; do you see that?

13. A. Yes.

14. Q. Why did you disagree with Tom on the no acute mixing zone for cyanide?

15. A. I know from the literature, I recall from the literature review, in 1998 they provided enough evidence for Tim Byron to proceed. But other than that, I think it was because I didn't have anything -- it is definitely a gray area, acute mixing zones, because cause and lethality is not good. I did not have anything, however, to demonstrate that one percent cyanide degradation and one percent dilution either way was going to cause acute or not cause acute lethality.

16. Q. So it seems that Tom was pretty adamant about his position of no mixing zone, and you were equally adamant about a mixing zone was appropriate; would that be accurate?

17. A. Strongly? Restate it one more time. I'm sorry.

18. Q. Did you strongly believe in the correctness of your position?

19. A. Not strongly, but I had to choose a side to move forward, and I felt there was justification to consider one percent.

20. Q. In the next box there down, "Mixing zone. Tom R's opinion is no water quality assessment, no mixing zone. This is not exactly a new mixing zone. They were provided one from the 1998 application." I guess what is your point there?

21. A. Well, I guess it is two fold. One is we would -- You'd asked me earlier about considering what was existing when you were moving forward, and I said we wouldn't just say yes, we'd be keeping that moving forward, but we would consider it.

22. The second thing, however, was that I didn't think the old mixing zone was as well developed as we do today. So I guess I was saying that there was sort of a mixing zone, so it is not brand new, but there was new considerations now.

23. Q. At the time that mixing zone was issued in 1998, can you help me understand the difference between the mixing zone as it was issued in 1998 compared to what you just said is different now?

24. What's different?

25. A. Well, the surface water mixing zone, I'm talking about -- The first thing that I could bring up is right now if there was -- let's pretend there was ammonia, which we as a Department have continually allowed a one percent dilution factor. The mixing zone for acute is normally 10 percent of the distance as a chronic. There wasn't that distinction in the 1998 fact sheet or 1999 permit.

26. The other large component is there was no review on what the mixing zone provided for dilution in order to calculate lethal potential and effluent limits, and there was a whole piece of the mixing zone that was missing. And I'm only talking surface water mixing zone here.

27. Q. But you would agree that you never asked CFAC to update that mixing zone study, correct?

28. A. Correct.

(Whereupon, Deposition Exhibit No. 45 was marked for identification)

29. Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 45. And if you turn to the second page, is that your handwriting on the top that says, "Old Draft October 2013"?

30. A. Yes.
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Q. And if you would turn to Page 7.
A. (Complies)
Q. So it looks like in this version,
Outfall 006 is not going to be permitted at all.
If you look at the Outfall 006, groundwater seeps
to Flathead River, "Outfall 006 is not being
renewed for the following reasons," correct?
A. Let me read through to make sure.
(Examines document) Yes, I would agree with you.
Q. And this was October 2013, so this would
have been incorporating all the comments that you
received that we've just talked about a few
minutes ago. Why do you know the change now to
eliminate Outfall 006?
A. I don't remember specific items.
Q. If you turn to Page 31.
A. (Complies)
Q. Under the groundwater mixing zone
discussion, bottom of the first paragraph, it
states that, "A source specific groundwater mixing
zone will only be granted after the applicant
demonstrates to DEQ that requested mixing zone
will comply with the requirements of ARM 17.30.506
and 17.30.507, and the provisions of 75-5-303,
MCA," correct?
A. Correct.
Q. And we've already talked about the 1998
statement of basis, and that at that time the
Department determined that in that application
that those conditions were met, correct? Those
were the findings of that document?
A. Yes.
Q. In fact, the next sentence says that
very thing, "CFAC provided required demonstration
as part of the previous permit renewal in 1998,"
yes?
A. Yes.
Q. So if you go on to the next page, you
talk about the four public water supply wells, and
this is new in this version as compared to the
prior versions. Can you explain what the purpose
of this discussion is?
A. I believe my review was trying to
demonstrate that no human health standards for
cyanide were ever exceeded. Part of the criteria
on the page before, "This is the criteria for
delineating the groundwater mixing zone is that no
existing drinking water supply wells are located
within the mixing zone, and the human health
standards for cyanide and chloride were not
exceeded." So I think I was first establishing
what wells were providing water, and then see if
they exceeded.
Q. And these you would agree are not
drinking water wells?
A. I don't agree with that. My
understanding was that they were for production,
but could be used at CFAC for drinking. But a
long time has passed.
Q. Was there ever a request for information
regarding the use of those wells as drinking
water?
A. I think I researched it, but I don't
remember. I know I looked. There was a state
data base, and I know that I did research on the
state data base for drinking water, just like we
have surface water information. Beyond what I
wrote, I don't remember.
Q. You note in the bottom of the next
paragraph that, "DEQ determined that the previous
groundwater mixing zone was improperly applied to
the entire facility, rather than applied to each
permitted discharge." Do you see that?
A. Yes.
Q. What's the basis for that determination?
A. This went to our request for the
specific outfalls in April 2013 for the updated
renewal application, and the fact that following
the definition of point source discharging
pollutants, as well as the definition of outfalls,
we determined that drawing a line around the
facility wasn't how we do business frankly. The
point sources were identified in 2013, and from
there we determined what were the mixing zones for
those sources.
Q. And we talked a little bit before, but
you would agree that CFAC's permit application
requested that the mixing zones be reissued as
they had been in the 1999 permit, correct?
A. I believe that is true, and I saw the
2003 reference, so I will say yes.
Q. And you would agree that these mixing
zones are not the same as the 1998 mixing zones,
correct?
A. The groundwater?
Q. The groundwater.
A. Correct.
Q. We bump over to Page 33 under the acute
mixing zone discussion, the handwritten note on
the left-hand side. Is that your handwriting?
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Q. And you note in the first sentence there, "Thank you for clarifying some of the potential remediation regulatory impacts from our Outfall 006 discussion." Do you see that?  
A. Yes.

Q. Can you enlighten me as to what those potential remediation regulatory impacts were that were clarified by Denise?  
A. I know I did a decision matrix, and it probably had to do with what would be -- what they would appeal, but I don't remember.

Q. (BY MR. TIETZ) I'm going to hand you (Whereupon, Deposition Exhibit No. 47 was marked for identification)  
Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 47.

A. That is my decision matrix.

Q. That's what I thought. So why did you generate this document?  
MR. MOSER: I'm sorry. Did you say that this had a number on it?  
MR. TIETZ: 47.

A. It became apparent by December of 2013, before then, that there was two related issues that weren't a clean fit with MPDES permitting as typically done. That was what is Outfall 006, and that is what is landfills. And simultaneously there was a whole Superfund thing unfolding at the same time, where there was negotiations, and discoveries. So essentially I was trying to lay out the different scenarios, since it wasn't a clean fit, and really try to flesh out how did it fit with our universe.

Q. (BY MR. TIETZ) Were you requested by someone to put this matrix together?  
A. No.

Q. Is this something that you did on your own volition?  
A. Yes.

Q. Had you had meetings prior to this time -- obviously you had some sort of meeting with Denise Martin prior to that, because the prior email Deposition Exhibit 46 was dated November 1, 2013, and your matrix was December 12, 2013. Were there meetings that you were involved in that discussed the interrelationship between Superfund and MPL listing and your permitting efforts?  
A. In that general time frame, yes. I couldn't tell you exactly when, but in that general time frame.

Q. And what kind of issues were discussed about the interrelationship between those things?  
A. The only specific is the term permit volume.
Q. But would you agree that ultimately Bob
A. I think so. It was an evolution.
Q. And you were involved in that decision?
A. Yes.
Q. And did you support that decision?
A. Correct.
Q. To affirm your decision; would that be
accurate?
A. Yes. Thank you.
Q. So just make sure I'm clear, they didn't
mandate to you, "You're going to do it this way;"
would that be accurate?

MR. MOSER: Objection, form of the
question.
Q. (BY MR. TIETZ) Go ahead.
A. They didn't mandate it. It was worked
out.
Q. And you did agree with it?
A. I agreed with it.

(Whereupon, Deposition Exhibit No. 48
was marked for identification)
Q. (BY MR. TIETZ) I'm going to hand you
what I've marked as Deposition Exhibit 48, and
this is an email that looks like it started with
an email from Steve Wright in December 18, 2013,
...
Q. (BY MR. TIETZ) So go ahead. And I'll just caveat that I don't want you to disclose what your legal Counsel told you.

A. No. I was just saying he was aware of the meeting for the fall version. As far as I knew, he hadn't been involved again, but I don't know these things. The supervisors would relate to the Legal. I wouldn't. Now I do, but at the time I did not.

So I was asking whatever was that change -- which you probably can tell between the fact sheets -- but I just didn't know.

Q. I guess if we -- the next fact sheet is in January 2014.

(Whereupon, Deposition Exhibit No. 49 was marked for identification)

Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 49, and that is a draft fact sheet that has a date of January 2014. Do you see that?

A. Yes. No day?

Q. No day. It just says January 2014. And this came from the disc of electronic documents that your Counsel gave to me, which was the first disc, and it was noted that it was last saved by you on January 9th, 2014.

A. Okay. Thank you.

Q. And so in this, if we look at Page 7, Outfall 006 is included as the groundwater seep to Flathead River, correct?

A. Yes.

Q. And that would be different from the last version we looked at in October, where Outfall 006 was eliminated. I point you to Page 7 of --

A. Correct.

Q. -- Deposition 45. So that would be one change, correct?

A. Yes.

Q. And then the other significant change, I would point you to Page 33 of 61.

A. (Examines document)

Q. Under the acute mixing zone, it is noted at the end of the second paragraph, "However, cyanide has not been demonstrated to naturally dissipate in the receiving water sufficiently to avoid acute effects. DEQ will not include an acute mixing zone for cyanide;" do you see that?

A. Yes.

Q. So that would be a significant difference as well?

A. Yes.

Q. So we've talked about a little bit of the inclusion of Outfall 006, and that you had some discussions with management and came to the conclusion that, yes, it should be included, correct?

A. Yes.

Q. But I note that in that description --

A. Page 8?

Q. Yes. Sorry. Back to Page 7 and rolling over to Page 8 with regard to Outfall 006 -- that there was no discussion of the landfills contributing to that discharge, correct? And you can take a minute to look at it.

A. (Examines document) Not in the active unstricken out part.

Q. And there is a whole section there that is lined out that discusses the various landfills, yes?

A. Yes.

Q. Why was the landfill discussion and identification in Outfall 006 completely removed?

A. I can tell you in general, not from this specific document, but because we determined they couldn't be considered point sources, but Outfall 006 should be included because it was a discharge to surface water.

Q. Do you know why there wasn't an explanation like that as to why the landfills weren't included? Did that question make sense to you? It didn't to me.

A. I actually did understand that.

Q. Let me ask you different way so I'm clear in my own mind. So this doesn't contain any mention of the landfills. Why didn't you include an explanation as to why the landfills were completely eliminated from Outfall 006?

A. I'm assuming Page 5 discussing the point source discharging pollutants discussion, but I'm looking through, so hold on a minute, please.

(Examines document)

The closest explanation I see so far is Page 19 where we were discussing for the TBEL aspect, which is where we break out what the point sources are, that it says, "Except for the contaminated groundwater, all potential point sources discharging pollutants which contribute to the groundwater seep have appropriate TBELs developed at the immediate site of the discharge."
Q. And did you see additional data in this time between October and January that changed your mind or led you down a different path?
A. I don't remember. Is that two questions, whether some was available to me or whether I looked at it? I don't think there was any additional data, but I don't know if I suddenly looked at something old.
Q. I'm just trying to understand why you went all along through the entire permitting process for many months, with Tom Reid pushing on one side, and you're disagreeing with him; then really suddenly -- at least in what I can see -- with virtually no explanation, no mixing zone.
A. I don't think I have anything to add.
Q. Given your statement here that it has not been demonstrated to naturally dissipate, is this -- in essence are you saying that it is persistent?
A. I think I want to look at the definition of persistence, if we're going to be using that.
Q. Well, I'm just asking --
A. Or just in a more real person, layman's terms?
Q. And that I guess goes back to why we had the discussion previously about the definition of persistence, and what definition you're applying, because it appears in this that you are making a determination that it is persistent, and therefore a mixing zone is not allowed, without really articulating to me what your definition of persistence is, or how you apply the definition of persistence in this permit.
A. So what question exactly do you want me to get at? I know this is not a yes/no.
Q. I guess I'm going to go back to the discussion we had before, because of the direct application here. What definition of persistence did you use in making this decision?
A. I don't believe it was that clear cut that I used a definition of persistence.
Q. A couple paragraphs down, you note that, "DEQ will grant 150 acute surface water mixing zone for parameters that are known to naturally dissipate in the receiving water, ammonia and TRC," correct?
A. Correct.
Q. And how are those known to naturally dissipate?
A. By people in the Department, and not me,
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C. A. Not an edict. I don't remember being
told, "This is what we're doing," more discussions
on what's the right thing.
Q. Who were those discussions with?
A. I believe Paul Skubinna.
Q. Was it Paul's opinion that an acute
surface water mixing zone for cyanide should not
be granted?
A. I don't remember.
Q. Do you remember in those discussions
between October 2013 and January 2014 who was
advocating to not grant an acute surface water mixing zone for cyanide?
A. No. I don't even know if that time
frame Tom Reid was involved anymore. I don't
remember.
Q. I'm just trying to understand what
convinced you to change your mind.
A. The one final thing is I start thinking
about where it's discharging to, and the outfall
development. So it didn't make it in the fact
sheet because it was one of those internal
decisions.
Q. With respect to the water quality
standards or the water quality based effluent
limits, those limits, the compliance point as we
discussed that term earlier, could be at the end
of the mixing zone, couldn't it?
A. For surface water permits, we always
back calculate. You have to be careful. But you
back calculate effluent limits and then the
compliance point at the outfall, the last point of
control, in order to ensure that the standards are
met at the end of the mixing zone. So we'll have
monitoring sometimes that's for informational
purposes, etc., but the compliance point

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1 monitoring to determine compliance with effluent limits back up to their pipe, if you will.
2 Q.  And I know I've asked this in different ways, but why was the decision made just to eliminate the mixing zone, and not request additional information, or request monitoring in the mixing zone to evaluate the effectiveness of the mixing zone?
3 A.  Well, I don't usually work that way.
4 The main reason is when we go through our evaluation with the data we have, and the best that we can get at the time, we calculate the potential to exceed based on conservative assumptions, and those are set forth in the TSC, and develop limits to protect the standards, given available dilution from the approved mixing zone.  So what's really happening out there is ancillary to our permit development somewhat.
5 Q.  You have to expand on what you mean by that.
6 A.  If they were exceeding at RIVM at the end of their mixing zone --
7 Q.  That's the end of the chronic mixing zone, is my understanding?
8 A.  Anyway, let's pretend -- just my point forth things that we would evaluate, but "may"
9 is that we wouldn't -- Then they would be out of compliance with their effluent limits.  We've done something wrong in our analysis if they exceed it, but we wouldn't be changing the mixing zone boundaries now to meet that.  I can't see a reason we would ask them to resample downstream to show compliance or to show the permit numbers are right.  We use upstream data, we use their effluent data, we would use the standard, and we calculate out what could be allowed.
10 What really happens in real life would be compliance monitoring type things, or I guess an environmental group or something.
11 Q.  I guess I'm not tracking there.
12 A.  In order to develop a permit, our assumptions are based to protect the water quality for acute or chronic, two simultaneous reviews; and the parameters we look at is what contribution upstream has.  So is there cyanide in the water coming past where the facility's discharging, and if so, how much?  Is it over the standard or not?
13 Then we calculate, based on assimilative capacity, whether or not the discharge, there is room in the discharge to allot any discharge above the standards themselves.  We do a mass balance.

---

1 So we wouldn't change things based on new data for what's happening downstream for permit development.
2 Q.  You note that cyanide has not been demonstrated to naturally dissipate in the receiving water sufficiently to avoid acute effects, correct?
3 A.  Correct.
4 Q.  So where does DEQ find its authority to require CFAC or an applicant to demonstrate that the contaminant would naturally dissipate in the receiving water?
5 MR. MOSER: Objection, calls for a legal conclusion.
6 THE WITNESS: Could you repeat the question so I'll be sure to answer correctly?
7 Q.  (BY MR. TIETZ) I'm asking if you know where in the rules DEQ gets the authority to require a showing that a contaminant will naturally dissipate in the receiving waters?
8 MR. MOSER: Objection, calls for a legal conclusion.
9 A.  The fact that Subchapter 5 says the Department may approve mixing zones, and it sets forth things that we would evaluate, but "may" stands out. And the fact in the TSD, when it talks about granting mixing zones, acute mixing zones, there is some factors to consider, and one of which is the length of time that the biota -- some of them can't swim out. They're passive. They'll just float through. They're passive, and they would just float through, and there is a recommended 15 minutes time exposed to acute toxicity, levels that are with the standards considered acute.
10 I guess the TSD isn't our rule, but it's our protocol. It goes back to the Subchapter 5. We may consider mixing zones.
11 Q.  So given that DEQ never asked CFAC for such a demonstration, how is it appropriate to deny the requested mixing zone when the information was never requested?
12 MR. MOSER: Objection, calls for a legal conclusion. Go ahead and answer if you can.
13 A.  I don't really have an answer. Maybe it isn't.
14 MR. TIETZ: Why don't we take a break.
15 (Recess taken)
16 (Whereupon, Deposition Exhibit No. 50 was marked for identification)
Q.  (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 50, and this was an email from you to Paul Skubinna noting that you had incorporated the final changes in the fact sheet and it is done. And you say, "Once management gives me the green light, I'll prepare the final draft permit and PN --" which is public notice?

A. Yes.

Q. " -- package for the 45 day public comment." The question there just really is: Who in management would be doing that final review giving you the green light?

A. Paul essentially. At that time he was back as Section Supervisor. In fact, he was since I think May. I would assume an issue this size, he would also clear it through Bob Habeck, who was at that time, he was one year acting Bureau Chief.

Q. And it looks like Paul was pretty pleased with your efforts on that permit.

A. Yes.

Q. Were there changes made, do you recall, after the January, that final permit? Based on the final review, were there changes made?

A. I know there was because I've seen other fact sheets, but I don't recall what they are.

(Whereupon, Deposition Exhibit No. 51 was marked for identification)

Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 51, and that is from my understanding the final permit.

A. Final fact sheet.

Q. Thank you. Final fact sheet. And I just ask you to turn to Page 29 -- Well, actually 31. I guess I just wanted to point out one change that was made between the two. So do you have the January 2014 fact sheet which we had marked as Exhibit 49, and the final which we've marked as Exhibit 51?

A. Yes.

Q. So Page 33 on the January 2014 draft, and Page 31 of the final fact sheet, February 2014, in the middle of the second paragraph.

A. The "DEQ granted a cyanide acute" paragraph?

Q. "DEQ granted a cyanide acute," yes. So the last sentence, I guess let's go to the January first, the same sentence, "However, cyanide has not been demonstrated to naturally dissipate;" do you see that?

A. Yes.

Q. Do you recall if that was your change or if that was a change management made on it?

A. I don't remember now, no.

Q. Do you recall if that was your change or if that was a change management made on it?

A. I physically would have been the one changing it. I don't remember the decision to change it.

Q. Make that change. Okay.

Q. And it purports June 2014?

A. Yes.

Q. And it purports June 2014?

A. Yes.

Q. Which would have been well after the actual issuance. Do you recognize the mark that says, "I can't deliver," that's a RR mark-up or --

A. It's RTC and response to comments mark-up.

Q. What does that mean?

A. I took a clean copy of the fact sheet, and there was a number of comments, so I went through to see what parts it would effect after the public notice closed.

Q. So the comments that are handwritten notes; do you see those?

A. Yes.

Q. Make that change. Okay.

Q. Do you know how that change evolved?

A. I don't remember.

Q. Do you know how that change evolved?

A. I don't remember.

Q. Do you recall if that was your change or if that was a change management made on it?

A. I don't remember now, no.

Q. Do you recall if that was your change or if that was a change management made on it?

A. I physically would have been the one changing it. I don't remember the decision to change it.
A. Yes, I wrote it.

Q. But you did receive their comments?

A. I recognize them as CFAC's comments. I can't remember when and how I got these specific ones. I can't remember the context that I had received them.

Q. But you did receive their comments?

A. Yes.
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1. That you started drafting the response and what
2. you finally issue?
3. A. It is not linear. I would have to look
4. at the specific ones. Normally speaking, I would
5. accumulate the team, I would accumulate their
6. comments on my Response to Comments, agree with
7. what I agree with, disagree with what I disagree
8. with, just basically move one step, and then you
9. would have another Response to Comments.
10. In this case, it was complicated enough,
11. it probably went around again, but usually at that
12. point you go forward and give it to your
13. supervisor.
14. Q. So these were comments then that at
15. least from CFAC's point of view you responded to,
16. correct, in your Response to Comments?
17. A. No. 1 and No. 2 sure look like it. Can
18. I say this appears to be --
19. Q. Yes.
20. A. Without going through --
21. Q. I'll purport I copied it directly from
22. the submittal that I have a copy of. And then
23. with respect to Deposition Exhibit 55, which was
24. Exhibit 4 to CFAC's Response to Comments, do you
25. recall seeing this analytical?

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1. that be accurate, based on the information that
2. CFAC produced?
3. A. That's where it sounds like I was at.
4. Q. Do you recall that?
5. A. I recognize this, and it was mine. But
6. no, I don't recall the specifics. I'm sorry.
7. Q. So you did review information that CFAC
8. submitted, correct?
10. Q. And at least by indication of your
11. comment, you felt that the material presented had
12. some strength to it?
13. A. From my review, yes.
14. Q. Do you recall, who were these comments
15. intended for?
16. A. I don't know. I'm surprised I don't
17. have an email with it. I don't know.
18. Q. That was one of the issues -- not an
19. issue -- but when I pulled them off of the disc,
20. it was just a bare document, so the context of its
21. being sent was not there. Any ideas you would
22. have been -- You're saying you're seeking
23. guidance. Who would you be seeking guidance from?
24. A. My guess would be the team, again the
25. permit writers that were my review team, and Tom
Q. And then Paul. But so much time had elapsed. I'm thinking I was reminding people what had happened, but I don't know.

A. No. I'm sorry.

Q. (BY MR. TIETZ) I'm going to hand you what I've marked as Deposition Exhibit 57, and ask you to turn to Page 3.

A. No. I don't.

Q. Did you ever get any further assistance from them with respect to cyanide?

A. They have always been receptive. I assume so, but I don't remember anything specific.

Q. Any other further comments from Chris Bow?

A. I don't believe in writing.

Q. Did you have discussions with him about this issue during the development of the Response to Comments?

A. I don't remember.

Q. How active was Tom in developing the Response to Comments?

A. I don't remember that either.

Q. You don't remember if he provided you with written comments, or you talked to him about it, or any interaction you had with Tom with respect to these? These being the Response to Comments?

A. No, I don't.

Q. (WHEREUPON, DEPOSITION EXHIBIT NO. 59 was marked for identification) (Whereupon, Deposition Exhibit No. 59 was marked for identification) (Whereupon, Deposition Exhibit No. 59 was marked for identification) (Whereupon, Deposition Exhibit No. 59 was marked for identification)

A. Let me read through this. It might refresh my Memory. (Examines document) No, I don't.

Q. Do you recall if you drafted that, or did somebody provide that to you as a comment, or any recollection of how that played out?

A. No recollection, but it has my writing style, meaning I believe I drafted it.

Q. And then I'll ask you to turn to Page 8.

A. (Complies)
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Q.   And in seeing those results now,
A.   Yes.
Q.   But you have seen those results before?
A.   No, I did not see this document.
Q.   That was a document that was created
by --
A.   Not tabulated like this.
Q.   Are those the results before?
A.   After -- During the Response to Comments
or after the Response the Comments, I did see
some.
Q.   This was Deposition Exhibit 26. I'm not
sure whose deposition that was in. Have you seen
that? Are those the results before?
A.   It alleviates concern that fathead
minnows or ceriodaphnia are killed, and to the
point that they are representative of other
species, it is assuring. It is good news. But it
is not certain if I had this, if I'd say that is
enough to show that the acute zone was defensible.
Q.   What would be required to make that
showing, in your mind?
A.   We did it a different way, so that's
hard for me to answer. Again, we try to prevent
problems from happening by looking at acute and
chronic at the same time, conditions based on the
background and the effluent; we do the worst case
scenario that's based on the TSD, and develop
limits to protect. So we don't want to see these
say fail. Put it that way.
Q.   My question is: In your final Response
to Comments -- and I think that we have that.
(Whereupon, Deposition Exhibit No. 60
was marked for identification)
A.   It alleviates concern that fathead
minnows or ceriodaphnia are killed, and to the
point that they are representative of other
species, it is assuring. It is good news. But it
is not certain if I had this, if I'd say that is
enough to show that the acute zone was defensible.
Q.   What would be required to make that
showing, in your mind?
A.   We did it a different way, so that's
hard for me to answer. Again, we try to prevent
problems from happening by looking at acute and
chronic at the same time, conditions based on the
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scenario that's based on the TSD, and develop
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species, it is assuring. It is good news. But it
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enough to show that the acute zone was defensible.
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hard for me to answer. Again, we try to prevent
problems from happening by looking at acute and
chronic at the same time, conditions based on the
background and the effluent; we do the worst case
scenario that's based on the TSD, and develop
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say fail. Put it that way.
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to Comments -- and I think that we have that.
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is not certain if I had this, if I'd say that is
enough to show that the acute zone was defensible.
Q.   What would be required to make that
showing, in your mind?
A.   We did it a different way, so that's
hard for me to answer. Again, we try to prevent
problems from happening by looking at acute and
chronic at the same time, conditions based on the
background and the effluent; we do the worst case
scenario that's based on the TSD, and develop
limits to protect. So we don't want to see these
say fail. Put it that way.
Q.   My question is: In your final Response
to Comments -- and I think that we have that.
(Whereupon, Deposition Exhibit No. 60
was marked for identification)
and issued a mixing zone in 1999, and requested
continuance of that mixing zone, those mixing
zones, in the 2003 application and the 2013
update, how was CFAC to show that they needed to
provide this kind of biological data to support
those mixing zones that had already been granted?
A. I would think perhaps that their
consultants may recommend an updated study, but I
don't know.
Q. The Department never told them they
needed to provide this additional data, and it
wasn't part of your letter in May 2nd, 2013, so
I'm just trying to understand what CFAC could have
done to have the Department consider a mixing
zone, the granting, continuation of the acute
surface water mixing zone for cyanide.
A. There isn't a definitive answer. I
don't know.
Q. This seems to be a post hoc
rationalization for a decision that was made;
would you agree?
MR. MOSER: Objection, calls for a legal
conclusion.
Q. (BY MR. TIETZ) You can answer.
A. A post hoc?

Q. After the fact explanation for a
decision that was made.
A. It was trying to articulate to a
Response to Comments, and a tangible reason why
when multiple layers of this isn't working.
Q. Initially we had talked about your
comment there that the information supplied by
CFAC was actually stronger than the 1998 mixing
zone study; but then at the end of the day we end
up with a lack of biological data. What happened
in that process? How did we end up there?
A. The extra data they gave, or that I
read, was more trying to go through official
avenues rather than CFAC specific. I was with my
limited knowledge of cyanide -- I told you I'm a
layman. I know very basic. Reading it, it made
sense, but whether that cyanide data was enough to
condemn that the 1998 mixing zone application was
correct, I'm not so sure.
Q. But you also agree that you did not ask
anybody in Water Standards or any of the other
experts within your own Department to help you
with that evaluation; would that be correct?
A. Correct.
(Whereupon, Deposition Exhibit No. 61
was marked for identification)
Q. (BY MR. TIETZ) I'm going to hand you
what I've marked as Deposition Exhibit 61. These
are the DEQ's Response to CFAC's First Discovery
Requests. Did you have assistance in preparing
these responses?
A. Yes.
Q. Did you draft some or most of these?
A. I drafted at least some. I had my input
on all of them. I can't remember whether I
drafted some or most.
Q. I just have some questions about some of
the statements in some of the responses, and first
would be in response to Interrogatory No. 5, and
direct you to Page 8.
A. Let me read this Interrogatory first.
(Examines document) Okay.
Q. And the last sentence there says, "DEQ
notes that mixing zones are used for dilution and
not for treatment;" do you see that?
A. Yes.
Q. We had quite a bit of discussion
regarding cyanide and ammonia, and throughout
statements were that the reason a mixing zone was
appropriate for ammonia was because it dissipated
in surface water, correct?
A. Correct.
Q. Why is that not, under this definition,
treatment?
A. It's more a recognition that in
calculating the acute conditions between the
outfall and the mixed receiving water body, at
least ammonia we know will dissipate naturally,
and it will be less than what we're accounting
for. I'm not entirely sure what -- I think we
didn't capture well that cyanide decay mechanisms
were more complicated, and not necessarily good
first order rate of decay.
Q. But because of that first order rate of
decay that you have, the Department has made an
institutional decision that is appropriate for a
mixing zone. Under this statement, isn't that
treatment?
A. I never considered that one way or the
other.
MR. MOSER: I'm going to object to the
extent that it calls for a legal conclusion.
A. There is a lot of gray area. Would
ammonia being decaying considered treatment when
you're just assigning an acute mixing zone? 
Columbia Falls Aluminum Company's (CFAC) Appeal

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Q.   DEQ did make that determination in the
4.   water zone; do you see that?
20.  would not threaten or impair existing beneficial
8.   levels of cyanide discharged from Outfall 006
6.   water body at a level higher than the aquatic life
2.   it's below? Isn't that the fundamental point of a
14.  mixing zone?
18.  for the permittee.
31. A.   Yes.
30. A.   That is correct.
29. Q.   A little further down, you note that,
28. "The mixing zone study did not address other fish
27. species that can be found in the Flathead River;"
26. do you see that?
25. A.   Yes.
24. Q.   At no time either in the 1998/1999
23. permitting effort, or the 2003 or 2013 permitting
22. effort, did DEQ ever require CFAC to perform any
21. testing to address other fish species, or to
20. address -- strike that.
19. Q.   At no time either in the 1998/1999
18. permitting effort, or the 2003 or 2013 permitting
17. effort, did DEQ ever require CFAC to perform any
16. testing to address other fish species, or to
15. address -- strike that.
14. Q.   At no time either in the 1998/1999
13. permitting effort, or the 2003 or 2013 permitting
12. effort, did DEQ ever require CFAC to perform any
11. testing to address other fish species, or to
10. address -- strike that.
9. Q.   At no time either in the 1998/1999
8. permitting effort, or the 2003 or 2013 permitting
7. effort, did DEQ ever require CFAC to perform any
6. testing to address other fish species, or to
5. address -- strike that.
4. Q.   At no time either in the 1998/1999
3. permitting effort, or the 2003 or 2013 permitting
2. effort, did DEQ ever require CFAC to perform any
1. testing to address other fish species, or to
0. address -- strike that.
14. A.   We did not.
13. Q.   If we go to Interrogatory No. 9, the
12. answer about two thirds of the way down. "In
11. preparing the 2014 MPDES permit, DEQ was not aware
10. of any historical information that shows no
9. observed impacts to the Flathead River from CFAC,"
8. correct?
7. A.   Correct.
6. Q.   Does DEQ have any historical information
5. that does show impacts to the Flathead River from
4. CFAC's discharges?
3. A.   Yes, in that impairment and impacts
2. include elevated concentrations of pollutants over
1. the standards.
22. Q.   I think so. I'm not a monitoring TMDL
21. person.
20. A.   I think so. I'm not a monitoring TMDL
19. person.
18. Q.   And then in Interrogatory No. 13 on Page
17. 14, the answer there states, "DEQ has several
16. process, or the 2003 through 2013 permitting
15. process, or the 2003 through 2013 permitting
14. process, or the 2003 through 2013 permitting
13. process, or the 2003 through 2013 permitting
12. process, or the 2003 through 2013 permitting
11. process, or the 2003 through 2013 permitting
10. process, or the 2003 through 2013 permitting
9. process, or the 2003 through 2013 permitting
8. process, or the 2003 through 2013 permitting
7. process, or the 2003 through 2013 permitting
6. process, or the 2003 through 2013 permitting
5. process, or the 2003 through 2013 permitting
4. process, or the 2003 through 2013 permitting
3. process, or the 2003 through 2013 permitting
2. process, or the 2003 through 2013 permitting
1. process, or the 2003 through 2013 permitting

Q. But impairment of a use as a fishery or
the rules, because as you know, they are all
linked. I don't know.

A. I would have to go back and string along
the rules, because as you know, they are all
linked. I don't know.

Q. But impairment of a use as a fishery or
recreation is different than just a contaminant in
the water, correct? That's different?

A. Can be cause and effect. Could be -- I
can't answer that. The beneficial uses impairment
could result from an impairment due to parameters
exceeding standards.

Q. To the best of your knowledge, is that
the first time that DEQ has provided those SOP's
or notified CFAC of the existence of those SOP's?

A. I don't know of any active notifications
that DEQ made.

Q. Are you aware of any evidence that they
have one copy of that. And this is DEQ's
responses to CFAC's Second Set of Discovery
Requests. In Response to Interrogatory No. 17, on
Page 2 and running over to Page 3, the question
was whether or not DEQ is asserting that CFAC's
discharges to the Flathead River are causing
impairment to existing or anticipated uses, and
the basis of that assertion.

A. The statement in that 1998 fact sheet
was marked for identification.

Q. (BY MR. TIETZ) I'm going to hand you
what I've marked as Deposition Exhibit 62. I only
have one copy of that. And this is DEQ's

Q. Exhibit 29.

A. Yes. Do you know what number it is?

Q. Let's look at it.
The study that was done.

A. Yes. Correct.

Q. Are you aware of any evidence that they
are in fact causing impairment to the existing or
anticipated beneficial uses?

A. As we discussed earlier, if you consider
impairment -- which is defined in the MCA as
exceeding standards -- yes. If you're discussing
impairment in beneficial uses, as in do I know if
there has been a fish kill, or people can't use it
for recreation, no, I don't know.

Q. And the impairment to existing and
anticipated beneficial uses is different than just
impairment to the water body, correct?

A. I would have to go back and string along
the rules, because as you know, they are all
linked. I don't know.

Q. But impairment of a use as a fishery or
impairment to the water body, correct?

A. Correct.

Q. As with the other question, those
discharges of concentrations that exceeded the
acute chronic water quality standards were all
discharged into an MPDES permitted mixing zone,
correct?

A. Yes.

Q. Under the Request for Admissions,
Request for Admission No. 13 where it states, "DEQ
admits that it made a finding, in issuing the 1999
MPDES permit in granting a mixing zone, that the
existing aquatic life use and fish migration would
not be inhibited. DEQ denies that it made a
specific finding in issuing the 1999 MPDES permit
in granting a mixing zone that CFAC's discharges
did not threaten or impair other existing or
anticipated beneficial uses." Did I read that
correctly?

A. Yes.

Q. What's the basis for making a statement
that the Department did not make such a finding?

A. The statement in that 1998 fact sheet
very specifically addressed fish migration and the
study that was done.

Q. Let's look at it.

A. Yes. Do you know what number it is?

Q. Exhibit 29.

A. (Examines document)

Q. Page 14 is the acute aquatic life
standard not exceeded.

A. Let me read your question.

Q. Yes.
A. I would argue that Table 12 also has some relevant data, but the specific thing we're discussing is Table 13.

Q. Yes.

A. And the sentence -- there's several specific -- Let me back up. There is one very specific statement, "acute standards are exceeded." Skip ahead. There is another strong statement, "The portion of the Flathead River in question is a fish migration route only. The area exceeding the acute cyanide standard exceeds length XY. This limited extent will not inhibit fish migration." Those are very clear, concise. That seems to be a strong finding.

"In between linked" is a, I would argue, rather weak -- "Propagation of aquatic life is the existing beneficial use conceivably affected by the cyanide concentration." We're arguing that in reviewing this, we don't think in 1998 that he really found that no other specific beneficial uses for acute aquatic life standards were impacted.

Q. Have you read the -- I think you said earlier Lloyd's is the only expert report that you reviewed. You didn't read Stagliano's?

A. I skimmed some of it. I give you he's a fish expert, so I was not going to go studying his --

Q. But you would agree that the Department did make a finding with regard to that at that time. Whether you agree with it now or not is a secondary question. But that was the finding in 1998, correct?

A. Let me read it one more time.

Q. Let me ask you this different question then. If you look at the table -- Table 13?

Q. Yes, and the applicable regulation is ARM 17.30.507(1)(b), "Acute aquatic life standards not exceeded with any portion of the mixing zone unless the Department specifically finds that allowing minimal initial mixing will not threaten or impair existing beneficial uses," correct?

A. That appears to be a summary. I'm not sure if it's verbatim from 507.

Q. Agreed, but I'm just reading what is stated in the table.

A. Yes.

Q. And that this finding, and in issuing the permit, the Department was finding that CFAC had met this burden; would you agree?

MR. MOSER: Objection, calls for a legal conclusion.

A. I would assume he must have since he issued the permit.

MR. TIEraz: The pile is complete. I just need to determine if I asked you all the questions I need to ask. Let's take a ten minute break here, let me regroup, and see if I've got anything else.

(Recess taken)

MR. TIEraz: I don't have any more questions for you today. I thank you for your being a trooper for this. I am going to reserve my right -- As Counsel and I have just spoken, we have a discovery dispute regarding some documents that could potentially involve further testimony on your behalf, and so I'm reserving my right at this point, pending the resolution of that discovery dispute. If additional documents are produced that relate to your testimony, then I have the right to have you come back and answer questions with respect to those particular documents.
CERTIFICATE OF WITNESS

PAGE       LINE       CORRECTION

I, CHRISTINE WEAVER, have read the foregoing transcript of my testimony and believe the same to be true, except for the corrections noted above. DATED this day of , 2015.

Deponent

CERTIFICATE

STATE OF MONTANA )
COUNTY OF LEWIS AND CLARK )
I, LAURIE CRUTCHER, RPR, Court Reporter, Notary Public in and for the County of Lewis and Clark, State of Montana, do hereby certify:
That the witness in the foregoing deposition was first duly sworn by me to testify the truth, the whole truth, and nothing but the truth in the foregoing cause; that the deposition was then taken before me at the time and place herein named; that the deposition was reported by me in shorthand and transcribed using computer-aided transcription, and that the foregoing -182- pages contain a true record of the testimony of the witness to the best of my ability.
IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal this day of , 2015.

LAURIE CRUTCHER, RPR
Court Reporter - Notary Public
My commission expires March 12, 2016.
EXHIBIT 18
BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

IN THE MATTER OF:
COLUMBIA FALLS ALUMINUM COMPANY’S (CFAC) APPEAL OF DEQ’S MODIFICATIONS OF MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT NO. MT0030066, COLUMBIA FALLS, FLATHEAD COUNTY, MT. )

) Case No.: BER 2014-06 WQ DEQ’S RESPONSES TO CFAC’S SECOND SET OF DISCOVERY REQUESTS

COMES NOW the Montana Department of Environmental Quality (“DEQ”), through counsel, and submits the following responses to Appellant Columbia Falls Aluminum Company’s (“CFAC”) Second Set of Discovery Requests:

GENERAL OBJECTIONS

1. DEQ objects to these Requests to the extent they seek to require DEQ to produce documents not in DEQ’s care, custody, or control or to answer on behalf of other parties.
2. DEQ objects to these Requests to the extent they seek to require DEQ to produce documents or other information protected from disclosure by the attorney-client privilege, the attorney work product doctrine, or any other privilege or doctrine.

3. DEQ objects to the definition of seeps that has been provided in these Discovery Requests. DEQ's responses using the word seep or seeps are based upon the common understanding of the terms and the context of how those terms have been used in the history of MPDES Permit No. MT0030066 through the issuance of the new permit on July 25, 2014.

These Requests for Admission, Interrogatories, and Requests for Production are answered subject to and without waiving these general objections, which are incorporated in the below answers and responses.

**INTERROGATORIES**

**INTERROGATORY NO. 17:** Please state whether MDEQ is asserting that CFAC's discharges to the Flathead River are causing impairment to existing or anticipated uses, and the basis for that assertion.

**ANSWER:** DEQ objects to this Interrogatory because the term “asserting” is vague and ambiguous as used in the context of issuing an MPDES Permit. Without waiving the foregoing objections, and in respect thereof, based upon the information provided to DEQ during the application process as well as monitoring information provided to DEQ through CFAC's Discharge Monitoring Reports, DEQ determined that CFAC's discharges to the Flathead River have the reasonable potential to cause or contribute to in-stream exceedances of water quality standards. Based upon these findings, DEQ then set permit limits to prevent such exceedances. Discharges that cause or contribute to exceedances of water quality standards may cause impairment to existing or anticipated uses. These findings and the resulting permit limitations are
contained within the 2014 Fact Sheet, the 2014 Response to Comments, and the 2014 MPDES Permit.

Additionally, CFAC’s historic monitoring data (1999-2014) demonstrates that the Flathead River has exceeded aquatic life standards found in Circular DEQ-7, i.e., 5.2 μg/L total cyanide (chronic) and 22 μg/L total cyanide (acute). Measured concentrations of total cyanide from CFAC’s RIV-2 monitoring point exceeded chronic water quality standards 18 out of 30 samples taken and acute water quality standards 13 out of 30 samples taken. The average measured cyanide concentrations at RIV-2 over this time period was 68 μg/L, well over both chronic and acute water quality standards.

CFAC’s discharges through the ground water seeps are also known to contain cyanide and CFAC has measured total cyanide concentrations as follows:

- 1999-Permit cycle 170 μg/L maximum and 100 μg/L average for 22 samples (2013 CFAC Application, form 2E data from 1999-2001), and
- 2014-Permit cycle 420 μg/L maximum and 278 μg/L average for 9 samples (based upon ICIS data November 2014 – July 2015).

Since CFAC has discharged elevated concentrations of cyanide and this segment of the Flathead River has documented exceedances of the cyanide acute and chronic water quality standards, CFAC’s discharges are likely causing impairment to existing or anticipated beneficial uses.

**INTERROGATORY NO. 18:** If any of the MDEQ’s responses to Request for Admissions No. 3 through 34 are anything other than an unconditional admission, please state the basis for the response.

**ANSWER:**

*Request for Admission No. 3: Please see Response to Request for Admission No. 3.*

*Request for Admission No. 4: Please see Response to Request for Admission No. 4.*

*Request for Admission No. 7: Please see Response to Request for Admission No. 7.*
Request for Admission No. 10: Please see Response to Request for Admission No. 10.
Request for Admission No. 11: Please see Response to Request for Admission No. 11.
Request for Admission No. 12: Please see Response to Request for Admission No. 12.
Request for Admission No. 13: Please see Response to Request for Admission No. 13.
Request for Admission No. 16: Please see Response to Request for Admission No. 16.
Request for Admission No. 17: Please see Response to Request for Admission No. 17.
Request for Admission No. 19: Please see Response to Request for Admission No. 19.
Request for Admission No. 21: Please see Response to Request for Admission No. 21.
Request for Admission No. 22: Please see Response to Request for Admission No. 22.

INTERROGATORY NO. 19: Identify (by name, address, and home number) all witnesses that MDEQ intends to call at hearing in this matter. As to each state the substance of the testimony anticipated and the documents upon which they will rely.

ANSWER:

1. Christine Weaver; Lee Metcalf Bldg., P.O. Box 200901, Helena, MT 59620-0901; 406-444-3927

Ms. Weaver is the DEQ permit writer in this matter and will provide testimony regarding her decision-making process in evaluating CFAC’s MPDES Permit Application and in writing the renewal of MPDES Permit No. MT0030066, issued July 25, 2014. DEQ has not determined the documents upon which this witness may rely with the exception of the following documents:

a. 2014 MPDES Permit No. MT-0030066 (dated July 25, 2014);
b. 2014 MPDES Permit No. MT-0030066 Response to Comments (dated July 25, 2014);
c. 2014 MPDES Permit No. MT-0030066 Fact Sheet (dated February 2014);
d. Attachment A. Application for Groundwater and Surface Water Mixing Zones (August 1998);
e. Email Douglas Parker (Hydrometrics) to Christine Weaver (DEQ) & Steve Wright (CFAC), dated August 8, 2013 w/attachment and email chain;
f. Email Douglas Parker to Christine Weaver, dated August 7, 2013 (1:11 P.M.), w/ attachment and email chain;
g. Email Douglas Parker to Christine Weaver, dated August 7, 2013 (3:56 P.M.), w/attachments and email chain;
h. Email Douglas Parker to Christine Weaver, dated August 5, 2013 (2:29 P.M.), with attachment and email chain;
i. Email Douglas Parker to Christine Weaver, dated August 5, 2013 (9:57 A.M.), with attachments;
j. CFAC Updated Renewal Application, dated Jul 26, 2013;
k. Christine Weaver Letter to Steven Wright, dated May 2, 2013 w/ Attachment # 1 (flow chart);
m. CFAC’s July 2003 MPDES Renewal Application (Excerpts);
n. 1999 CFAC MPDES Permit No.: MT-0030066 (Effective February 1, 1999); and
o. 1999 Statement of Basis for MPDES Permit No. MT-0030066 (dated November 12, 1998).

DEQ will supplement this answer as necessary and in accordance with the Scheduling Order;

2. Dr. Jon Kenning; Lee Metcalf Bldg., P.O. Box 200901, Helena, MT 59620-0901; 406-444-0420

Dr. Jon Kenning is the DEQ Water Protection Bureau Chief. Dr. Kenning reviewed and approved DEQ’s renewal of MPDES Permit No. MT0030066. Dr. Kenning will provide testimony regarding his review and approval of the MPDES Permit.

DEQ has not determined the documents upon which this witness will rely, with the exception of the 2014 MPDES Permit (dated July 25, 2014), the associated Response to Comments (dated July 25, 2014), and the Fact Sheet (dated February 2014). DEQ will supplement this answer as necessary and in accordance with the Scheduling Order.

3. Dr. Terri Mavencamp; Lee Metcalf Bldg., P.O. Box 200901, Helena, MT 59620-0901; 406-444-5372

Dr. Mavencamp will provide testimony regarding her opinions as set forth in DEQ’s Rebuttal Expert Witness Disclosures, dated August 24, 2015.
With the exception the documents provided to CFAC at Dr. Mavencamp’s deposition on September 24, 2015, DEQ has not yet determined the documents upon which Dr. Mavencamp may rely. DEQ will supplement this answer as necessary and in accordance with the Scheduling Order and reserves the right to use any exhibit necessary to rebut any exhibit or testimony offered by or referenced by CFAC’s expert witnesses.

DEQ has not yet identified additional witnesses and associated exhibits that may be called or offered at hearing in this matter and will supplement this answer as necessary and in accordance with the Scheduling Order. DEQ reserves the right to identify additional witnesses and exhibits in accordance with the Scheduling Order and further reserves the right to call any witness identified or called by CFAC and to call any witness needed in rebuttal. DEQ further reserves the right to use any exhibit necessary to rebut any exhibit or testimony offered or referenced by CFAC.

REQUESTS FOR PRODUCTION

REQUEST FOR PRODUCTION NO. 3: Please produce all documents, photographs and other tangible evidence relevant to any of the issues raised by CFAC in its Notice of Appeal and Request for Hearing that MDEQ intends to rely at hearing in this matter.

RESPONSE:

Documents identified in Interrogatory No. 19 that have not previously been provided have been attached. DEQ has not further identified the documents, photographs and other tangible evidence it intends to rely upon at hearing in this matter and will supplement this answer as necessary and in accordance with the Scheduling Order.

REQUEST FOR PRODUCTION NO. 4: Please produce MDEQ’s rebuttal
expert’s file regarding CFAC’s 2013 MPDES permit application, including, but not limited to: all documents provided to the expert by MDEQ; all documents relied upon by the expert in reaching her opinions; and all correspondence, notes, file memoranda, and all other documents maintained in her file.

**RESPONSE:**

DEQ objects to this Request for Production to the extent it seeks the production of documents or other information protected from disclosure by the attorney-client privilege or the attorney work product doctrine. Without waiving the foregoing objections, and in respect thereof, these documents were provided to CFAC at Dr. Mavencamp’s deposition on September 24, 2015. See attached privilege log.

**REQUEST FOR PRODUCTION NO. 5:** As to each document identified in response to Interrogatory No. 20, please produce all identified documents.

**RESPONSE:**

There is no Interrogatory No. 20.

**REQUEST FOR PRODUCTION NO. 6:** If MDEQ’s answer to Interrogatory No. 17 is in the affirmative, please produce all documents MDEQ relies on in asserting that CFAC’s discharges to the Flathead River are causing impairment to existing or anticipated uses.

**RESPONSE:** See attached.

**REQUESTS FOR ADMISSION**

**REQUEST FOR ADMISSION NO. 13:** Please admit that in issuing the MPDES permit to CFAC in 1999, MDEQ found that CFAC’s discharges to the Flathead...
River did not threaten or impair existing or anticipated beneficial uses.

**RESPONSE:** DEQ admits that it made a finding in issuing the 1999 MPDES Permit and granting a mixing zone that the existing aquatic life use of fish migration would not be inhibited. DEQ denies that it made a specific finding in issuing the 1999 MPDES Permit and granting a mixing zone that CFAC’s discharges did not threaten or impair other existing or anticipated beneficial uses. Specific findings DEQ made as applicable to the previous permit process and regarding the issue of threatening or impairing existing or anticipated beneficial uses of the Flathead River are contained within the 1998 Statement of Basis and this document speaks for itself.

**REQUEST FOR ADMISSION NO. 14:** Please admit that MDEQ has not made a finding that CFAC’s discharges to the Flathead River have threatened or impaired existing or anticipated beneficial uses.

**RESPONSE:** DEQ denies this Request for Admission to the extent that, in issuing the 2014 MPDES permit, DEQ made findings that CFAC’s discharges contain pollution in concentrations that have the reasonable potential to cause or contribute to in-stream exceedances above water quality standards and to the extent that permit limitations contained in the 2014 MPDES Permit are calculated and established to prevent such exceedances.

**REQUEST FOR ADMISSION NO. 15:** Please admit that MDEQ did not issue a notice of deficiency to CFAC within 60 days of CFAC’s submitting its MPDES permit application to MDEQ on or about July 26, 2013.

**RESPONSE:** Admit.

**REQUEST FOR ADMISSION NO. 16:** Please admit that MDEQ did not notify
CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ considered the information submitted by CFAC identifying the outfalls and compliance monitoring locations to be incomplete.

**RESPONSE:** Deny. DEQ sent several emails to CFAC consultant Doug Parker or Steve Wright of CFAC within 60 days of July 26, 2013 seeking additional information regarding outfalls or compliance monitoring locations. These emails are as follows: (1) July 12, 2013 email from Christine Weaver (DEQ) to Doug Parker; (2) July 31, 2013 email from Christine Weaver to Doug Parker; (3) August 1, 2013 email from Christine Weaver to Doug Parker; and (4) August 5, 2013 email from Christine Weaver to Steve Wright. To the extent these emails address outfalls and compliance monitoring locations, the emails speak for themselves. See attached emails as specified above.

**REQUEST FOR ADMISSION NO. 17:** Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ considered the information submitted by CFAC identifying “landfill effluent monitoring locations” to be incomplete.

**RESPONSE:** Deny. DEQ sent an email to CFAC consultant Doug Parker on July 12, 2013 regarding effluent monitoring locations. To the extent this email addresses landfill effluent monitoring locations, the email speaks for itself. See attached July 12, 2013 email from Christine Weaver (DEQ) to Doug Parker.

**REQUEST FOR ADMISSION NO. 18:** Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ considered the information submitted by CFAC “demonstrating the extent and rate of the volatilization and destruction of cyanide in the Flathead River” to be
incomplete.

**RESPONSE:** Admit.

**REQUEST FOR ADMISSION NO. 19:** Please admit that ARM 17.30.507 (1) (b) allows acute water quality standards for aquatic life to be exceeded within a mixing zone when the discharger demonstrates that allowing minimal initial dilution will not threaten or impair existing beneficial uses.

**RESPONSE:** Deny. The cited rule only allows that acute water quality standards may be exceeded if DEQ specifically finds that allowing minimal dilution will not threaten or impair existing beneficial uses.

**REQUEST FOR ADMISSION NO. 20:** Please admit that in granting CFAC's 1999 MPDES permit, MDEQ expressly found that "propagation of aquatic life is the existing beneficial use conceivably affected by the CN concentration. The portion of the Flathead River in question is a fish migration route only. The area exceeding the acute CN standard extends for a length of 150 feet and a width of several feet depending on flow. This limited extent will not inhibit fish migration."

**RESPONSE:** Admit.

**REQUEST FOR ADMISSION NO. 21:** Please admit that in not continuing CFAC's acute surface water mixing zone for cyanide, MDEQ did not make a finding that the previously allowed acute surface water mixing zone threatened or impaired existing or anticipated uses.

**RESPONSE:** DEQ objects to this Request for Admission because it is vague and ambiguous. Without waiving the foregoing objection, and in respect thereof, DEQ denies this Request for Admission to the extent that, in issuing the 2014 Permit and considering
an acute mixing zone for cyanide, DEQ made findings that CFAC's discharges contain cyanide in concentrations that have the reasonable potential to cause or contribute to in-stream exceedances above water quality standards and to the extent that permit limitations contained in the 2014 MPDES Permit are calculated and established to prevent such exceedances. DEQ also made findings that CFAC’s discharges contained elevated concentrations of cyanide. These findings and the resulting permit limitations are contained within the 2014 Fact Sheet, the 2014 Response to Comments, and are expressed in the issuance of the 2014 Permit.

REQUEST FOR ADMISSION NO. 22: Please admit that in not continuing CFAC's site-wide ground water mixing zone for cyanide and fluoride, MDEQ did not make a finding that the previously allowed site-wide ground water mixing zone threatened or impaired existing or anticipated beneficial uses.

RESPONSE: DEQ objects to this Request for Admission because it is vague and ambiguous. Without waiving the foregoing objections, and in respect thereof, DEQ admits that in issuing the 2014 MPDES Permit and in considering a site-wide ground water mixing zone for cyanide and fluoride, DEQ did not make a finding that the previously allowed site-wide ground water mixing zone threatened or impaired existing or anticipated beneficial uses.

REQUEST FOR ADMISSION NO. 23: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ considered CFAC to have “not demonstrated that CN will naturally dissipate in the receiving water sufficiently to avoid acute affects.”

RESPONSE: Admit.
REQUEST FOR ADMISSION NO. 24: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ “did not believe the information provided by CFAC in the 1998 Mixing Zone Study was sufficient to demonstrate that the levels of cyanide discharged from Outfall 006 would not threaten or impair existing beneficial uses in the Flathead River, including the backwater zone.”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 25: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ determined the 1998 Mixing Zone Study should have addressed “fish species that can be found in the Flathead River” other than trout species.

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 26: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that the MDEQ regarded the 1998 Mixing Zone Study to be insufficient or incomplete because it provided “no site-specific evidence of the state of the cyanide cycle in the backwater or mixing zone area.”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 27: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that MDEQ “was not aware of any historical information that shows no observed impacts to the Flathead River from CFAC[‘s]” historical discharges.

RESPONSE: Admit.
REQUEST FOR ADMISSION NO. 28: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that CFAC needed to provide “actual biological data from the Flathead River to demonstrate that [CFAC’s] discharge does not impair beneficial uses.”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 29: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application of MDEQ’s “Standard Operating Procedures (SOPs) that describe acceptable biological monitoring techniques.”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 30: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that CFAC need to provide “an acceptable method to measure the quantity and quality of the effluent exiting the bottom of the ponds for demonstrating compliance with effluent limits.”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 31: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that “CFAC has not demonstrated that netting [for TBELs] complied with 40 CFR 122.45(g) and ARM 17.30.1345(9).”

RESPONSE: Admit.

REQUEST FOR ADMISSION NO. 32: Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that
its 2013 MPDES permit application lacked “data demonstrating that CFAC meets the aquatic life standards at the end of the [acute surface water] mixing zone.”

**RESPONSE:** Admit.

**REQUEST FOR ADMISSION NO. 33:** Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that “the scientific methodology required to measure cyanide had changed since the 1999 permit, and new data is needed to determine the appropriateness of the past mixing zone.”

**RESPONSE:** Admit.

**REQUEST FOR ADMISSION NO. 34:** Please admit that MDEQ did not notify CFAC within 60 days of receiving CFAC’s July 26, 2013 MPDES permit application that CFAC’s 2013 MPDES permit application was lacking “a model simulating cyanide (a complex mixture containing iron cyanides) persistence in surface water, taking into account the kinetically and thermodynamically controlled reactions and the conditions at Outfall 006.”

**RESPONSE:** Admit.

DEQ reserves the right to supplement and amend these discovery responses and answers pursuant to the Montana Rules of Civil Procedure and ARM 1.3.217.

DATED this 25th day of September, 2015.

KURT R. MOSER
Legal Counsel
CERTIFICATE OF SERVICE

I hereby certify that this 25th day of September, 2015, I caused to be served a true and correct copy of the foregoing document and any attachments to all parties or their counsel of record as set forth below:

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