Montana
Board of Environmental Review
P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • Website: www.deq.state.mt.us

AGENDA

FRIDAY, OCTOBER 16, 2015
METCALF BUILDING, ROOM 111
1520 EAST 6th AVENUE, HELENA, MONTANA
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NOTE: The Board will make reasonable accommodations for persons with disabilities who wish to participate in this meeting. Please contact the Board Secretary by telephone (406-444-2544) or by e-mail (jwittenberg@mt.gov) no later than 24 hours prior to the meeting to advise her of the nature of the accommodation needed.

9:00 A.M.

I. ADMINISTRATIVE ITEMS

A. REVIEW AND APPROVE MINUTES

The Board will vote on adopting the July 31, 2015, meeting minutes.

II. BRIEFING ITEMS

A. CONTESTED CASE UPDATE

1. Enforcement cases assigned to the Hearing Examiner

    a. **In the matter of violations of the Public Water Supply Laws by Rene Requa at Highlander Bar and Grill, PWISD MT0004764, Lewis and Clark County (FID 2299, Docket No. PWS-14-08), BER 2014-09 PWS.**

    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.** On August 25, the parties filed a Stipulation to Stay Scheduling Order.

    c. **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 August 25, the parties filed a Stipulation to Stay Scheduling Order.

    d. **In the matter of violations of the Water Quality Act by Buscher Construction and Development, Inc., at Poly Vista Estates, Trailhead, and Falcon Ridge II Subdivisions, Billings, Yellowstone County, BER 2015-03 WQ.** The Board received the appeal on June 8, 2015. On September 25, the hearing issued a First Prehearing Order requesting the parties file a proposed schedule by October 6, 2015.

2. Non-enforcement cases assigned to the Hearings Examiner

    a. **In the matter of the notice of appeal and request for hearing by Yellowstone Energy Limited Partnership (YELP) regarding issuance of MPDES Permit NO. MT0030180 for**

YELP's facility in Billings, MT, BER 2014-01 WQ. On June 11, attorney for appellant filed Unopposed Motion to Extend Stay and Reporting Deadlines, requesting continuance of the Stay until February 1, 2016. On June 16, 2015, the hearing examiner issued Order Extending Stay / Reporting Deadlines, continuing the Stay until February 1, 2016.

b. **In the matter of Phillips 66 Company's appeal of Outfall 006 Arsenic Limits in Montana Pollution Discharge Elimination System Permit No. MT0000256, Billings, Yellowstone County, MT, BER 2014-05 WQ.** On March 11, 2015, the parties filed a Stipulation to Stay Appeal until December 31, 2017. On March 25, the hearing examiner issued Order approving the stipulation and ordered the parties to comply with the terms or the stipulation.

c. **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, MT, BER 2014-06 WQ.** On March 25, 2015, the hearing examiner issued Scheduling Order setting a hearing for April 18, 2016.

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 an Order Granting the Joint Unopposed Motion for Partial Remand of Permit to Department of Environmental Quality and for Suspension of Proceedings. On May 14, 2014, DEQ filed a Status Report regarding the matter stating that a modified permit would be made available for public comment on or before June 9, 2014.

B. OTHER BRIEFING ITEMS

1. The department will brief the board on water quality standards, TMDL's and electrical conductivity (EC) and sodium adsorption ratio (SAR) standards Otter Creek, tributary to the Tongue River.

III. ACTION ITEMS

A. NEW CONTESTED CASES

1. **In the matter of the revocation of Montana Air Quality Permit No. MAQP# 2554-05, issued to Eureka Pellet Mills (Inc.), Eureka, Lincoln County, MT, BER 2015-04a AQ; the revocation of Montana Air Quality Permit No. MAQP 3039-02, issued to Eureka Pellet Mills (Inc.), Superior, Mineral County, MT, BER 2015-04b AQ; and the revocation of Montana Air Quality Permit No. MAQP# 4057-00, issued to Montana Renewable Resources (LP), Eureka, Lincoln County, MT, BER 2015-04c AQ.** The Board received the appeals from Patrick Pozzi on August 10, 2015. On September 25, Mr. Pozzi notified the Board's attorney that they had shut the mills down, so the cases should expire. The Board may assign a permanent hearing examiner or decide to hear the matter.

2. **In the matter of Heart K Land & Cattle Co.'s appeal of its final 401 Certification with conditions, BER 2015-05 WQ, application No. MT4010948; MWO-2013-00590-MTB-**

Addendum, issued by DEQ for the Yellowstone River, Park County, MT. The Board received the appeal on July 17, 2015. On September 25, Interim Hearing Examiner Ben Reed issued a First Prehearing Order requesting the parties file a proposed scheduling order by October 6, 2015. The Board may assign a permanent hearing examiner or decide to hear the matter.

3. **In the matter of Westmoreland Resources, Inc.'s, BER 2015-06 WQ, appeal of final MPDES permit No. MT0021229 issued by DEQ for the Absaloka Mine in Hardin, Big Horn County, MT.** The Board received the appeal on September 29, 2015. The Board may assign a permanent hearing examiner or decide to hear the matter.

B. INITIATION OF RULEMAKING

DEQ will propose that the Board initiate rulemaking to:

1. Repeal ARM 17.8.334, 17.8.335, and 17.8.772 pertaining to Emission Standards for Existing Aluminum Plants and Mercury Allowance Allocations under Cap and Trade Budget, respectively. The Department is proposing the repeal of rules which are no longer used, or for which affected sources no longer are operational or for which corresponding federal requirements have been invalidated.

2. Generally revise the rules implementing the Opencut Mining Act ("the Act"), ARM Title 17, Chapter 24, Subchapter 2, in response to changes to the Act enacted in the 2007, 2009, and 2013 legislative sessions; to generally to clarify and simplify the rules by reorganizing the provisions to avoid treatment of single concepts in multiple rules, eliminate redundant provisions, and improve syntax; and to make substantive changes to remove unnecessary requirements and add requirements that improve reclamation and regulatory process.

3. In the matter of the repeal of ARM 17.4.201, 17.30.645, 17.30.1386, 17.30.1401, 17.30.1402, 17.30.1405, 17.30.1406, 17.30.1407, 17.30.1410, 17.30.1411, 17.30.1412, 17.30.1413, 17.30.1414, 17.30.1419, 17.30.1420, 17.30.1421, 17.30.1425, 17.30.1426, 17.30.1602, 17.30.2001, 17.30.2003, 17.38.601, 17.38.602, 17.38.603, and 17.38.607. The Department has determined that these rules duplicate statute or rule or are otherwise unnecessary, and the Department will recommend that the Board initiate rulemaking to repeal these rules.

C. REPEAL, AMENDMENT, OR ADOPTION OF FINAL RULES

1. In the matter of final adoption of the proposed new rules, to meet the requirements of Section 128 of the federal Clean Air Act (CAA) regarding State boards and "conflict of interest." The Department is requesting that the Board adopt the new rules with an amendment.

D. FINAL ACTION ON CONTESTED CASES

1. **In the matter of the notice of appeal for hearing by Montana Environmental Information Center regarding DEQ's approval of coal mine permit No. C1993017 issued to Signal Peak Energy, LLC, for Bull Mountain Mine No. 1 in Roundup, MT, BER 2013-07 SM.** The Board will consider and may take action on the Parties' Motions and Oppositions for Summary Judgment and the Proposed Findings of Facts and Conclusion of Law filed by the Parties.

2. **In the matter of violations of the Opencut Mining Act by Bay Materials, LLC at Normont Farms Pit, Toole County, Montana, BER 2014-07 OC.** On August 27, 2015, the parties filed a Stipulation to Dismiss Contested Case Proceeding. An order dismissing the matter will be presented for signature by the Chair.

3. **In the matter of violation of the Opencut Mining Act by Somont Oil Company, Inc., at Somont Oil Company gravel pit, Toole County (Permit No. 2597, FID 2326, Docket No. OC-14-021), BER 2014-08 OC.** On August 31, the parties filed a Stipulation to Dismiss Contested Case Proceeding. An order dismissing the matter will be presented for signature by the Chair.

IV. 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.

V. ADJOURNMENT

Montana
Board of Environmental Review
P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544

MINUTES

July 31, 2015

Call to Order

The Board of Environmental Review's regularly scheduled meeting was called to order by Madam Chair Shropshire at 9:01 a.m., on Friday, July 31, 2015, in Room 111 of the Metcalf Building, 1520 East Sixth Avenue, Helena, Montana.

Attendance

Board Members Present: Chairman Joan Miles, Robin Shropshire, Chris Tweeten, Marietta Canty, Michele Reinhart Levine, Roy Sayles O'Connor, Dr. Robert Byron

Board Attorney Present: Ben Reed, Attorney General's Office, Department of Justice

Board Secretary Present: Joyce Wittenberg

Court Reporter Present: Laurie Crutcher, Crutcher Court Reporting

Department Personnel Present: Tom Livers – Director; George Mathieus, Deputy Director; John North, Dana David, and Norm Mullen – Legal; Kristi Ponozzo – Director's Office; John DeArment – Permitting & Compliance Division; Dave Klemp, Hoby Rash, Julie Merkel, Eric Merchant, Liz Ulrich, Rebecca Harbage, Charles Homer, and Annette Williams – Air Quality Bureau; Eugene Pizzini – Public Water Supply & Subdivisions Bureau; John Arrigo – Enforcement Division; Kari Smith – Planning Division; Jon Kenning and Christian Schmidt – Water Protection Bureau; Eric Urban, Erik Makus, Michael Pipp, Amy Steinmetz – Water Quality Planning Bureau; Ed Coleman and Chris Yde – Industrial & Energy Minerals Bureau

Interested Persons Present: Brenda Lindlief Hall and Art Hayes, Jr. – Tongue River Water Users Association (TRWUA); Vicky Walsh – Bison Engineering; Dave Simpson and Vicki Marquis – Otter Creek Coal; Mark Fix (self); Adam Haight, DarAnne Dunning, Beth Kaeding, Ella Smith, and Janet McMillan – Northern Plains Resource Council (NPRC); Jason Gildea – Environmental Protection Agency (EPA); Kate French (self); Derf Johnson and Jim Jensen – Montana Environmental Information Center (MEIC); Peggy Trenk – Treasure State Resource Industry Association (TSRIA); Sara Berg and Christy McCann – Society of Petroleum Engineers (SPE)

Interested Persons Present via Telephone: Heidi Kaiser (self)

Chairman Miles introduced herself and had the other Board members follow suit.

I.A. Review and approve May 29, 2015, Board meeting minutes.

Chairman Miles called for a motion to approve the May 29, 2015, meeting minutes. Ms. Shropshire so MOVED. Ms. Canty SECONDED the motion. The motion CARRIED with a unanimous vote.

I.B. October Meeting Date Discussion

Chairman Miles explained that the October was moved to October 16. She also noted that the Board will set the 2016 schedule at the December 4 meeting.

II.A.1.a. In the matter of violations of the Opencut Mining Act by Bay Materials, LLC at Normont Farms Pit, Toole County, BER 2014-07 OC.

Mr. Reed said this matter is going through discovery among the parties and the hearing is scheduled for October.

II.A.1.b. In the matter of violation of the Opencut Mining Act by Somont Oil Company, Inc., at Somont Oil Company gravel pit, Toole County (Permit No. 2597, FID 2326, Docket No. OC-14-021), BER 2014-08 OC.

Mr. Reed said this matter is going through discovery among the parties and the hearing is scheduled for October.

II.A.1.c. In the matter of violations of the Public Water Supply Laws by Rene Requa at Highlander Bar and Grill, PWSID MT0004764, Lewis and Clark County (FID 2299, Docket No. PWS-14-08), BER 2014-09 PWS.

Mr. Reed said the parties negotiating settlement in this matter.

II.A.1.d. 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.

Mr. Reed said this matter is going through discovery among the parties.

II.A.1.e. 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.

Mr. Reed said this matter is going through discovery among the parties.

II.A.2.a. In the matter of the notice of appeal and request for hearing by Yellowstone Energy Limited Partnership (YELP) regarding issuance of MPDES Permit No. MT0030180 for YELP's facility in Billings, MT, BER 2014-01 WQ.

Mr. Reed reported that he had signed an order extending the stay and reporting deadlines in this matter.

II.A.2.b. In the matter of Phillips 66 Company's appeal of Outfall 006 Arsenic Limits in MPDES Permit No. MT0000256 Billings, Yellowstone County, BER 2014-05 WQ.

Mr. Reed said the parties in this matter have stipulated and are complying with the stipulation.

II.A.2.c. In the matter of Columbia Falls Aluminum Company's (CFAC) appeal of DEQ's modification of MPDES Permit No. MT0030066, Columbia Falls, Flathead County, BER 2014-06 WQ.

Mr. Reed reported that he had issued a scheduling order in this matter.

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. North explained that plaintiffs had filed in District Court and is proceeding on motions for summary judgment in Helena District Court. He noted that oral argument had and the parties are awaiting a decision from the Judge.

II.B. Legislative Briefing

Mr. Mathieus provided a briefing on the Department's recent Legislative activity that impacts the Board. There was some discussion among the Board and Mr. Mathieus responded to questions.

III.A.1. In the matter of violations of the Water Quality Act by Buscher Construction and Development, Inc., at Poly Vista Estates, Trailhead, and Falcon Ridge II Subdivisions, Billings, Yellowstone County, BER 2015-03 WQ.

Chairman Miles called for motion to either hear the matter directly or assign it to Mr. Reed. Ms. Shropshire MOVED to assign the matter to Mr. Reed. Mr. O'Connor SECONDED the motion. The motion CARRIED with a unanimous vote.

III.B.1. In the matter of the Department's request to initiate rulemaking to adopt site-specific electrical conductivity (EC) and sodium adsorption ratio (SAR) criteria for Otter Creek, tributary to the Tongue River.

Mr. Mathieus introduced the proposal and provided some background about the rule package.

Ms. Steinmetz addressed the Board with a PowerPoint presentation. Ms. Steinmetz, Mr. Mathieus, and Mr. Makus responded to questions from the Board.

Ms. Dunning gave a PowerPoint presentation on behalf of Northern Plains Resource Council, providing information they said shows why the rule would not be protective of Otter Creek users. She responded to questions from the Board.

Mr. Hayes also gave a PowerPoint presentation and provided documents to support his stance to not conduct this rulemaking as is, that it may be better to reevaluate the current rules.

Mr. Fix, Ms. French, Mr. Jensen, Ms. Lindlief-Hall, and Ms. Kaeding also testified against the rulemaking and answered questions from the Board.

Ms. Marquis and Mr. Simpson spoke in favor of moving the process forward through the rulemaking, stating that twelve stakeholder meetings have already taken place. They responded to questions from the Board.

The Board engaged in discussions regarding the proposal. The Board took no action on the agenda item. Board members were instructed to send any specific questions they have to Mr. Mathieus.

III.B.2. In the matter of the Department's request to initiate rulemaking to meet the requirements of Section 128 of the federal Clean Air Act (CAA) regarding state boards and "conflict of interest."

Mr. North provided information on the rulemaking. He said the department recommends the Board initiate the rulemaking without a public hearing contemplated.

Chairman Miles called for public comment. There was none. Mr. Tweeten MOVED to initiate the rulemaking as requested by the department. Dr. Byron SECONDED the motion. The motion CARRIED with a unanimous vote.

V. Contested Case Hearing

The Board held oral argument in the matter of the notice of appeal for hearing bt Montana Environmentaql Information Ceter regarding DEQ's approval of coal mine permit No. C1993017 issued to Signal Peak Energy, LLC, for Bull Mountain Mine No. 1 in Roundup, MT, BER 2013-07 SM.

VI. Adjournment

At 4:18 p.m., upon conclusion of the hearing, Chairman Miles called for a motion to adjourn the regularly scheduled meeting. Mr. Tweeten so MOVED. Ms. Reinhart-Levine SECONDED the motion. The motion CARRIED unanimously.

Board of Environmental Review July 31, 2015, minutes approved:

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JOAN MILES
CHAIRMAN
BOARD OF ENVIRONMENTAL REVIEW

____

DATE

Otter Creek Watershed Salinity Assessment – Modeling Report

Document Number WQPBIMTSTR-010

September 2015

Prepared by:
Water Quality Planning Bureau, Information Management Technical Section
Montana Department of Environmental Quality
Water Quality Planning Bureau
1520 E. Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

Suggested citation: Montana Department of Environmental Quality. 2015. Otter Creek Watershed Salinity Assessment – Modeling Report. Helena, MT: Montana Dept. of Environmental Quality.

EXECUTIVE SUMMARY

Otter Creek is a tributary to the Tongue River in the state of Montana. It is currently characterized on the 303(d) list as "water quality-limited" due to salinity impairment. This study was undertaken in response to this listing.

Geologically, Otter Creek lies in an area of shales and coal beds that underlies parts of Wyoming, Montana, and the Dakotas. This area is composed of relatively salty soils, with saline bedrock and highly saline groundwater. Due to the saline water in the area, Otter Creek is classified as a C-3 stream, meaning its waters are "naturally marginal for agriculture"[1]. Because of the marginal water quality of both surface and groundwater, agricultural practices in the watershed are limited. Irrigators do not rely on existing surface or groundwater sources for irrigation, but instead rely on precipitation and snowmelt events to spread water on fields near stream channels. This may occur multiple times in a good year, but other years it may not happen at all. Thus, crop yields vary greatly from year to year, with some years producing little or no harvest.

This watershed has a long history of human interest. Otter Creek was first settled in the 1880s and cattle and hay production were quickly introduced to the watershed. This agricultural tradition continues to the present day. Additionally, due to interest in coal reserves in the watershed, large amounts of water quality data have been collected since the 1970s. This includes continuous flow and specific conductance monitoring at multiple locations, and hundreds of other sampling events throughout the watershed.

To help evaluate salinity loads in the watershed, DEQ applied the Loading Simulation Program in C++ (LSPC) water quality model, in conjunction with field assessments, to Otter Creek and its tributaries. DEQ compiled data from several sources including climate data from four nearby weather stations, land use, soils, and elevation data, and both stream flow and water quality data. This field data was used to populate the model. The model was based on the LSPC model that EPA built in the mid-2000s for the entire Tongue River watershed. DEQ updated, refined, and re-calibrated this model to focus specifically on Otter Creek. In particular, the hydrology and water quality were updated to reflect more local, site-specific conditions. Other updates included new weather stations located in the watershed, customized irrigation, channel hydraulics, land use, and updates to the number and size of stock ponds and check dams throughout the watershed based on aerial photo interpretation. Water quality refinements included additional water quality data used for calibration. This includes data collected by USGS and DEQ, and hundreds of measurements from Hydrometrics on groundwater quality in the lower portion of the watershed.

The updates to hydrology and water quality resulted in a calibrated model that met pre-defined objectives. Several calibration parameters, including the rain/snow balance, overall discharge volumes, range of flows, and other modeling parameters, matched adequately between the model and the observed values. While individual storm volumes provided a challenge, overall the model performed well at re-creating flow conditions in the watershed. Water quality was also calibrated to an acceptable level, matching up closely with the ranges and statistical measures (mean, median, etc.) of the observed data.

[1] Administrative Rules of Montana 17.30.629(1)

Once a calibrated existing conditions model was completed, the model was modified to reproduce historical conditions. The term 'historical' can be defined in many ways, but in this case DEQ used one of the most conservative approaches – taking all human influences out. Since there are no point sources in the watershed, this meant removing agricultural and urban land uses. This was done by adjusting three factors:

1. *Removing stock ponds and check dams:* Historical Otter Creek did not have any permanent check dams in the mainstem or tributaries, nor did it have stock ponds at natural springs along ephemeral drainages. These were removed from the model.
2. *Removing the urban footprint:* Historical Otter Creek did not have any permanent human settlements or roadways. All urban areas were removed from the model. This included both urban settlements (like Ashland), as well as the roads throughout the watershed. The acreage associated with these former urban land uses was added back into the model using our best interpretation of the original land use.
3. *Removing irrigated land:* Historical Otter Creek did not have any known irrigation practices. Although only a very small portion of the watershed is irrigated, irrigated land has a large effect on the water and salt balance because it uses a proportionally larger fraction of the basin's water supply. Irrigated land was removed from the model and these acreages were added back into the model using our best interpretation of the original (natural) land use.

These modifications show that salinity concentrations in the watershed are not significantly affected by anthropogenic alterations. While there is currently less water exiting the watershed than would occur naturally due to irrigation, the water quality associated with Otter Creek is very similar in both existing and historical scenarios. Over 100 years of agricultural practices in the watershed have resulted in very little practical change in the Otter Creek specific conductivity and sodium adsorption ratio values. Therefore, a salt load reduction of approximately 85% (required to meet the total maximum daily load if established at the existing water quality standard) appears unreasonable.

Although most of the data used for this study were taken at the mouth of Otter Creek, a comparison of water quality at upstream locations suggest that the water quality either stays the same, or improves slightly, in the downstream direction. Analysis of limited tributary data suggests that the water quality in the lower reaches of tributaries, when they are flowing, is no better than the water quality in the mainstem of Otter Creek. No water quality data has been collected in the upper reaches of the tributaries – data collection there is made more difficult by the fact that most of these only flow for a few weeks or months each year. Regardless, the evidence we have suggests that using water quality data near the mouth would be appropriate for setting a standard on the mainstem of Otter Creek.

The observed water quality data tell us that little change has occurred in the watershed over the last 40 years (i.e. since water quality data collection began). The modeling results - along with interpretation of aerial photos, land use surveys, and the type of agricultural practices all support this idea – water quality and salinity concentrations have changed very little in the watershed over time. Put together, these factors suggest that the existing water quality data are equivalent to historical conditions. Thus water quality in the watershed is, was, and likely will be representative of 'natural conditions', as long as land use activities remain similar to current day practices.

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ACRONYMS

Acronym	Definition
AMSL	Above Mean Sea Level
cfs	cubic feet per second (a unit of flow)
ARM	Administrative Rules of Montana
Ca	Calcium cation
cms	cubic meters per second (a unit of flow)
DEQ	Department of Environmental Quality (Montana)
DNRC	Department of Natural Resources & Conservation
EC	Electrical Conductivity
EMC	Event Mean Concentration
EPA	Environmental Protection Agency (US)
ET	Evapotranspiration
GIS	Geographical Information System
GWIC	Ground Water Information Center (Montana)
ha	Hectares (a unit of area)
HSPF	Hydrologic Simulation Program Fortran
HUC	Hydrologic Unit Code
LSPC	Loading Simulation Program in C++
Mg	Magnesium cation
MUID	Map Unit Identifier
Na	Sodium cation
NCDC	National Climatic Data Center
NED	National Elevation Dataset
NEXRAD	Next Generation Radar Data
NHD	National Hydrography Dataset
NLCD	National Land Cover Dataset
NRCS	Natural Resources Conservation Service
NOAA	National Oceanic and Atmospheric Administration
NSE	Nash-Sutcliffe Coefficient of Efficiency
PET	Potential evapotranspiration
RAWS	Remote Automated Weather Station
RE	Relative Error
RM	River Mile
SAR	Sodium Adsorption Ratio
SC	Specific Conductance
SCS	Soil Conservation Service
SNOTEL	NRCS Snowpack Telemetry
STATSGO	State Soil Geographic Database
TMDL	Total Maximum Daily Load
TPA	TMDL Planning Area
µS/cm	microsiemens per centimeter
USFS	United States Forest Service
USGS	United States Geological Survey
WRCC	Western Regional Climate Center

1.0 INTRODUCTION

The Otter Creek watershed is located in southeastern Montana and is a tributary to the Tongue River (**Figure 1-1**). Otter Creek (Reach Segment ID MT42C002_020) is currently characterized as "water quality-limited" due to salinity impairment. To satisfy Federal Clean Water Act requirements, a Total Maximum Daily Load (TMDL) must be developed for the waterbody so that it supports its designated beneficial uses. The Montana Department of Environmental Quality (DEQ) determined that a modeling approach was the most effective way to identify the contribution of non-point source loads in the watershed. As such, a Loading Simulation Program in C++ (LSPC) watershed model was prepared to account for watershed-scale loadings of salinity from both natural and non-point sources. During model development, it became apparent that the watershed is in a nearly natural state and thus a substantial reduction in salt load is unlikely. We subsequently performed a historical scenario analysis to determine what (if any) effects humans have had on the landscape. It indicated that approximately 99% of the salt load in the watershed is natural.

The modeling tool may be used for a number of other planning purposes including: (1) evaluating baseline conditions in the watershed, (2) partitioning pollutant load between non-point sources, (3) determining historical salt loading in the watershed, and (4) allocating salinity for TMDL development.

1.1 PRIOR STUDIES

The following prior studies are relevant to the Otter Creek watershed and were reviewed for development of this model:

- Potential effects of surface coal mining on the hydrology of the West Otter area, Ashland and Birney-Broadus coal fields, southeastern Montana (McClymonds, 1984)
- Effects of potential surface coal mining on dissolved solids in Otter Creek and in the Otter Creek alluvial aquifer, southeastern Montana (Cannon, 1985)
- Potential effects of surface coal mining on the hydrology of the Little Bear Creek area, Moorhead coal field, southeastern Montana (McClymonds, 1986)
- Potential effects of surface coal mining on the hydrology of the upper Otter Creek-Pasture Creek area, Moorhead coal field, southeastern Montana (McClymonds and Moreland, 1988)
- Modeling the Tongue River Watershed with LSPC and CE-QUAL-W2 (U.S. Environmental Protection Agency and Tetra Tech, Inc., 2007a)
- Water Quality Assessment for the Tongue River Watershed, Montana (U.S. Environmental Protection Agency and Tetra Tech, Inc., 2007b)

1.2 REPORTING UNITS

Units used by the model (and reported here) are primarily in the U.S. customary system (English). Units are clearly labeled in the report, but useful conversions are listed below.

35.3 cubic feet per second (cfs) = 1 cubic meter per second (cms)
1 acre-foot (af) = 43,560 cubic feet = 1,233.5 cubic meters
2.47 acres (ac) = 1 hectare (ha)
1 mile (mi) = 1.61 kilometers (km)
1 square mile (sqmi) = 2.59 square kilometers (sqkm)

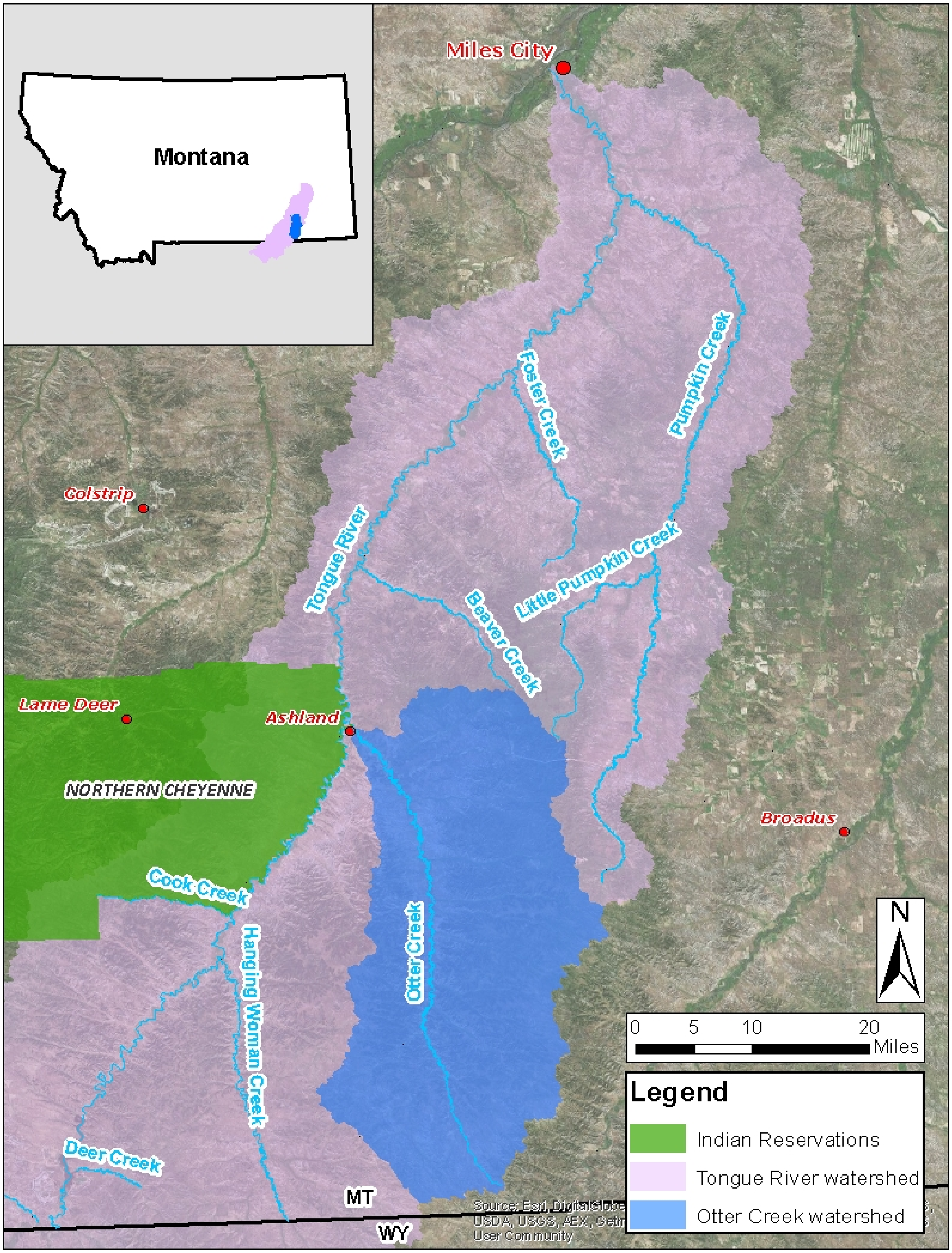

Figure 1-1. The location of the Otter Creek watershed in southeastern Montana

2.0 Data Compilation and Assessment

A variety of different climatic, flow, water quality, and spatial geographical information system (GIS) data were reviewed and evaluated for use in LSPC model development. The details are briefly discussed below.

2.1 Watershed Description

Otter Creek is located in southeastern Montana and flows north from nearly the Wyoming border to its mouth at Ashland, Montana, where it joins the Tongue River (**Figure 2-1**). Otter Creek is within the Tongue TMDL Planning Area (TPA). The watershed is approximately 455,000 acres (184,200 hectares) in size, with approximately 103 miles (166 kilometers) of mainstem creek originating in the hills in the southern portion of the watershed. Elevations in the watershed range from approximately 2,900 to 4,400 feet above mean sea level (AMSL). Average annual precipitation ranges from approximately 14 inches in the valley to approximately 17 inches in the hills. The watershed is characterized as a “prairie stream” due to the lack of mountains in the upper reaches of the watershed.

Otter Creek has a long history of human interest. The area was first settled in the 1880s and agriculture (cattle grazing, and flood irrigation/sub-irrigation to grow hay for cattle) was quickly introduced to the watershed. This agricultural tradition continues to the present day. Additionally, due to interest in coal reserves in the watershed, large amounts of coal exploration data and water quality data have been collected since the 1970s.

2.2 Climate

The Otter Creek watershed is classified as a semi-arid steppe climate. Valleys tend to be moderately arid while hillier regions are slightly wetter. Annual precipitation is estimated to average 15 inches basin-wide, with little spatial variability (slightly less in the valley floor, and slightly more in the hills). Snowfall in the surrounding hills is moderate, with snowpack rarely exceeding 12 inches, although snowpack conditions vary significantly from year to year. The snowpack does not typically last for the duration of the winter, especially in the valleys.

Climate data was obtained from a total of four weather stations either in, or in close proximity to, the watershed (**Figure 2-1**). Solar radiation, dewpoint, wind speed, and potential evapotranspiration were obtained from the Sheridan Airport (GHCND: USW00024037), while daily temperature was acquired from nearby National Climatic Data Center (NCDC) and Western Regional Climate Center (WRCC) Remote Automated Weather stations (RAWS). Daily precipitation was used from only two of these stations as the WRCC recommends not using long-term precipitation values from RAWS stations (McCurdy, Greg, personal communication 3/12/2015) (**Table 2-1**). Additionally, relative humidity (dewpoint) was used at the RAWS site at Fort Howes.

These climate stations are shown spatially in **Figure 2-1**. Only one of the climate stations was located within the watershed (Fort Howes), and another was adjacent to the watershed (Sonnette). Both Leiter and Sheridan lie south of the watershed. Although other nearby climate stations exist, only the abovementioned stations had a relatively complete data set for the modeling time frame, and thus were used in the analysis. This time frame (1988 through 2010) corresponds to the time period when the greatest amount of climatic, hydrologic, and water-quality data were available.

Table 2-1. Weather stations used in the Otter Creek watershed model

Location	Station Type	Avg Annual Precip. (in)	Avg Annual Max Temp (F)	Avg Annual Min Temp (F)	Elevation (ft AMSL)	Use
Sonnette 2 WNW	NCDC/ NOAA	15.3	57.5	28.9	3,900	Temp., Precip.
Leiter 9 N	NCDC/ NOAA	15.4	59.6	33.8	4,160	Temp., Precip.
Fort Howes	RAWS	-	61.0	31.2	3,380	Temp., Dewpoint
Sheridan AP	NOAA	-	-	-	3,967	Solar Radiation, Dewpoint, Wind Speed, Evap.

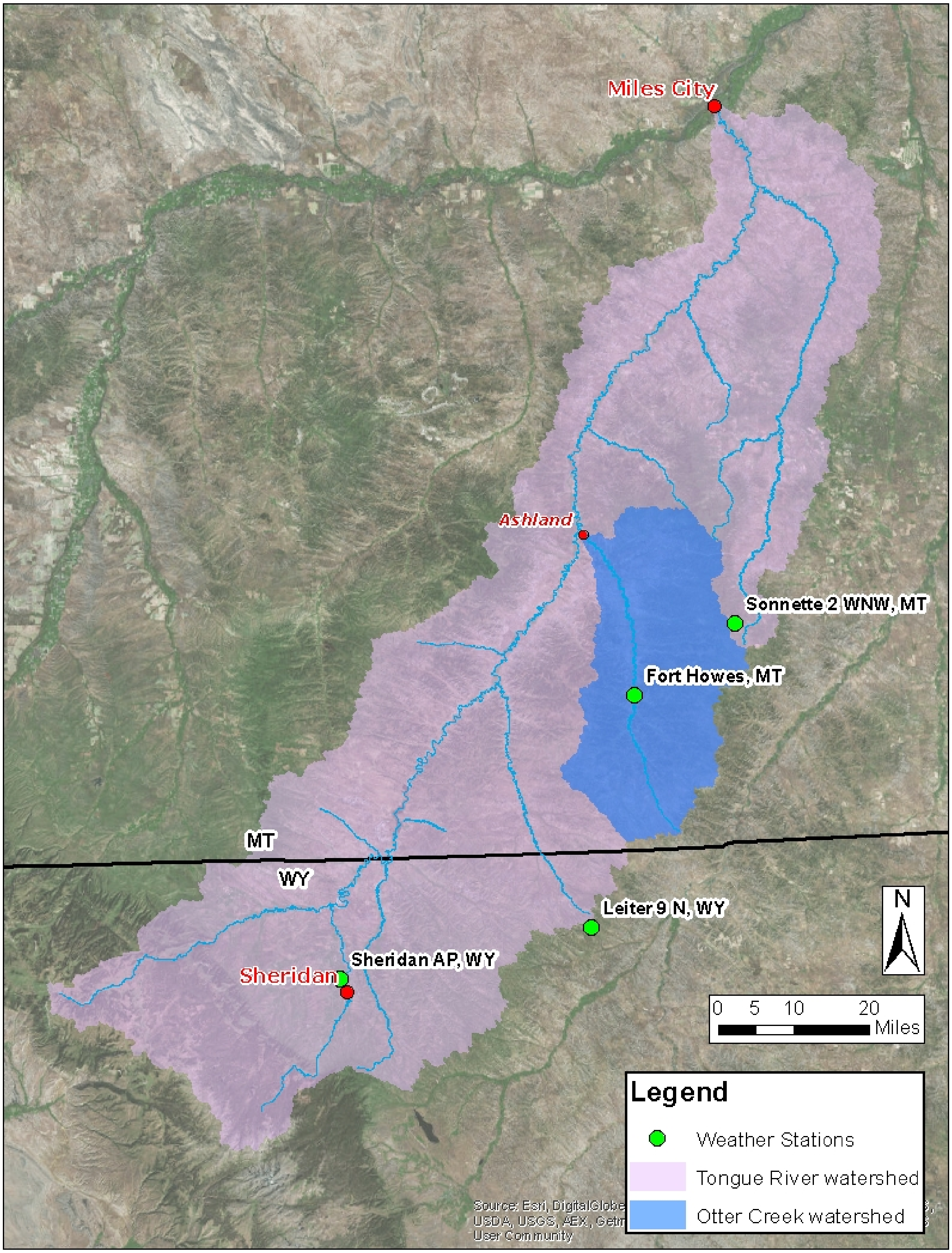

Figure 2-1. Location of weather stations used in the Otter Creek watershed model

2.3 STREAMFLOW HYDROLOGY AND WATER QUALITY

The hydrology of the Otter Creek watershed is a complex interconnection of irregular precipitation, snowmelt and runoff, groundwater recharge and discharge, check dams, and irrigation practices. Streamflow is currently monitored by the United States Geological Survey (USGS) at a single location near the mouth of Otter Creek (USGS #06307740, Otter Creek at Ashland, MT). Based on approximately 32 years of available streamflow records for this gage (1972 through 2014 – some years missing), the average daily discharge in Otter Creek is approximately 5.1 cubic feet per second (cfs), ranging from a low of 0 cfs (multiple occasions) to a daily high of 650 cfs (3/9/2014). However, there is some indirect evidence that higher flows may have occurred in the early 2000s during a period of missing data. The median daily discharge is approximately 2.1 cfs. There is historical streamflow at an upstream location (USGS #06307717, Otter Cr bl Fifteenmile Cr nr Otter MT), but this was only active from 1982 through 1985 – prior to this modeling period. Since 2011, Hydrometrics has been collecting both flow and water quality grab samples in the area of the proposed coal mine. **Figure 2-2** shows the locations of flow gages and/or water quality sampling locations in the Otter Creek watershed.

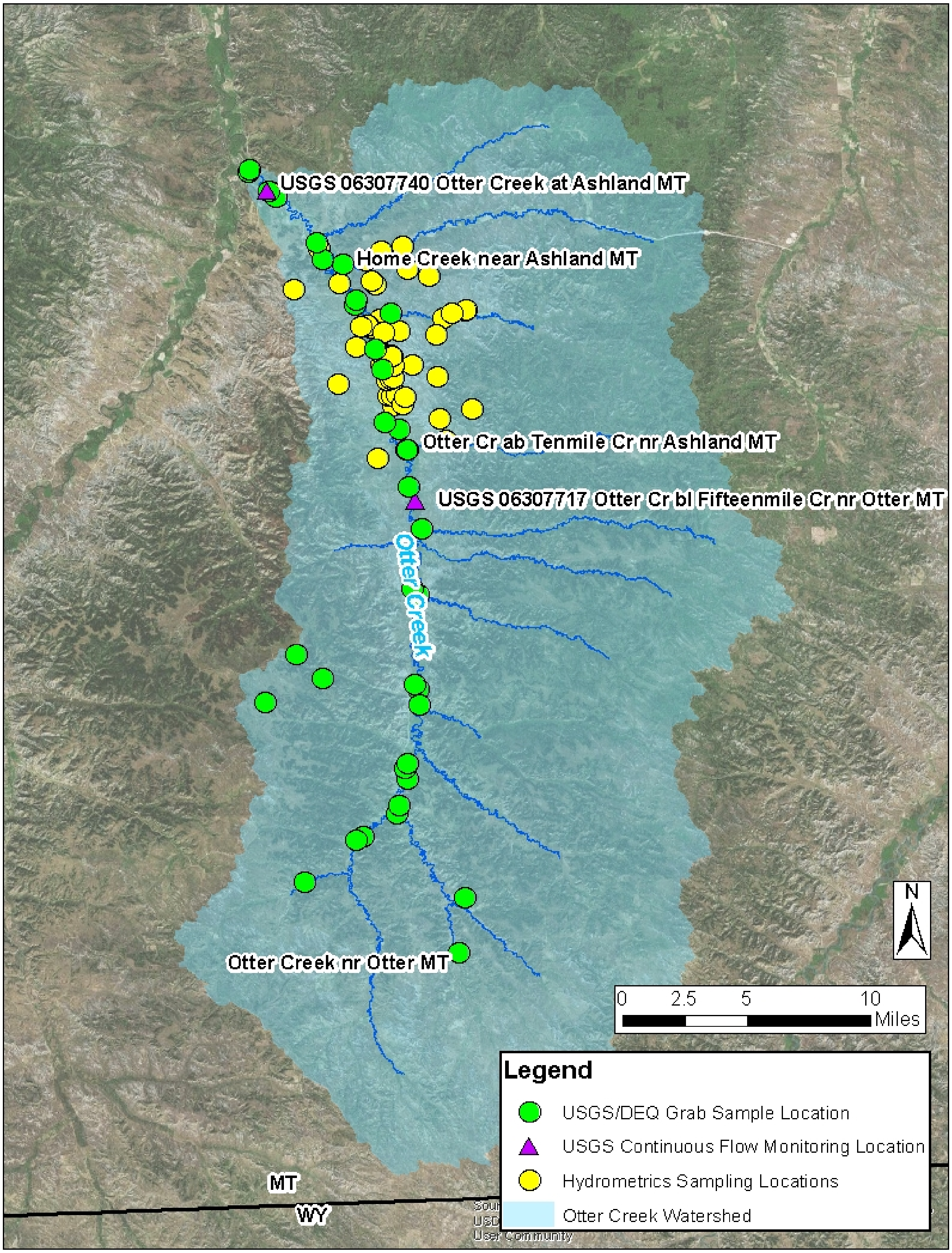

Figure 2-2. Location of flow and/or water quality stations in the Otter Creek watershed model

The average daily hydrograph shows that streamflow tends to peak in late February/early March due to snowmelt, rain on snow, or rain on frozen ground events, and again in late May/early June due to heavier precipitation during that time of year (**Figure 2-3**). The erratic nature of the 30+ year average demonstrates how variable daily streamflow in the watershed can be. Although baseflow conditions are more common in the late summer, they can occur at any point throughout the year.

The upper reaches of Otter Creek, and many of its tributaries, are intermittent streams during most years (McClymonds, 1986; McClymonds and Moreland, 1988). By the time Otter Creek joins with Bear Creek, it has become a perennial stream in most years. In addition to higher inflows, several perennial tributaries flow into the mainstem near the above location, and a large number of springs exist in that general vicinity as well (McClymonds, 1984). In the lower section of the creek, only Home Creek is a perennial tributary, the rest are dry most of the year except for spring snowmelt or early summer rainstorms (Cannon, 1985).

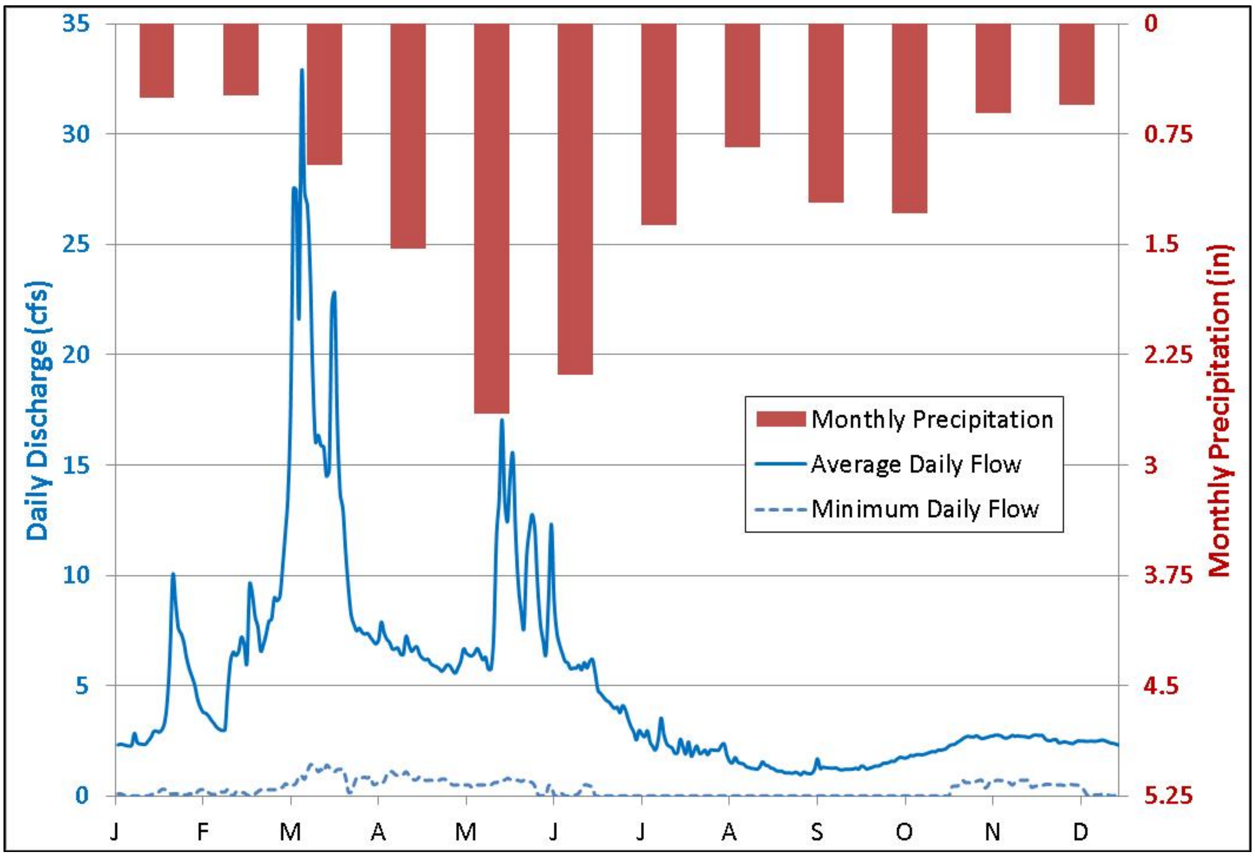

Figure 2-3. Average daily discharge (1972-2014) at USGS gage #06307740, and average monthly rainfall totals at Sonnette, MT

The Otter Creek watershed is used for irrigation by spreading water on fields when (and only when) large precipitation or snowmelt events occur. Otter Creek and its tributaries are diked and ditched to divert overland runoff and creek water onto fields when these events occur. Thus, diversions are not typical of most irrigation in Montana, as they only occur if and when runoff occurs, the creek rises above the spreader dike elevations, and water is of sufficient quality for irrigation. Due to the inconsistent hydrograph from year to year, irrigation volumes and frequencies can fluctuate greatly from one year to the next.

2.3.1 Water Quality

Water quality in the watershed is of concern due to salinity and sodium adsorption ratio (SAR), both of which can have negative effects on agricultural or domestic water use.

2.3.1.1 Salinity

Salinity is the concentration of salt in water. It is typically measured in milligrams per liter (mg/L) and is measured by taking a filtered sample and drying it out to measure the total amount of dissolved solids in the water. However, it is much easier to measure the conductivity of the water, and then correlate conductivity to salinity. The greater the salinity, the more easily it conducts electricity due to more electrostatically charged particles (e.g., anions and cations) in solution. Pure water by itself is a poor conductor of electricity.

Electrical conductivity (EC) is a measure the ability of water to conduct electricity. Since the ability to conduct electricity is based on temperature (it is easier to conduct electricity at higher temperatures due to greater movement of molecules in solution and an increase in solubility of many salts), a temperature corrected version of EC is used. This is called specific conductance (SC), and is EC corrected to 25 Celsius. Since the Montana definition of EC is temperature corrected, EC, SC, conductivity, and salinity are all used to describe the same thing (assuming a measurement is corrected to 25 °C). Thus we use these terms interchangeably in this report. The units of measure for EC and SC are microsiemens per centimeter (µS/cm), which is a measure of electrical potential (conductance) over a specified distance.

Salinity is important to irrigators, because over time, high salinity irrigation water can result in buildup of salinity in soils (if not properly leached) causing reduction in agronomic yields. Agricultural plants have difficulty absorbing water from the soil when it is high in salinity, thus when salinity rises above a specific crop-dependent threshold, crop yields start to decrease. Therefore, irrigators want to irrigate with low salinity water as much as they can, and avoid irrigating with high salinity water when possible.

2.3.1.2 Sodium Adsorption Ratio

Sodium adsorption ratio (SAR) is a measure of the ratio of sodium to calcium and magnesium. These three cations (positively charged particles) make up the majority of cations in most natural waters. The ratio is unitless and is calculated (in milliequivalents per liter [meq/L]) using the following equation:

$$SAR = \frac{[Na]}{\sqrt{([Ca]+[Mg])/2}} \qquad \textbf{(EQ-1)}$$

Irrigation water with an elevated SAR can cause soils to become sodic. Sodic soils typically display a loss of soil structure, and form a water-tight crust that will dry out the soils. Highly sodic soils inhibit most types of agriculture.

2.3.2 Available Data

Streamflow and water quality data are required for salinity modeling. Data available to DEQ from 1974 – 2010 were used in the modeling process. Data were reviewed with particular focus on recent data (2000 through 2010) for model construction and development. This data is considered most relevant as it is coincident with the landcover that will be used for the model - the 2006 National Land Cover Data (NLCD). Key data included the following:

- Flow
- Conductivity (Salinity)
- Sodium Adsorption Ratio

Available data for calibration of the Otter Creek LSPC model are identified in **Table 2-2.** Included is the parameter, overall period of record, and number of observations and/samples for each data type (flow, salinity [EC or SC], and SAR).

Table 2-2. Overview of available data at USGS gage 06307740 used for calibration and validation of the LSPC model

Parameter	Period of Record	Frequency of Sampling
Continuous Flow	1972-2015*	Daily/Continuous
Continuous EC/SC	1981-2015*	Daily/Continuous
Flow Grab Samples	1974-2015	Intermittent
EC/SC Grab Samples	1974-2015	Intermittent
SAR Grab Samples	1974-2015	Intermittent

*Period of record encompasses periods of missing data

2.3.2.1 Flow Data

Daily flow data was collected primarily at one location by the USGS, gage 06307740 Otter Creek at Ashland MT, from 1972 to 2014. However, the collection was sporadic, with multiple missing years. For the original intended modeling period (1988-2010), there is a large gap in the record where no data was collected for about 8 years from 1995-2003 (**Figure 2-4**).

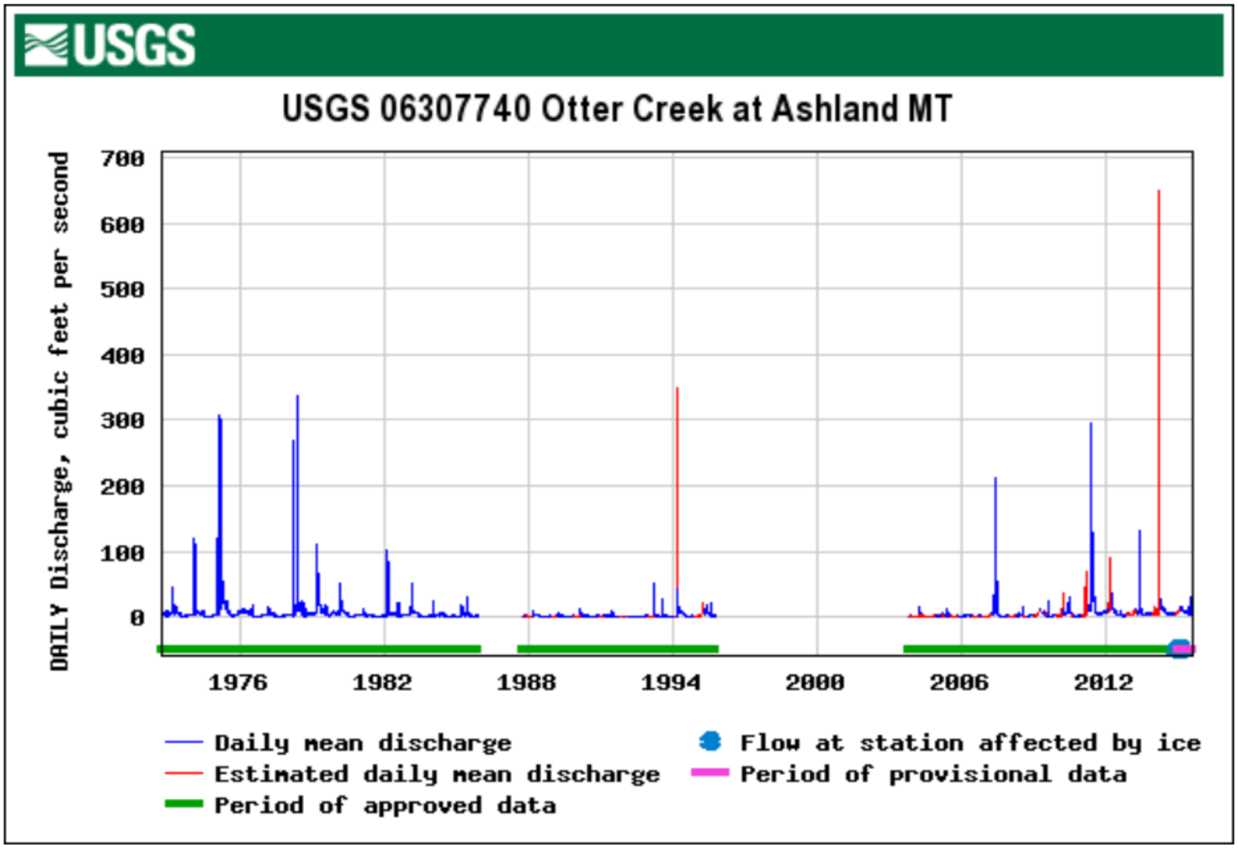

Figure 2-4. Continuous flow data at USGS gage 06307740, 1972-2015 (United States Geological Survey, 2015)

In addition to this gage, there is a historical gage in the watershed where USGS collected daily flow data in the early 1980s (USGS gage 06307717 Otter Cr bl Fifteenmile Cr nr Otter MT). Although this data range is outside the modeling period, it was used to perform a rough calibration, which is explained further in **Section 4.4**.

Other measures of stream flow were taken when water quality samples were collected. These singular events (instantaneous values) at various points throughout the watershed are not fully useful for model calibration, but did provide another data source to evaluate when trying to determine ranges of flow that may occur in Otter Creek.

2.3.2.2 Conductivity Data

Conductivity data were acquired from both the USGS and DEQ. USGS collected data from 1974 through the present. They collected both grab samples, and installed conductivity meters that collected daily (or sub-daily) conductivity. The USGS collected continuous SC data from 1980-1985, 2003-2009, and 2013-2015 (**Figure 2-5**). However, USGS pulls their meters in early November to avoid damage due to the freezing and ice flows. Meters are typically re-installed in mid to late March. Therefore, some of the daily data is missing the winter timeframe (2003-present). The collection of grab samples was generally sporadic throughout the period. However, over 350 data points were collected by either USGS or DEQ at or near USGS gage 06307740 in the period 1974-2015 (**Figure 2-6**). Well over 99% of all samples taken (whether grab samples or continuous meter) are above the current state-approved Otter Creek salinity standard of 500 µS/cm.

As with flow, there are many water quality observations at other locations (see **Figure 2-2** for a map of other sampling locations, and **Section 6.3** for a discussion of some of this data). In general, these singular events are not as useful for modeling. They do, however, provide additional data to examine ranges in water quality that may occur in Otter Creek.

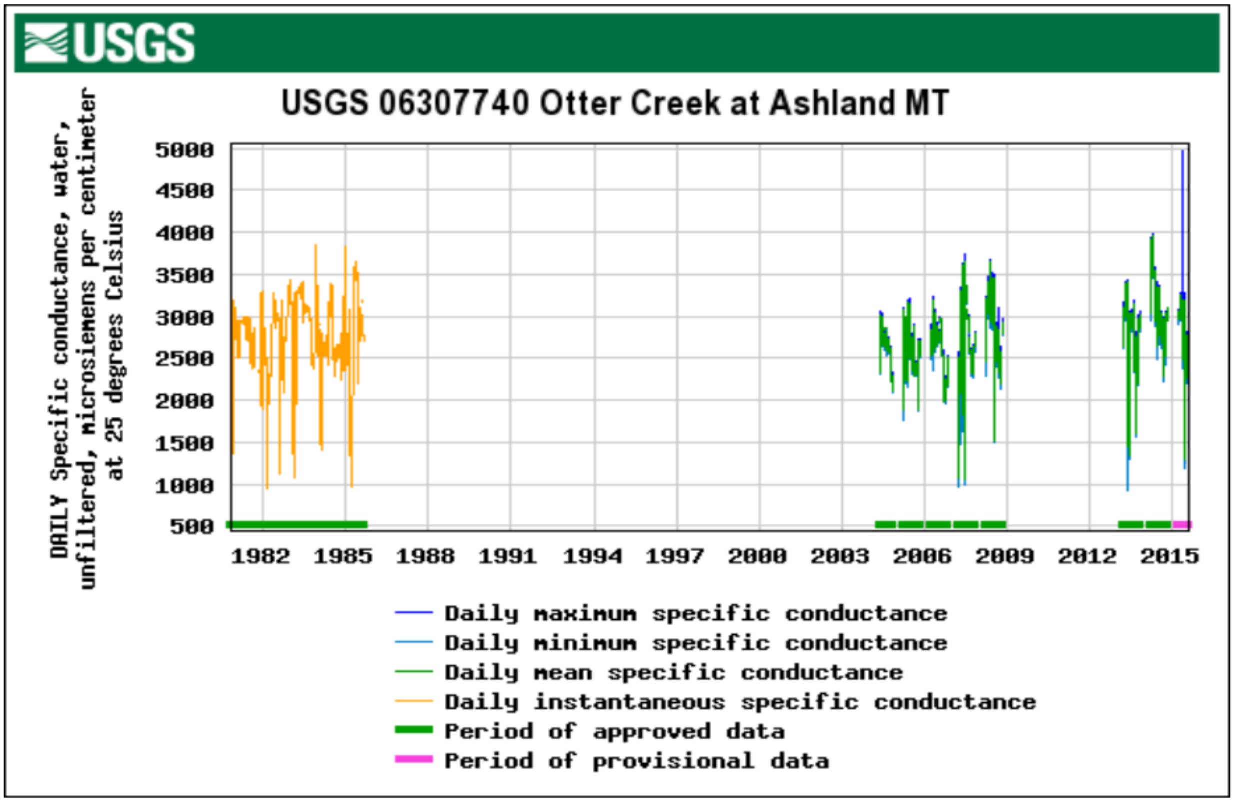

Figure 2-5. Continuous salinity data at USGS gage 06307740, 1980-2015 (United States Geological Survey, 2015)

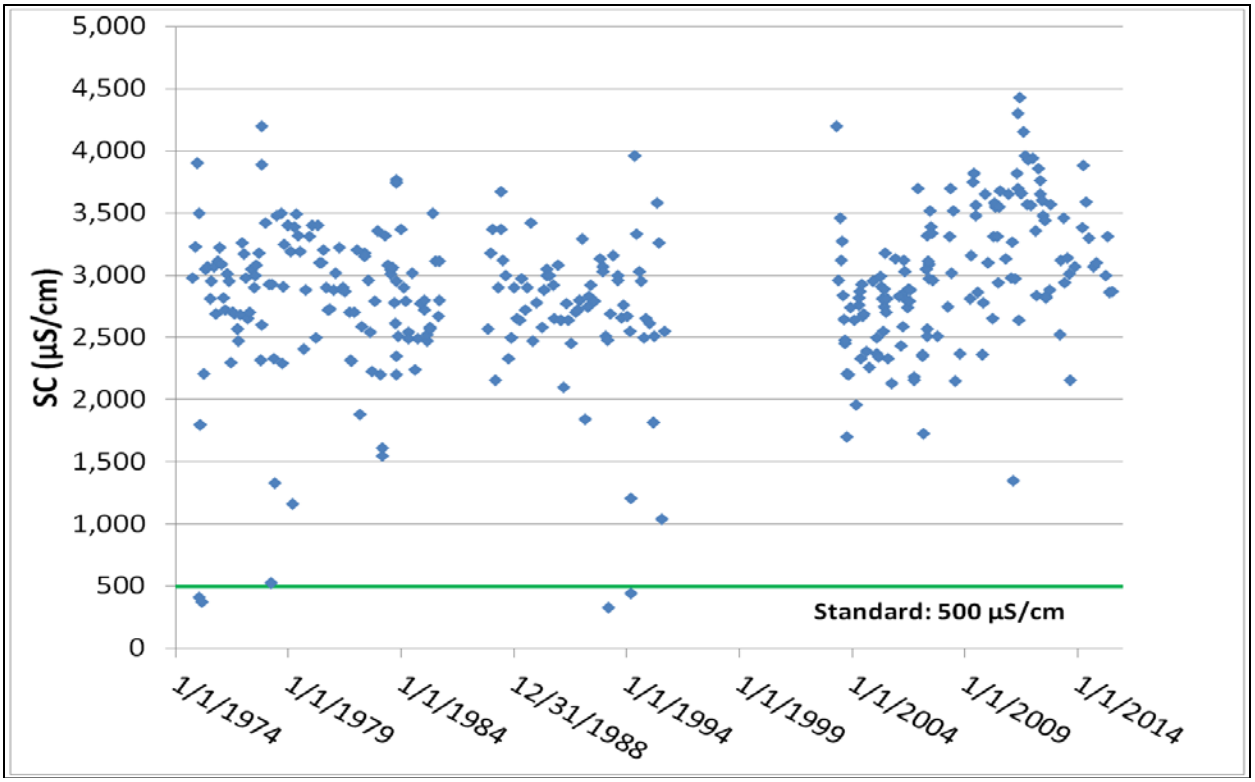

Figure 2-6. SC grab samples near USGS gage 06307740, 1974-2015

2.3.2.3 SAR Data

SAR data collection is slightly different than salinity data collection. While there are conductivity meters, there are no meters that measure SAR. So all SAR measurements are taken from grab samples, where the water is taken to a laboratory and analyzed for its constituent cations.

As a substitute, the USGS does perform regression of measured SAR and measured conductivity values collected at the same time to estimate SAR from the continuous conductivity meters. Correlations of these regressions are not published, and when DEQ attempted to reproduce some of these, we were unable to do so. Because of this uncertainty in the regression relationships, model calibration was completed using only measured SAR values. This resulted in a smaller subset of data, but what is believed to be a higher level of accuracy in the observed data.

There have been 265 SAR samples collected by either USGS or DEQ at or near USGS gage 06307740 over the period 1974-2015 (**Figure 2-7**). About 98% of samples taken are above the current state-approved Otter Creek growing season SAR standard of 3.0, and about 90% of samples taken are above the current state-approved Otter Creek non-growing season SAR standard of 5.0.

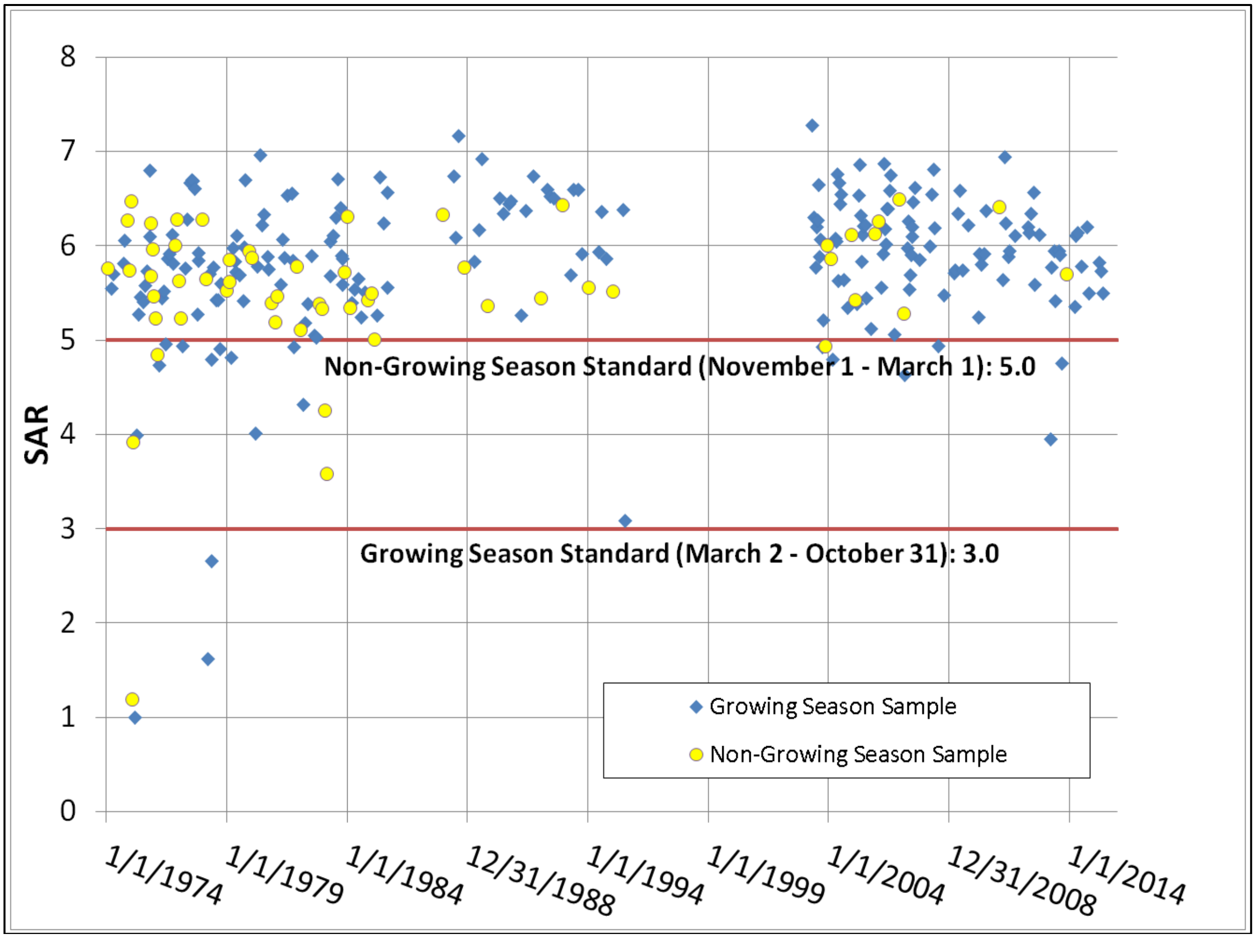

Figure 2-7. SAR grab samples near USGS gage 06307740, 1974-2015

2.4 LAND USE

Land use in the model was based on the NLCD 2006 data set (**Table 2-3**). Approximately 97% of the watershed is classified as forest, grassland, or shrubland (**Figure 2-8**). Human activities in the Otter Creek watershed consist primarily of cattle production and agriculture, which in turn consists primarily of flood irrigated and sub-irrigated hay. The NLCD does not distinguish well between “hay crops”, “pasture”, and “grassland”; therefore, some changes were made to the original NLCD values based on local knowledge of the watershed. The United States Forest Service (USFS) manages almost 50% of the watershed (approximately 225,000 acres) as part of the Custer National Forest, but there is no known logging activity in the forested portions of the watershed.

Urban-residential development occurs in the lower watershed in and around Ashland, and is virtually absent from other locations in the watershed. The majority of the urban land use in the watershed is due to roads. Overall, urban land use only accounts for about 0.5% of the watershed. The town of Ashland (the primary urban development in the watershed) is downstream of the USGS gage and does not affect flow or water quality at the gage. There are no permitted wastewater treatment plants or other point source discharges in the watershed. There are a number of historical small quarries (mines) in the area, where early settlers had discovered coal deposits near the surface (McClymonds, 1986), but based on local knowledge and an evaluation of DEQ permits to date, none are currently in production today. Due to their extremely limited acreage these were not considered in the model.

Table 2-3. Land uses within the Otter Creek watershed

Land Use	LSPC Code	Area (hectares)	Area (acres)	Watershed Area (%)
Irrigated Land (crops)	9	769.3	1,901	0.4%
Barren (Barren | Mining)	1 | 2	161.8	400	0.1%
Forest	3	45,013.7	111,231	24.4%
Grassland	4	74,860.9	184,985	40.6%
Shrubland	5	58,623.3	144,861	31.8%
Urban (Pervious | Impervious)	7 | 20	873.7	2,159	0.5%
Wetlands	8	3,921.4	9,690	2.1%
Totals	**-**	**184,224***	**455,227***	**100.0%***

*Due to rounding, total values and sums of column may not match up.

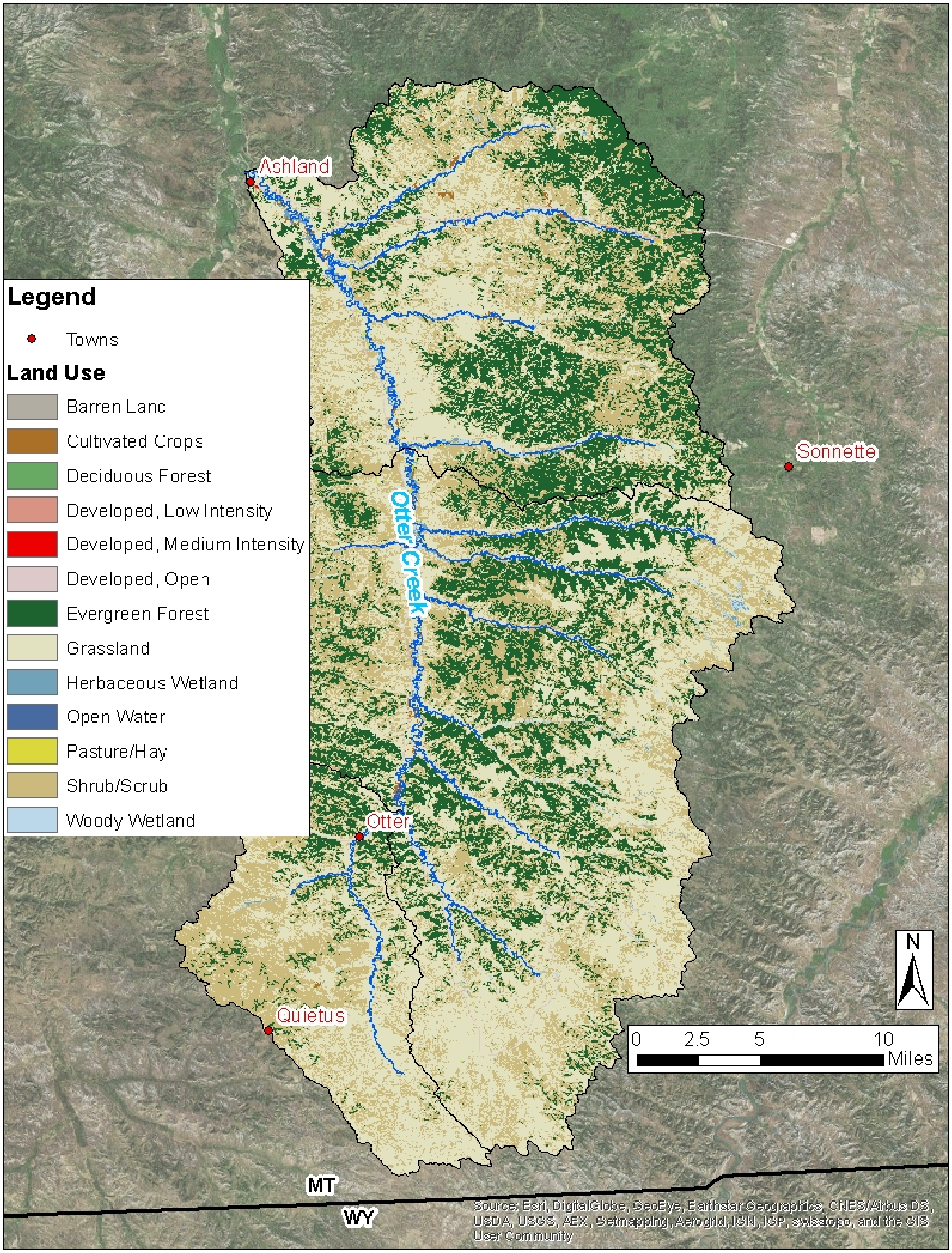

Figure 2-8. 2006 NLCD Land use classifications in the Otter Creek watershed

2.5 SOILS

Soils in the Otter Creek watershed exhibit moderate spatial variability. A total of 11 soil map unit IDs (MUIDs) occur in the watershed, as defined by the State Soil Geographic Database (STATSGO). However, just five of these types make up over 90% of the watershed (**Table 2-4**). Most soils on the bottom lands (low elevation) of Otter Creek consist of silty clay loams. Loamier soils tend to be on the western side of the watershed, whereas clay loams and clay type soils occur higher up in the eastern portion of the watershed (**Figure 2-9**).

Table 2-4. Soil types within the Otter Creek watershed

MUID	Description	Texture	Watershed Area (%)
MT078	Cabba-Campspass-Farland	clay loam	0.51%
MT080	Cabba-Farland-Yawdim	clay loam	7.56%
MT083	Cabba-Ringling-Yawdim	silty clay loam	38.51%
MT084	Cabba-Ringling-Yawdim	silty clay loam	20.32%
MT089	Yamac-Birney-Cabbart	loam	3.02%
MT092	Delpoint-Cabbart-Yamac	loam	1.87%
MT475	Ringling-Cabba-Relan	loam	2.89%
MT569	Yawdim-Thurlow-Cabbart	silty clay loam	15.80%
MT668	Yamac-Havre-Birney	silty clay loam	9.13%
MT676	Yawdim-Delpoint-Thurlow	silty clay loam	0.31%
MT692	Shingle-Renohill-Ulm	clay	0.08%

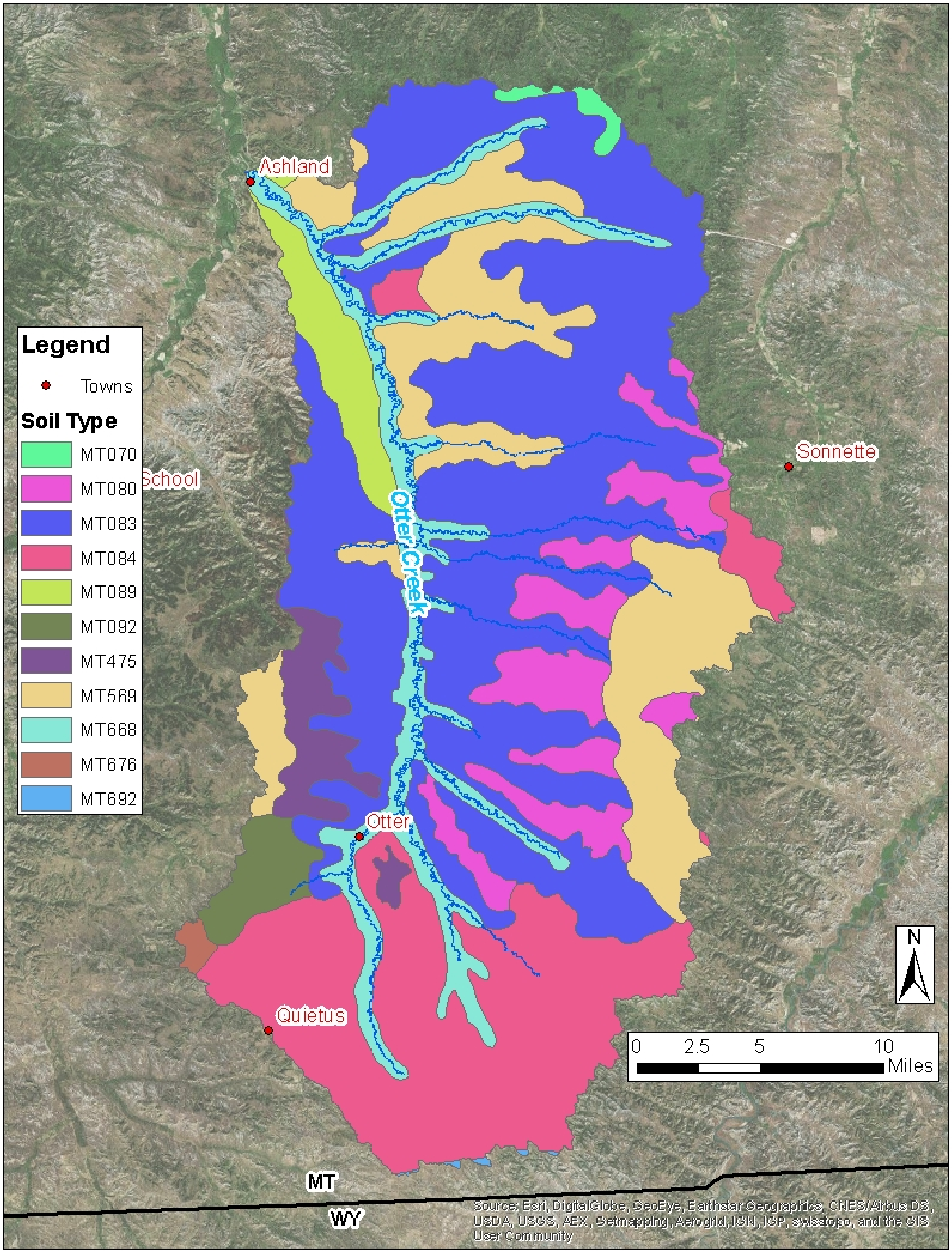

Figure 2-9. STATSGO soil types in the Otter Creek watershed

3.0 MODEL DEVELOPMENT

3.1 LSPC MODEL DESCRIPTION

DEQ selected the LSPC model for use in the Otter Creek watershed modeling project. The LSPC model was developed by Tetra Tech, Inc., and is a proprietary watershed-scale hydrologic and water quality model developed to quantify the impact of land management practices in large, complex watersheds. It is a deterministic, continuous simulation basin-scale model. LSPC is a re-coded version of the Hydrologic Simulation Program – Fortran (HSPF). LSPC is much more computationally efficient than HSPF.

The advantages of LSPC include:

- Physical basis and use of readily available inputs;
- Computationally efficient, in that modern computers are able to complete the simulation calculations within a reasonable amount of time;
- Incorporation of comprehensive processes by using mathematical equations to represent flow, stream pollutant fate and transport, and other physical, chemical, and biological interactions;
- Can be used to study long-term impacts and to simulate management scenarios.

Pollutant yields, water balance and surface runoff are computed at the sub-basin level, and then are aggregated for subsequent routing through the channel system. LSPC simulates both streamflow and general water quality constituents, and several compartments are incorporated into the model to describe the flux of water through the landscape. These include: (1) precipitation, snow accumulation and melt, (2) surface runoff, (3) infiltration, (4) interflow (subsurface flow), (5) groundwater flow, and (6) evapotranspiration (Tetra Tech, Inc., 2011). An example of the complete hydrologic cycle (similar to what LSPC uses) is shown in **Figure 3-1**.

LSPC uses a simplified method to model general water quality constituents. The constituents are added to the water via either a buildup/wash off function, or a more simplified event mean concentration (EMC) function. These constituents are then conservatively transported through the system with the water column (i.e. there are no reaction mechanisms involving these constituents – all mass is transported to the outlet of the system).

3.1.1 LSPC Model Input

LSPC version 4.01 was used in this modeling effort. Fundamental input data for LSPC are topography, land use, soils, and climatic data. The initial model setup was taken from the previous Tongue River model, and then updated with more current data (land use, climate, etc.). Geographic data sources used for model setup are shown below:

- National Elevation Dataset (NED) – The USGS NED is a 30 meter gridded, high-resolution compilation of elevation data used for watershed delineation, flow accumulation processing, and slope determination.
- Climate stations – The climate stations used in the model are discussed in **Section 2.2**.
- National Land Cover Dataset (NLDC) – The 2006 NLCD is a 21-category land cover classification (30-m grid) available for the conterminous U.S. Eight categories of land-use were used in this model (**Table 2-3**) as described in **Section 2.4**.

- STATSGO Soils – The STATSGO soil map (Natural Resources Conservation Service, 1994) is a 1:250,000 scale generalization of detailed soil survey data that was used to develop soil properties of landcover classes. The STATSGO data is described in **Section 2.5**.

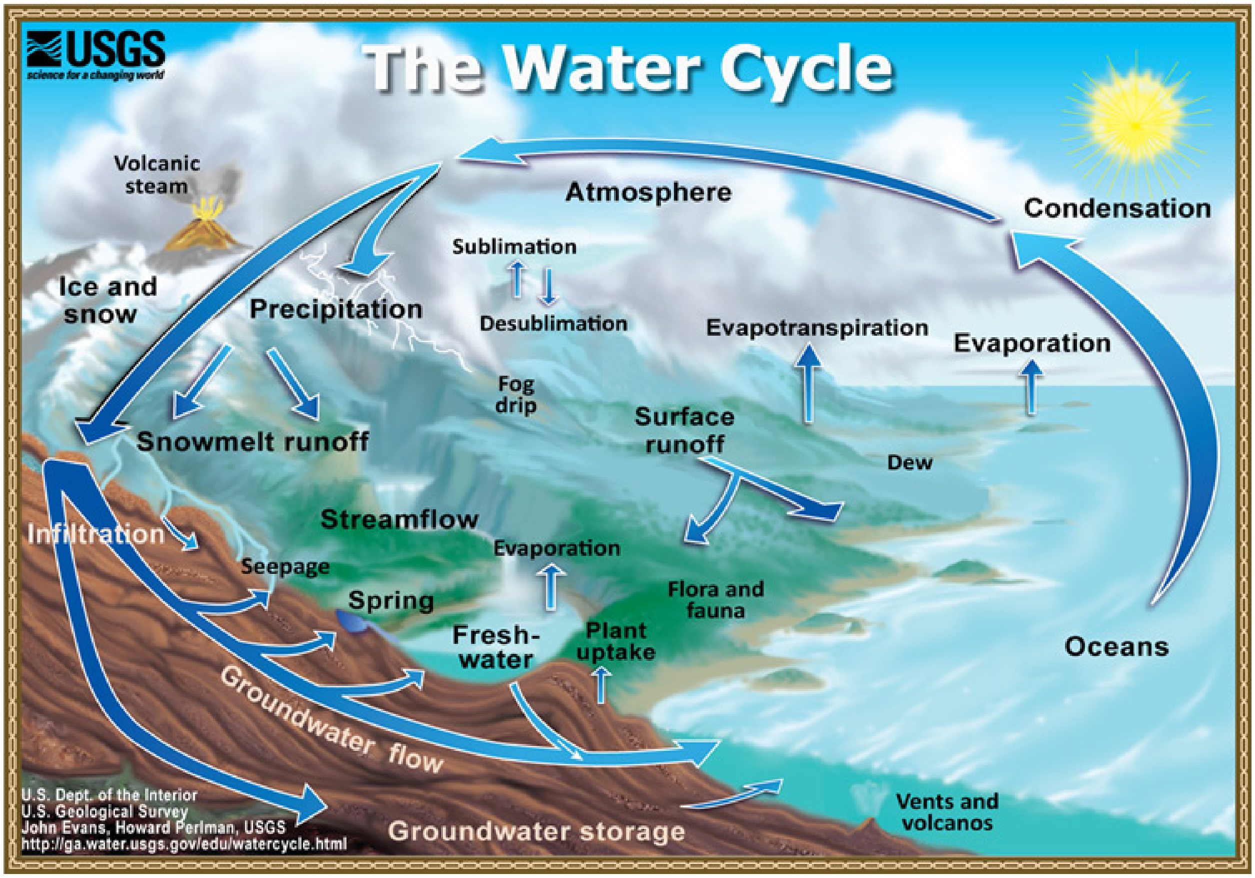

Figure 3-1. The hydrologic cycle (United States Geological Survey, 2015)

3.2 Otter Creek LSPC Model

The framework for this Otter Creek LSPC model was based on the original EPA model for the Tongue River (EPA, 2007). The EPA model encompassed Otter Creek as well as the rest of the Tongue River watershed, and this effort simply isolated the Otter Creek portion of the EPA model, and then refined the model to reflect a finer level of detail for a smaller sub-watershed. DEQ updated and re-calibrated this model to focus specifically on Otter Creek. In particular, the hydrology and water quality were updated to reflect more local, site-specific conditions. For example, DEQ added another weather station at Fort Howes, which is directly in the middle of the Otter Creek watershed. The updates also include customized agricultural practices (mentioned above), and updates to the number and size of stock ponds and check dams throughout the watershed based on aerial photo interpretation. Water quality refinements include hundreds of groundwater quality measurements from Hydrometrics in the area near the proposed coal mine.

3.3 Simulation Period

The model simulation period was chosen to be coincident with the most recent landcover, and available calibration data for flow, salinity, and climatic data sets with few or no missing values. The original targeted modeling period was from 1988 to 2003. However, there is a large data gap in the observed data from 1995 to 2003, and pre-1995 calibration data is generally sparse. Therefore, the period of 2003 through 2010 was chosen to best meet our project goals. A “warm-up” period, from 1988 to 2003, was used to minimize initial condition effects. Land use has not changed substantially in the watershed in the last 25 years, so the 2006 NLCD land-use data is considered adequate to reflect the actual land use within the watershed during the model period.

3.4 Watershed Delineation

To adequately simulate spatial processes in the watershed, all 6th code hydrologic unit code (HUC) boundaries were delimitated within a sub-basin boundary, and any flow or water quality gages were also included. The original EPA model captured these requirements in Otter Creek, so that delineation was used for this model. This resulted in a total of 21 total sub-basins for Otter Creek (**Figure 3-2**), which ranged in size from 674 to 37,795 acres (**Table 3-1**). Elevations within sub-basins varied only slightly, with approximately 1,500 feet of elevation difference between the headwaters and the mouth (**Table 3-1**).

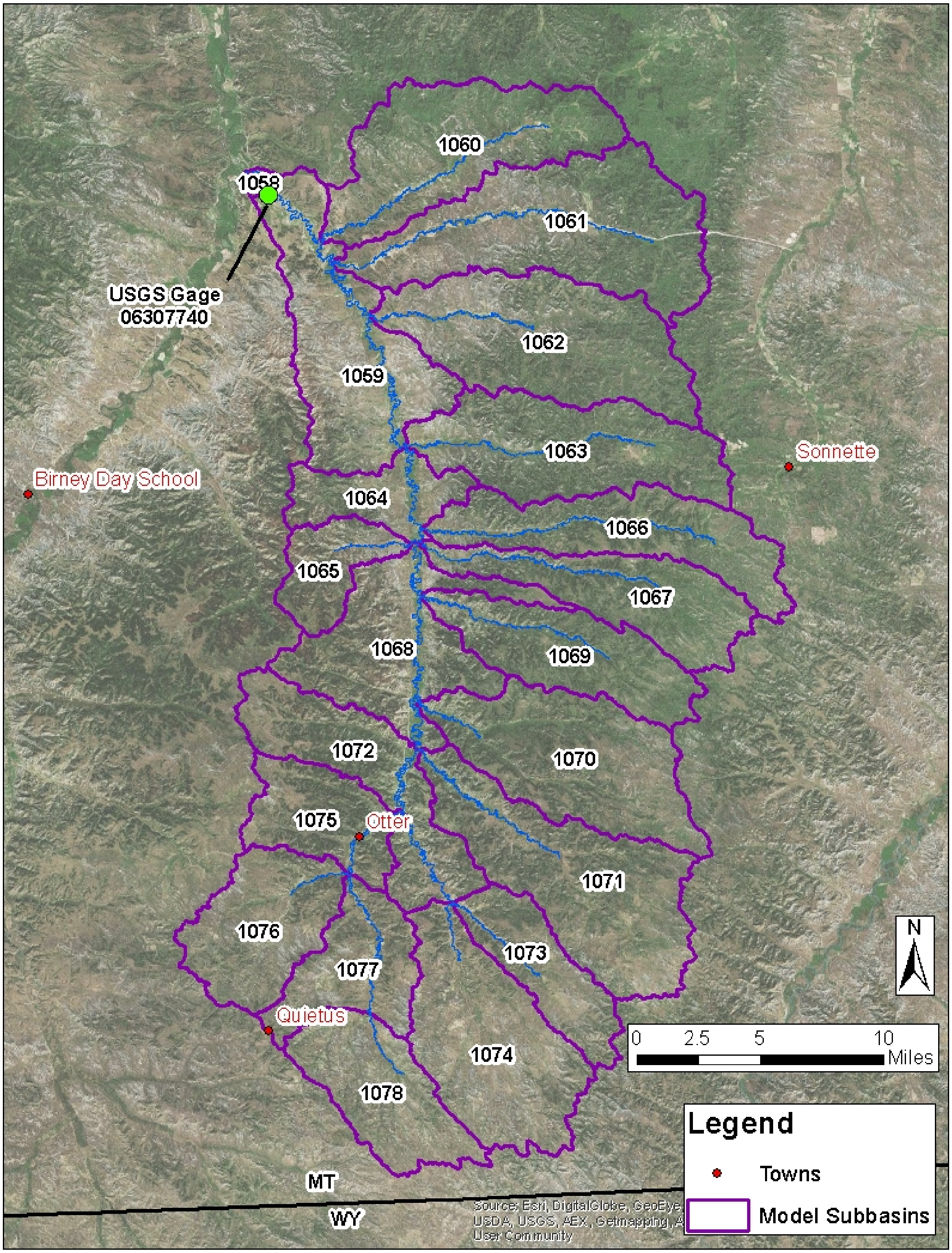

Figure 3-2. Sub-basins within the Otter Creek watershed

Table 3-1. Sub-basin summary, Otter Creek watershed

Sub-Basin	Area (hectares)	Area (acres)	% Watershed Area	Median Elevation (ft)
1058	273	674	0.1%	2,990
1059	12,001	29,655	6.5%	3,220
1060	11,783	29,117	6.4%	3,523
1061	15,295	37,795	8.3%	3,591
1062	13,319	32,912	7.2%	3,581
1063	11,064	27,340	6.0%	3,624
1064	4,321	10,677	2.3%	3,393
1065	3,658	9,039	2.0%	3,706
1066	9,129	22,557	5.0%	3,763
1067	7,991	19,747	4.3%	3,840
1068	10,268	25,374	5.6%	3,598
1069	7,935	19,608	4.3%	3,807
1070	11,755	29,048	6.4%	3,860
1071	13,375	33,050	7.3%	3,869
1072	8,732	21,578	4.7%	3,770
1073	5,256	12,987	2.9%	3,946
1074	11,763	29,067	6.4%	3,927
1075	5,468	13,512	3.0%	3,799
1076	7,619	18,828	4.1%	3,883
1077	6,004	14,837	3.3%	3,834
1078	7,214	17,827	3.9%	4,021
Totals	**184,224***	**455,227***	**100.0%**	-

*Due to rounding, total values and sums of column may not match up.

3.5 Climatic Patterns

Climate data was obtained from a total of four weather stations in close proximity to the watershed, as described in **Section 2.2**. Sub-basins were assigned to representative climate stations in LSPC, based on proximity. LSPC uses standard wet and dry lapse rates. The wet lapse rate (when precipitation occurs) is 3.5^{o} F/1,000 ft, and the variable dry lapse rate is shown below (**Figure 3-3**). LSPC does not have a built-in precipitation lapse rate, and due to the low variation in topography and observed annual precipitation, a precipitation lapse rate was not used in this modeling effort. Climate stations were assigned to a particular sub-basin based on proximity to the centroid of the sub-basin. Both temperature and precipitation information are then input into the model from this station, and the temperature lapse rates are incorporated into the model to account for orographic effects on temperature. The average elevation of a sub-basin was never more than a few hundred feet different than the elevation of the weather station assigned to it.

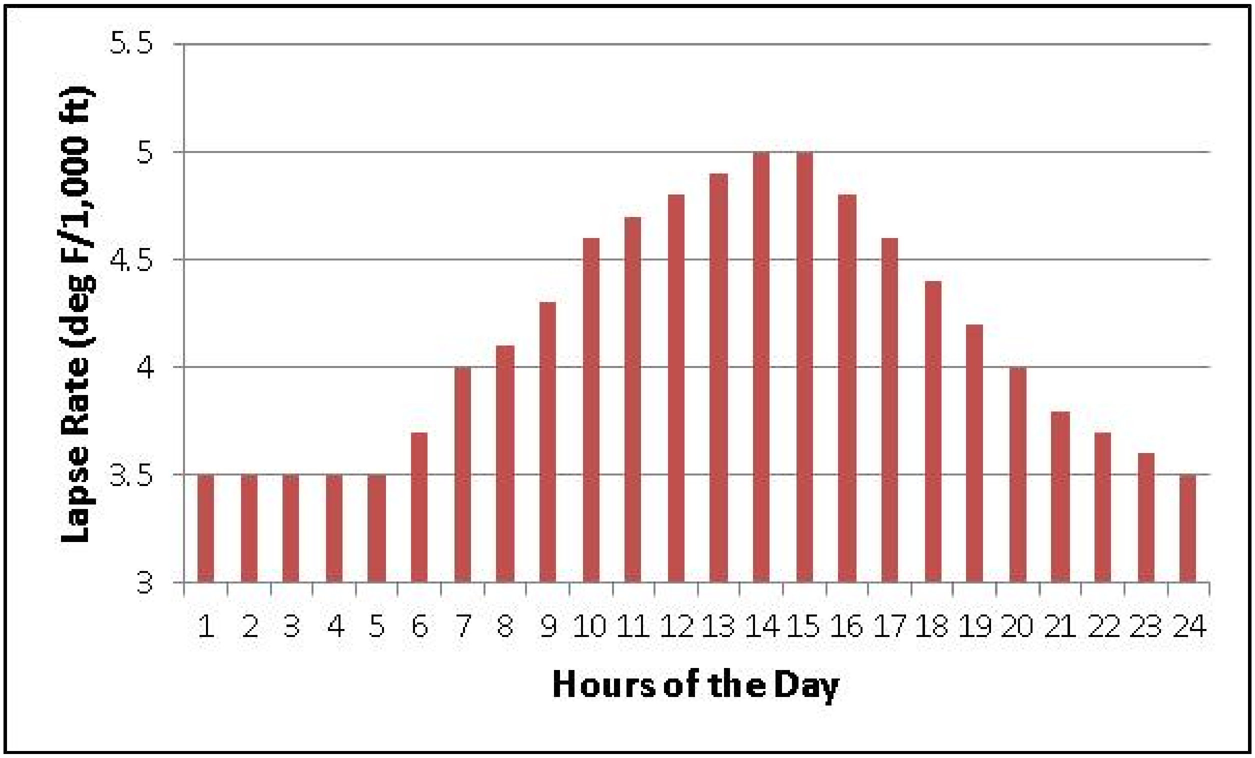

Figure 3-3. Dry weather temperature lapse rate

3.6 Routing Geometry

Channel measurements were taken by the USGS at two locations in the watershed (near the mouth, and above Tenmile Creek). In addition, DEQ's field team measured the channel width in a few locations. These values were used to define the channel geometry, when available. Additionally, the USGS measured several channel reaches in Otter Creek and these values were also reviewed (Chase, 2015). If none of this data were available, a USGS channel geometry-drainage area regression for western Montana (Lawlor, 2004) was used, along with aerial photo interpretation. Manning's *n* values typical of natural stream systems (0.03 to 0.05) were used in the model. All routing coefficients can be found in the model input in **Appendix A**.

3.7 Evapotranspiration

Evapotranspiration (ET) is the combined loss of water from surface evaporation and by transpiration from plants. The potential evapotranspiration (PET) is the ET in a densely vegetated plant-soil system if soil water content was continuously maintained at an optimal level. In LSPC, PET is one of the climate inputs. Although there are some PET stations located in Montana, none are located in or near the watershed. Since detailed observed PET data was not available, the PET was estimated using a combined aerodynamic and energy balance approach. Several methods can be used to calculate PET, but in this model the Penman-Monteith method (Monteith, 1965) was used. Calculated PET generally matched up well with PET estimates from other eastern Montana stations. Calculated PET is potentially a large source of model uncertainty and error.

3.8 IRRIGATION

Otter Creek is classified as a C-3 stream, meaning its waters are "naturally marginal for agriculture" [2]. Accordingly, agricultural use is not extensive as in other watersheds, but still approximately 1,700 acres in the watershed are classified as "pasture/hay" according to the NLCD. The main form of irrigation is a passive type of flood irrigation. Dikes, check dams, and berms passively control runoff from large rain storms or snowmelt events and spread water across fields during high flow events. In this regard, producers are entirely dependent upon the snowpack and rainfall events each year. If no large runoff events occur, then there is almost no irrigation, although some sub-irrigation occurs due to the many check dams. Thus, crop yields vary greatly from year to year, with some years producing no harvest.

The irrigation described above is difficult to model since it is not based on a time schedule (e.g., every two weeks) or plant water demand (e.g., irrigate when the field is dry), but rather when the creek happens to be flowing high after a rainstorm or snowmelt event. Additionally, the exact location of irrigation diversions cannot be accounted for in LSPC since they are not known. Therefore, simplifications had to be made to conceptualize irrigation in the model framework. First, it was assumed in this study that irrigation occurs in all sub-basins. The degree of irrigation was based on the amount of "pasture/hay" land use in a sub-basin from the 2006 NLCD. Second, to represent irrigation, water was diverted onto the fields in the model once creek stages rise above a pre-determined level. The amount of water needed to satisfy the plant water demand was used, and the rest was returned to the creek via interflow or groundwater flow. Although this simplifies the actual irrigation practice in the watershed, it should correlate well with irrigation practices since creek levels rise mainly due to precipitation.

3.9 STOCK PONDS AND CHECK DAMS

Stock ponds are small man-made reservoirs that serve as a water supply for livestock and crop production. In Otter Creek, many of the stock ponds used for livestock water can be found near natural springs, which are abundant in the watershed. Check dams are found along the entire length of Otter Creek. They are located on the mainstem of Otter Creek and the tributaries, and back up water to create small reservoirs along the creek. These impoundments can range from a few square yards to several acres in size. Check dams are used to raise water levels for irrigation, and to promote sub-irrigation. Stock ponds and check dams affect hydrologic processes in the following ways:

- Delay response to storms by capturing runoff and then releasing via overflow
- Reduce overall streamflows due to loss of water from evaporation and water use
- Allow ponded water to slowly infiltrate, thereby increasing downstream baseflow

In this model, stock ponds and check dams were modeled as done in the original Tongue River model (U.S. Environmental Protection Agency and Tetra Tech, Inc., 2007a). The Department of Natural Resources and Conservation (DNRC) provided estimates of stock pond sizes in the watershed. The total acreage of stock ponds/check dam ponds in each sub-basin were summed up, and then several sub-basins were summed together to create one surrogate pond for multiple sub-basins. The surrogate pond was sized to be the sum of the volumes of the stock ponds that were provided by Montana DNRC. The total pond area for each sub-basin was spot-checked using aerial photography, and the results were

[2] Administrative Rules of Montana 17.30.629(1)

within the bounds of reason. Ponds were all assumed to be rectangular with an infiltration rate of 15 mm/day.

Furthermore, each pond was assigned an upstream drainage area. This area was removed from the sub-basin drainage and added to the stock pond drainage area (i.e. a separate internal sub-basin was created). This area was assumed to be a mix of grassland and shrubland. The area removed from each sub-basin was done in a prorated manner, so sub-basins with larger volumes of stock ponds had larger areas removed for the upstream drainage contribution.

Finally, each stock pond was assigned a sub-irrigated area directly below it. This area was assumed to follow the stream channel for one kilometer, sub-irrigating a 30 meter wide area of land. It was assumed that this area was composed of a mix of grassland and wetlands.

Although many assumptions went into modeling the stock ponds and check dams within the watershed, reasonable assumptions are appropriate and necessary when little or no management data is available. In the Otter Creek watershed, there are hundreds of stock ponds and check dams with virtually no data concerning areas, volumes, control elevations, weir lengths, etc.

3.10 Point Sources

There are no permitted wastewater treatment plants or industrial sources within the Otter Creek watershed at this time. None were considered in this modeling effort.

3.11 Salinity Modeling in LSPC

LSPC does not specifically model SC or SAR. Instead a surrogate method is needed to quantify these values. Three cations were simulated as general water quality constituents in LSPC: calcium (Ca), magnesium (Mg), and sodium (Na). Each constituent is transported through the water column conservatively and does not have any reaction mechanisms (e.g., uptake, settling, etc.). In other words, once a constituent enters the water column at any upstream location, it will stay in the water column until reaching the mouth of Otter Creek. Methods for modeling both conductivity and SAR are further expounded upon below.

Salinity (or SC) is dependent upon the sum of all cations and anions in the water column, and also the fraction of each ion and its charge in the mixture. From observed data collected in Otter Creek, a strong correlation was found between the sum of the three major cations (Ca, Mg, Na – in milliequivalents per liter) and SC (**Figure 3-4**). This relationship was used as the basis of modeling SC in LSPC. The three modeled cations (Ca, Mg, Na) were converted to meq/L to account for the charge of the cation and its effect on conductivity, and these were then summed in a post-processor. The regression equation from **Figure 3-4** ($r^2 = 0.96$) was then applied to come up with an SC value for the stream reaches. SAR was also directly calculated using **Equation 1** from **Section 2.3**.

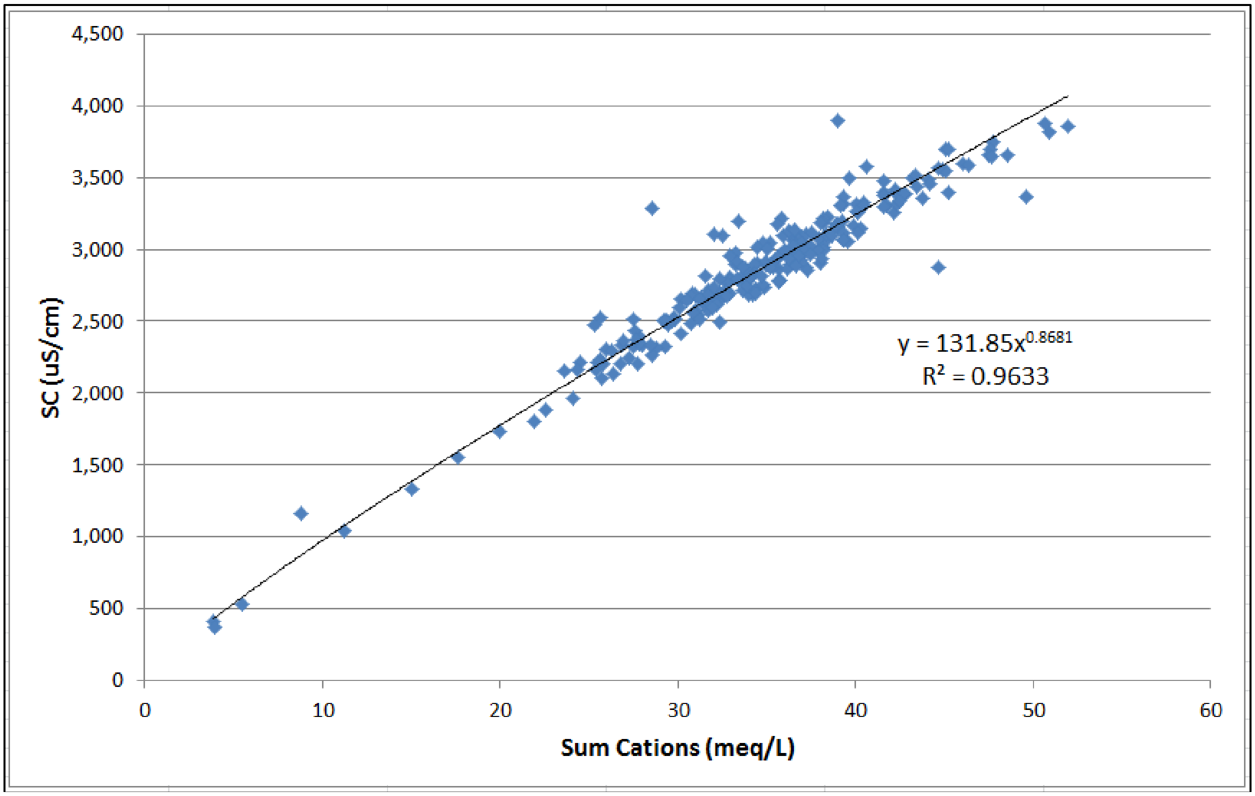

Figure 3-4. Relationship between SC and the sum of cations in Otter Creek

Generation of cations in the LSPC model for calculation of both SC and SAR can be completed in one of two ways: using either a build-up/wash-off function, where pollutants accumulate on the land surface over time and then wash off during precipitation events, or else by a simple event mean concentration (EMC), which are the average concentrations in runoff from various land uses which are multiplied by runoff volume (with appropriate conversions) to create a mass loading to the water column. Since we did not have enough information to construct a build-up/wash-off function, EMCs were used in the Otter Creek model.

LSPC allows a different EMC value (all in mg/L) to be assigned to each land use (eight land uses within the model), for each type of water pathway (surface, interflow, groundwater), for each pollutant (Ca, Mg, Na). A total of 72 different EMCs were used in the model ($8 \times 3 \times 3 = 72$), although most of the EMCs did not vary across land uses, due to lack of available data. Additionally, LSPC allows EMCs to vary by month if desired. In this case we did not vary them by month since we didn't have enough data to justify that level of detail. Determination of EMC values is discussed further in **Section 4.5**.

One of the simplifications used in LSPC is that water does not retain its mass loading of salt when moving between water pathways within a sub-basin. So for example, if surface runoff pools in a small depression and slowly infiltrates to the groundwater column, it would lose its EMCs and mass loading attributed to surface water, and instantly assume the EMCs and mass loading associated with groundwater (usually much higher). This primarily affects the flow from surface to interflow to groundwater. Due to the long travel times and large volumes associated with groundwater, this assumption is not believed to introduce large errors into the salinity modeling. However, it is a major simplification used by this surface water runoff model and adds some uncertainty to the results. Sources of uncertainty are discussed more in **Section 6**.

Another assumption associated with salinity modeling is that salts are conserved in the water column. This means that salt does not precipitate out of the model, it does not dry up and line the sides of a pond in the dry months, etc. – the salts always stay within the water column. This likely over-estimates salt loads during dry times of the year, which will be seen and discussed more in the next section.

4.0 MODEL CALIBRATION

A deterministic modeling approach was employed by DEQ to evaluate the cause-effect relationship between management activities and EC/SAR in the Otter Creek watershed. Evaluation criteria are listed below.

4.1 EVALUATION CRITERION

Three model performance statistics were used to assess daily predictions of the LSPC model. The first is relative error (RE), which is a measure of the average tendency of simulations to be larger or smaller than an observed value. RE is defined as the deviation between observed ($X_{i,obs}$) and simulated ($Y_{i,sim}$) values. An optimal RE is 0.0, and positive and negative values reflect bias toward over- or under-estimation. RE is calculated as:

$$\text{RE\%} = \frac{\sum_{i=1}^{n}(Y_{i,sim} - X_{i,obs})}{\sum_{i=1}^{n}(X_{i,obs})} \times 100$$

(**EQ-2**)

Van Liew et al. (2005) suggested RE values <±20% are "good", while more strict guidelines have been suggested elsewhere. For the purpose of this project, the acceptable RE depended on the parameter of interest. For total water balance, RE< ±10% was considered to be sufficient for model calibration, while for less important components such as seasonal volumes or storm volumes, higher REs were considered acceptable.

The second evaluation criterion was the Nash-Sutcliffe coefficient of efficiency (NSE) (Nash and Sutcliffe, 1970). NSE expresses the fraction of the measured variance reproduced by the model and is defined as:

$$\text{NSE} = 1 - \frac{\sum_{i=1}^{n}(X_{i,obs} - Y_{i,sim})^2}{\sum_{i=1}^{n}(X_{i,obs} - \overline{X}_{i,obs})^2}$$

(**EQ-3**)

The NSE can range from $-\infty$ to 1.0. By increasing NSE, error in the model is inherently decreased. An NSE of 0 would indicate that the model is no better at predicting flows than using the long term mean, whereas values above or below zero would mean that it does a better or worse job than the mean, respectively (Motovilov, et al., 1999). Simulation results are considered to be good when NSE > 0.70, while NSE values above 0.5 are considered satisfactory (Moriasi, et al., 2007).

Finally, r-squared (r^2) values were evaluated for daily results. The r-squared value is a statistical measure of how close the simulated values when fitted to a 1:1 regression line of observed values. While on its own, r-squared doesn't really reveal much about a model, when combined with other metrics, it can be a valuable tool for tracking the response of the simulation over a range of observed values. R-squared can range from 0 to 1, where 0 means there is no correlation between the two datasets, and 1 means there is a perfect correlation (positive or negative) between the two datasets.

Finally, graphical comparisons of modeled vs. observed data were used to visually identify patterns and agreement between the simulated and observed values.

4.2 Simulation Period and Boundary Conditions

The simulation was performed for the time period 1988-2010. Due to a lack of observed flow data in Otter Creek from 1995 to 2003, and the lack of rainfall radar data and other correlation sources for the pre-1995 period, the 1988-2003 timeframe was used as a "warm-up" period to allow the initialized variables to reach a dynamic steady-state. This lowers the effect of initial conditions, since state-variables have many years in which to "equilibrate" to model forcing functions. The model was then calibrated for the period 2003-2010. The period was originally split into a calibration period and a validation period, but due to the great variability from year to year in the watershed flows, this was later combined to run only one simulation. The 2003-2008 timeframe was in general a low flow period, whereas the 2009-2010 timeframe was an average/high flow period (**Figure 4-1**).

The annual departure from median flow for the entire period of record (1973-2013), including the model period (2003-2010), is shown in **Figure 4-1**. The model period is close to the median a majority of the time, with four years slightly below the median and three years slightly above the median. Precipitation (and other meteorological data) form the primary boundary condition that governs the annualized departures in streamflow. There are no inflows or known inter-basin transfers and the only surface outflow is the mouth of Otter Creek near Ashland, MT.

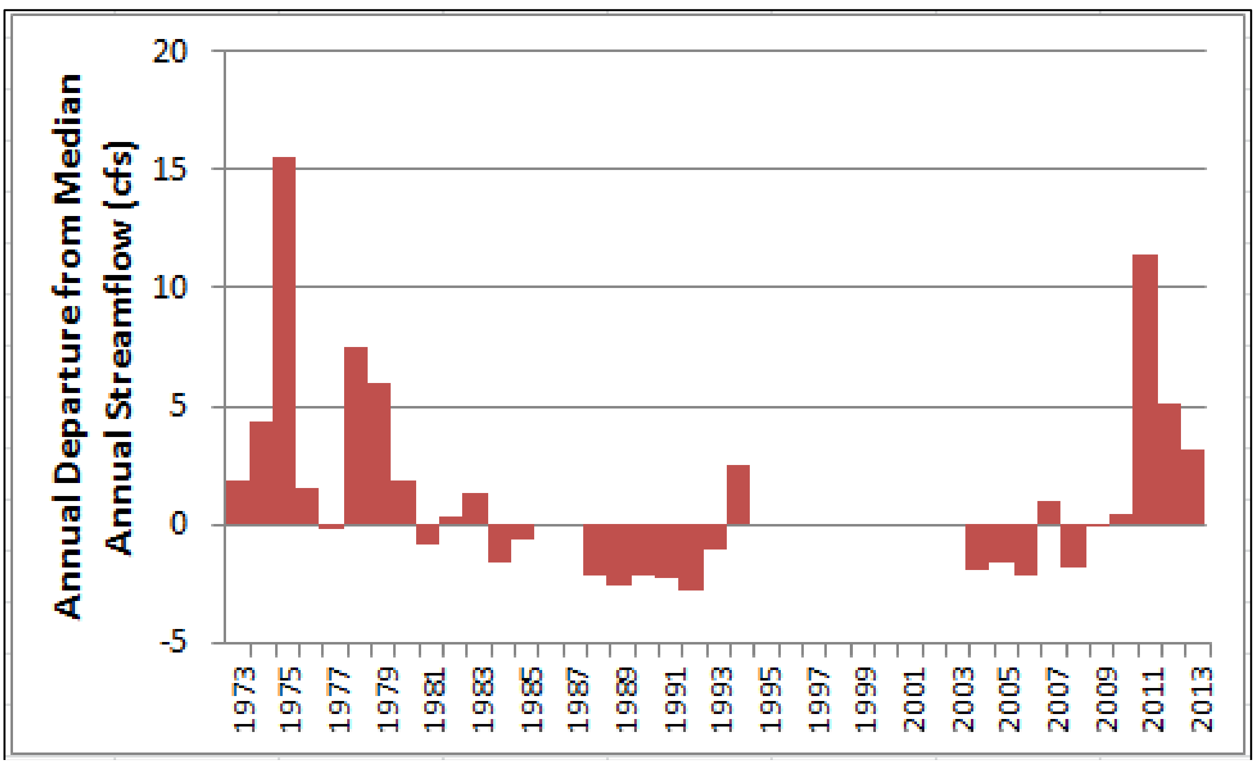

Figure 4-1. High Flow and Low Flow Years in Otter Creek, 1973 - 2013

4.3 SNOW CALIBRATION

A manual approach was used to calibrate the snow/rain proportions in the LSPC model. Model parameters were taken from the original Tongue model originally, and then were adjusted manually based on desired system response and watershed knowledge, using technical guidance to keep the values within reasonable ranges (U.S. Environmental Protection Agency, Office of Water, 2000). Approximately 10 parameters that govern snow accumulation and melt were adjusted during calibrated (**Table 4-1**).

Table 4-1. Parameters used in the snow calibration in the Otter Creek LSPC model

Component	Parameter	Description	Calibrated Value	Min	Max	Units
Snowpack/melt	SHADE	Fraction of land shaded from solar radiation	0.1–0.75	0.0	1.0	dimensionless
Snowpack/melt	SNOWCF	Precipitation to snow multiplier	1.1	1.0	2.0	dimensionless
Snowpack/melt	COVIND	Maximum snowpack at which the entire LAND is covered with snow	3.0	0.1	10.0	in
Snowpack/melt	RDCSN	Density of new snow relative to water	0.2	0.05	0.3	dimensionless
Snowpack/melt	TSNOW	Snowfall temperature	34	30	40	°F
Snowpack/melt	SNOEVP	Adapts sublimation to field conditions	0.15	0.0	0.5	dimensionless
Snowpack/melt	CCFACT	Adapts snow melt equation to field conditions	1.0	0.5	8.0	dimensionless
Snowpack/melt	MWATER	Water content of snowpack	0.03	0.005	0.2	in/in
Snowpack/melt	MGMELT	Maximum of snow melt due to ground heat	0.01	0.0	0.1	in/day
Snowpack/melt	FOREST	Winter transpiration factor	0-0.75	0.0	1.0	dimensionless

For snow calibration, there was no long-term observed data in the watershed to calibrate to (e.g., snow water equivalent data at a SNOTEL site). Although one gage in the watershed had some snow records, these were extremely intermittent and the period of record did not generally match the modeling period. Both Miles City, MT and Sheridan, WY do have long term snow records, however. Miles City is located at the mouth of the Tongue River, about 60 miles north (and downstream) of Otter Creek, while Sheridan is located near the headwaters of the Tongue River, about 50 miles southwest (and upstream) of Otter Creek. These cities form a rough bracket around Otter Creek – one is higher in elevation in the same major valley (Tongue), while the other is lower in elevation in the same major valley.

In Miles City about 20% of all precipitation falls as snow, while that number is about 30% in Sheridan. The Otter Creek sub-basins have snow/precipitation ratios that are more or less between the ratios at the weather stations in Miles City and Sheridan (**Figure 4-2**). This rough "check" was about all that could be done for the snow calibration in the watershed, but it seemed reasonable and was considered adequate for moving forward with the runoff calibration.

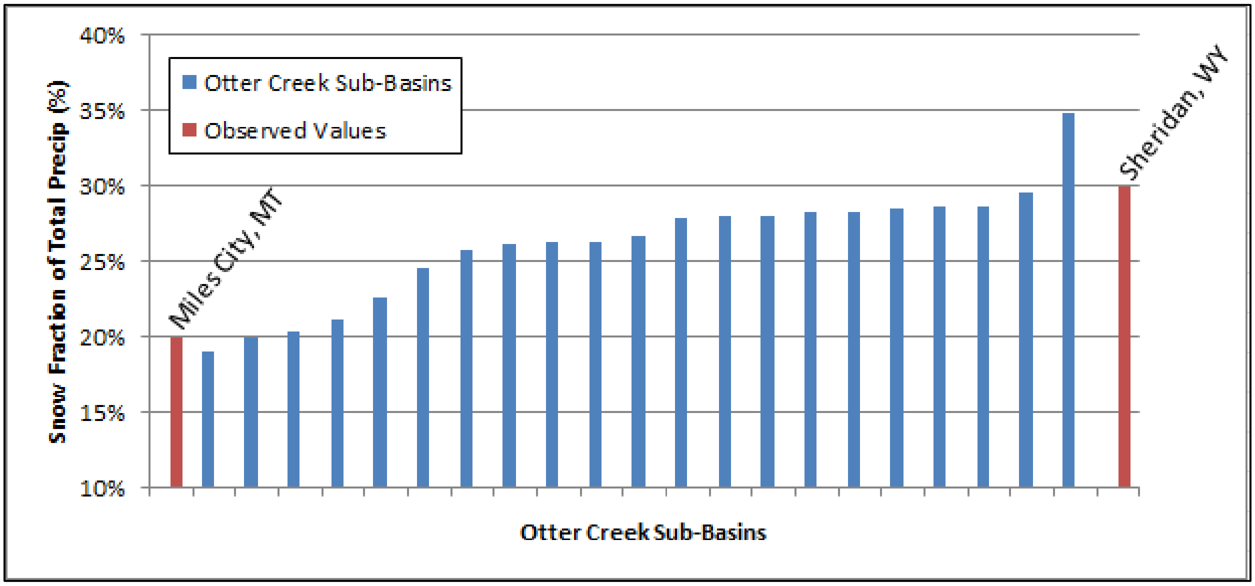

Figure 4-2. Snow Calibration

4.4 Streamflow Calibration

Calibration of streamflow in LSPC was completed using a manual approach. First, a sensitivity analysis was performed on coefficients to identify those that have a strong effect on the model. Parameters from the original Tongue model were used as the starting point for calibration and values were then manually adjusted based on desired system response and watershed knowledge. Approximately 19 parameters that govern precipitation runoff, evapotranspiration, soil water storage, stream channel routing, and subsurface flow were calibrated (**Table 4-2**).

Table 4-2. Parameters used in the runoff calibration in the Otter Creek LSPC model

Component	Parameter	Description	Calibrated Value	Min	Max	Units
Water Budget	LZSN	Lower zone nominal soil moisture storage	15.0	2	15.0	in
Water Budget	INFILT	Infiltration capacity of the soil	0.04–0.05	0.001	0.5	in/hr
Water Budget	KVARY	Variable groundwater recession	0.0	0.0	5.0	1/in
Water Budget	AGWRC	Base groundwater recession	0.98–0.999	0.85	0.999	dimensionless
Water Budget	PETMAX	Air temperature below which ET is reduced	32.0	32.0	48.0	°F
Water Budget	PETMIN	Air temperature below which ET is zero	25.0	30.0	40.0	°F
Water Budget	INFEXP	Infiltration equation exponent	2.0	1.0	3.0	dimensionless

Water Budget	INFILD	Ratio between max and mean infiltration	2.0	1.0	3.0	dimensionless
Water Budget	DEEPFR	Fraction of groundwater that enters deep aquifer	0.135	0.0	0.50	dimensionless
Water Budget	BASETP	Fraction of PET that can be satisfied from baseflow	0.20	0.0	0.20	dimensionless
Water Budget	AGWETP	Fraction of PET that can be satisfied from active groundwater	0-0.003	0.0	0.20	dimensionless
Water Budget	CEPSC	Interception storage capacity	0-0.15	0.01	0.40	in
Water Budget	UZSN	Upper zone nominal storage	2.0	0.05	2.0	in
Water Budget	NSUR	Manning's n	0.1-0.3	0.05	0.5	dimensionless
Water Budget	INTFW	Interflow parameter	1.0-2.0	1.0	10.0	dimensionless
Water Budget	IRC	Interflow recession parameter	0.3	0.3	0.85	dimensionless
Water Budget	LZETP	Lower zone ET parameter	0.0-0.5	0.1	0.9	dimensionless
Irrigation	IRRIGDEP	Minimum channel depth for irrigation withdrawal	0.2-0.5	0.0	999	ft
Irrigation	ET COEFF	Coefficient for ET calculation based on PET	0.0-1.0	0.0	999	dimensionless

The point of calibration was the USGS gage 06307740 (Otter Creek at Ashland MT), located approximately 2 miles upstream of the mouth of Otter Creek.

The calibrated daily flows from 2003-2010 were compared to the observed flows (**Figure 4-3**). Overall, the model did a good job of capturing the range and variability of peak flows and the low flow periods. However, there are some peaks in both the simulated and observed data that are not observed in the other. Additionally, the model tends to over-predict the effects of long-term drought on the watershed. The metrics for the model are listed in **Table 4-3**.

Overall water balance was good, with the annual difference between observed and simulated streamflow being less than 3% for the entire simulation period. High flows and irrigation season flows were both within 10% of observed values. Some of the seasonal and stormwater balances were not as good, but reflect the sporadic nature of storm systems and the lack of precipitation gage coverage in the watershed. The daily Nash-Sutcliffe value was 0.70 for the entire simulation period. These values are within the specified bounds of model fit.

The largest error is the calibration of the low flow periods. This is somewhat deceptive for two reasons. First, the model carries many significant figures in its hydrologic computations, whereas the gage is calibrated in a 15-foot wide channel to streamflows rounded to two decimal places. Therefore, the gage may not be able to differentiate between very small flows (0.05 and 0.005 cfs for example), while the model does. Second, these errors on a percentage basis appear very large (0.05 is 1,000% of 0.005) but in reality are somewhat insignificant.

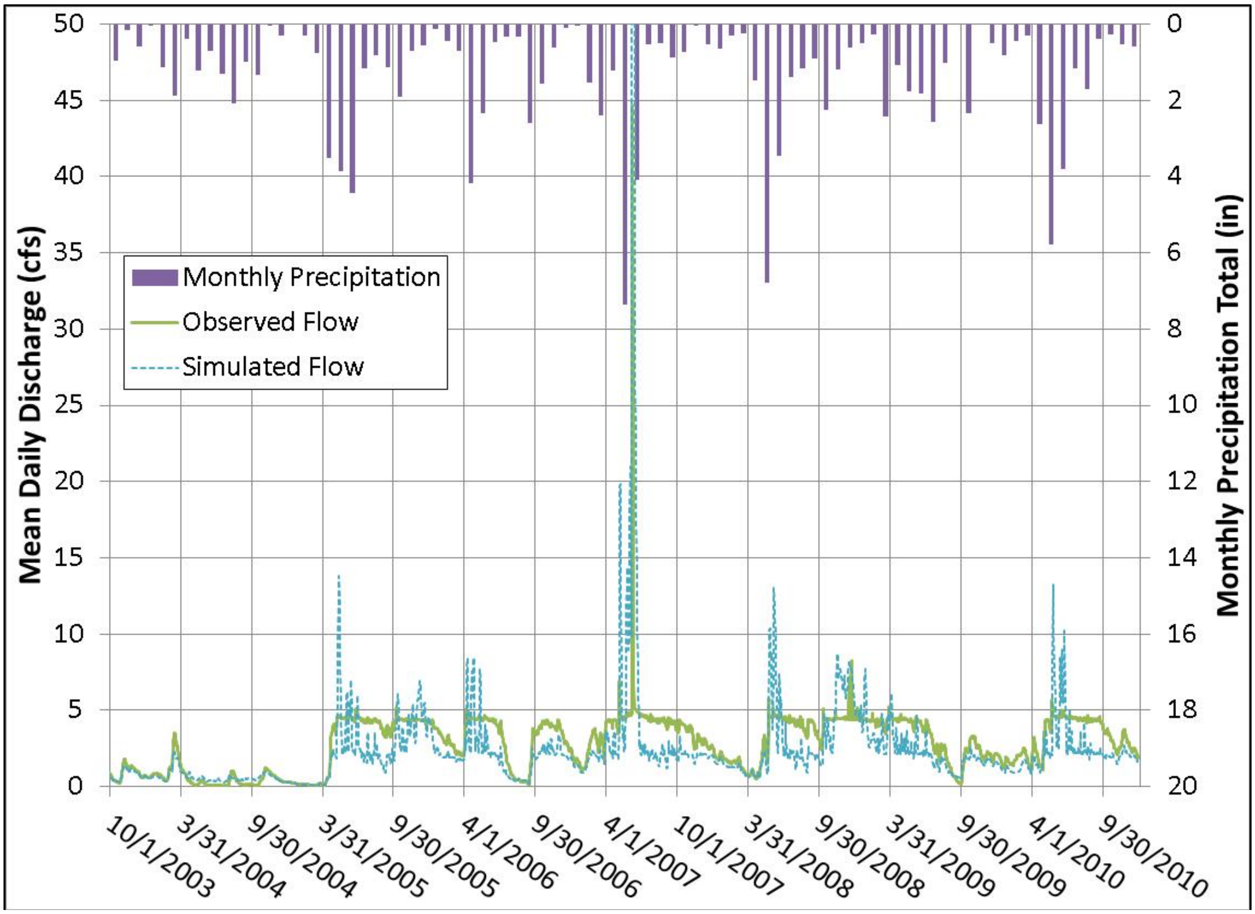

Figure 4-3. Simulated and Observed Daily Hydrology, 2003-2010

Table 4-3. Daily Calibration Metrics

Otter Creek at Ashland, MT	
Calibration Metric	**Value**
Error in Total Volume	-2.5%
Error in Growing Season Volume	-5.6%
Error in 10% highest flows	-9.1%
Error in 10% lowest flows	-27.4%
R-squared daily values	0.71
Daily Nash-Sutcliffe coefficient	0.70

In addition to the numerical issues noted above, low flow periods are also difficult to calibrate because the effects of unknown springs in the watershed and variability in irrigation. In high runoff years, irrigators use more water, and in low years, they use less. This is difficult to represent in the model because diversion volumes will vary from year to year and are not recorded by the users. Overall, simulation results appear to produce reasonable results over a wide range of flow conditions as evidence by the flow duration curve in **Figure 4-4**. Simulated and observed data are comparable for all flows except flows < 0.8 cfs. This volume represents only about one percent of the entire volume yield from the watershed in a typical year.

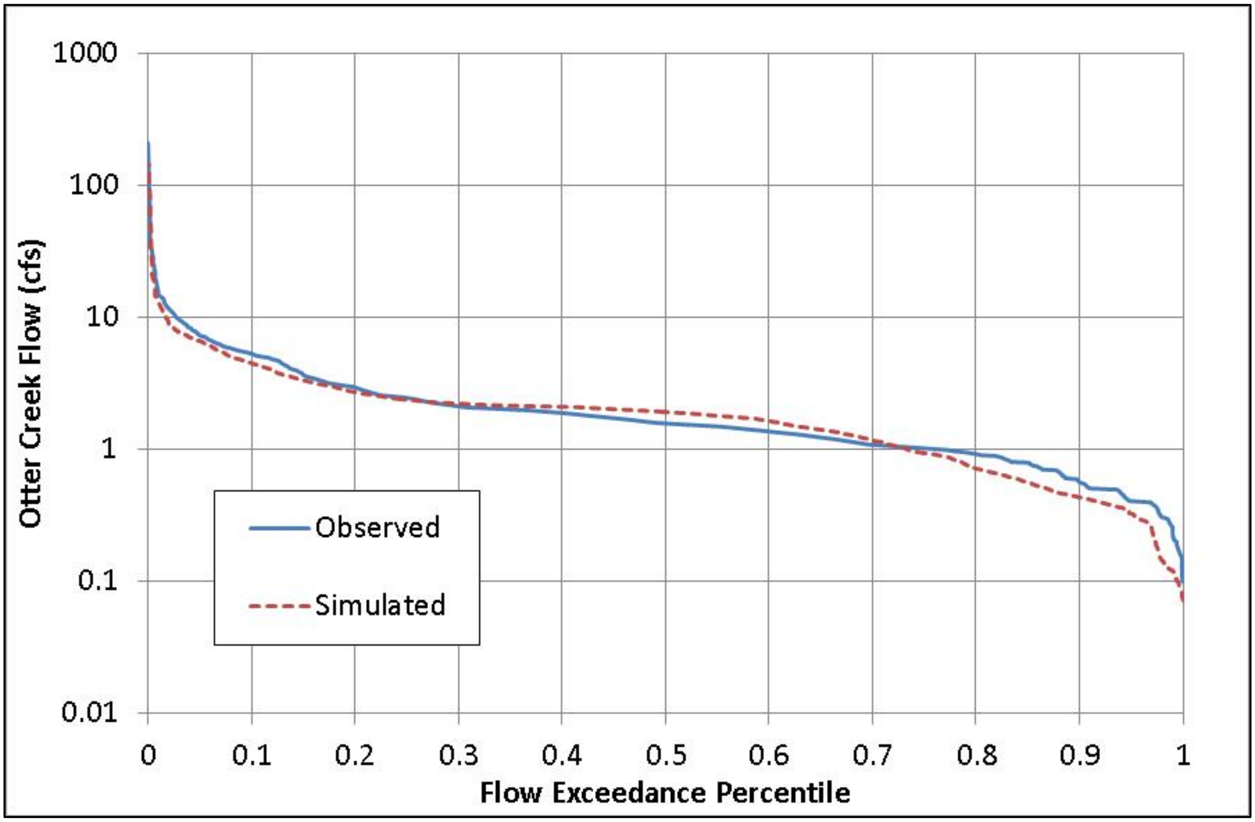

Figure 4-4. Flow Duration Curve showing Simulated and Observed Daily Hydrology, 2003-2010

A final check on the streamflow simulation involved historical gage data. For three years in the early 1980s (1982 through 1985), there was a daily flow gage at two locations along Otter Creek – gage 06307717 and gage 06307740 (see **Figure 2-2** for location). These are approximately 43 river miles (RM) apart and provide an opportunity to do a spatial appraisal of the calibration. The ratio of average annual flow (cfs) was calculated between the two gages for each of the three years and was compared to the ratio of the computed flow at these two locations during the simulation period. The ratio from 1982-1985 ranged from 114% to 211%, with a three year average of 154%, meaning the average annual flow at the downstream gage ranged from 114% to 211% of the average annual flow at the upstream gage. This compared reasonably with the model output from 2004-2010 (**Figure 4-5**). Note that the upstream gage dried up in the model during much of 2004 (a drought year), explaining the high value for 2004 model output.

Modeled data show more uniformity, which is likely due to less spatial variability in precipitation than occurs in reality, and to a lesser extent limitations of the model in identifying detailed areas of irrigation. For the former, a thunderstorm might sometimes blow across the northern portion of the watershed and not affect the southern portion; or other times vice versa. Since the model only uses two precipitation gages (neither of which are in the watershed), fairly uniform rainfall patterns are applied across the entire watershed, and isolated precipitation events are most likely missed. Nonetheless, this comparison shows that the model is within reason in proportioning the accumulation of flows spatially across the watershed.

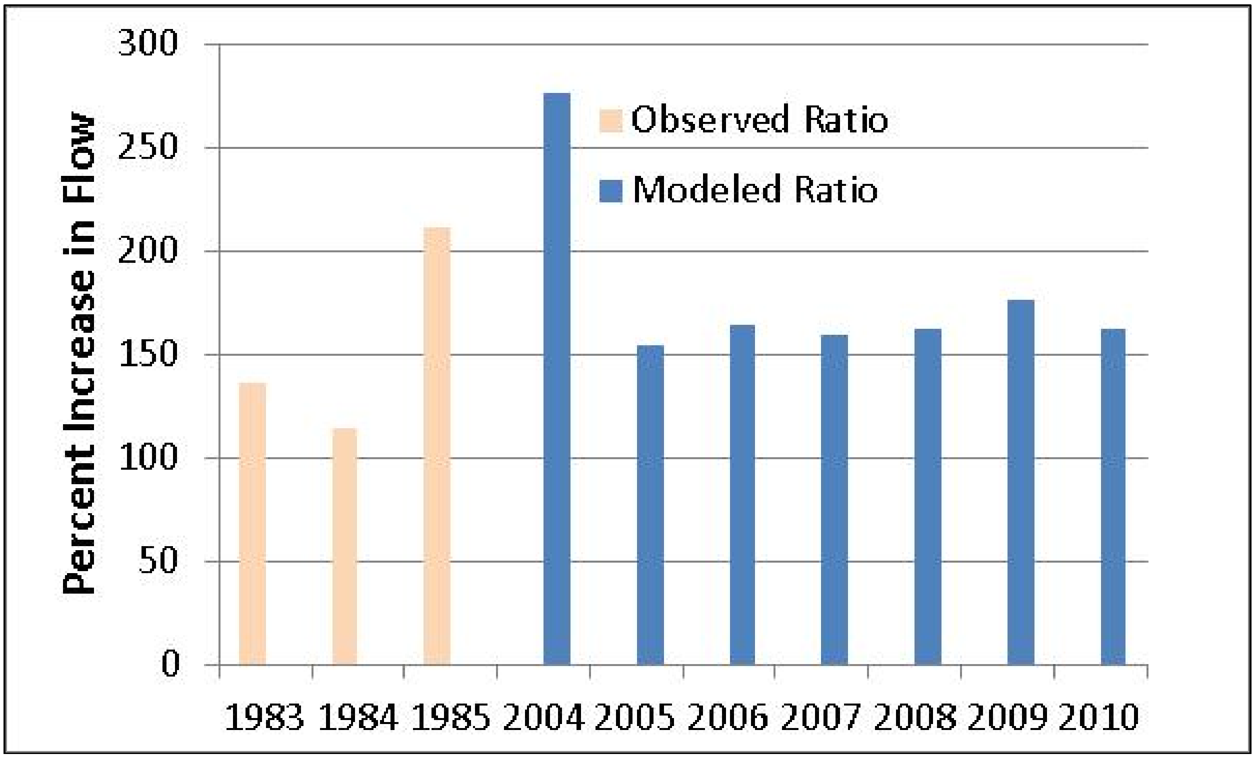

Figure 4-5. Comparison of historical flow ratios with simulated ratios at two USGS gages

In summary, the metrics presented above and in previous sections show that the model calibration results in an adequate overall fit between simulated and observed streamflow data at the outlet of the watershed, as well as a secondary location further upstream in the watershed. The accuracy of the modeled flows were determined by DEQ to be sufficient for the purpose of conducting the historical scenario analysis that is described later in this document (**Section 5**).

Tables of simulation results can be found in **Appendix B**.

4.5 Salinity (EC/SAR) Calibration

As water moves across and through the landscape, salts are added to the water column from interactions with soil and rock. In surface runoff, readily dissolved salts are carried into the stream. Water flowing through pores in soil or rock (groundwater and other sub-surface flows) is directly in contact and undergoes a similar process via solubility. Thus salts are in the soil; eroded out of rock, deposited by rain and the atmosphere (Nilles, 2000), and also added by humans in the form of fertilizer, sprays, cattle manure, etc. These salts are eventually transported to a waterbody through hydrologic processes.

As mentioned previously, a different EMC was assigned to each type of water flow (surface runoff, interflow, and groundwater) in LSPC, and can also vary by land use and cation. The final calibrated EMC values used in the model are shown in **Table 4-4**. Results for both EC and SAR are presented in subsequent sections.

Table 4-4. EMC values used in the model

Land Use	Cation	Surface Flow (mg/L)	Interflow (mg/L)	Groundwater (mg/L)
Barren	Ca	23	50	100
Forest	Ca	23	50	100
Pasture	Ca	23	50	100
Shrubland	Ca	23	50	100
Urban	Ca	23	50	100
Wetlands	Ca	23	50	100
Irrigated Land	Ca	23	63	125
Barren	Mg	19	62	124
Forest	Mg	19	62	124
Pasture	Mg	19	62	124
Shrubland	Mg	19	62	124
Urban	Mg	19	62	124
Wetlands	Mg	19	62	124
Irrigated Land	Mg	19	78	155
Barren	Na	34	188	375
Forest	Na	34	188	375
Pasture	Na	34	188	375
Shrubland	Na	34	188	375
Urban	Na	34	188	375
Wetlands	Na	34	188	375
Irrigated Land	Na	34	234	469

Detailed EMC values are not readily available, especially in rural states like Montana (Pitt, et al., 2004). Therefore, we used site-specific data and best professional judgment to arrive at reasonable values.

For the surface water values, we looked at several periods of high flow in Otter Creek that occurred in early spring, when presumably the ground was still frozen. The average concentrations in the creek at this time were assumed to come entirely from surface runoff, and these values were used as the surface water EMCs. Other models have used values even lower than those reported in **Table 4-4** for surface EMCs (U.S. Environmental Protection Agency and Tetra Tech, Inc., 2007a).

With respect to groundwater, several entities have collected samples in the Otter Creek watershed. Hydrometrics, Inc., a consultant for Otter Creek Coal, has been collecting groundwater samples in the vicinity of the proposed mine for almost five years. In addition, Montana's Ground Water Information Center (GWIC) has been collecting groundwater samples throughout the state for several decades. To help calibrate the EMCs for groundwater, we looked at all of the GWIC and Hydrometrics data collected within the watershed. We filtered data for groundwater well samples only, and then filtered out any samples taken below 150 feet. This represented a cut-off threshold to only consider groundwater samples that readily interact with the surface water within the scale of the model. Once this was done, we created a box and whisker plot of the data for each cation (Ca, Mg, Na) comparing both GWIC and Hydrometrics data. We have also plotted the range of calibrated EMC values used as a line across the box and whisker plots (**Figures 4-6, 4-7, and 4-8**). The calibrated values are well within the typical ranges shown by the observed data.

There was no available data for interflow values. Because these values represent water that originated as precipitation, but has moved into the soil column, yet has not had as much time to equilibrate with the soil solubility as groundwater, we set the interflow EMC values to ½ of the groundwater values (**Table 4-4**).

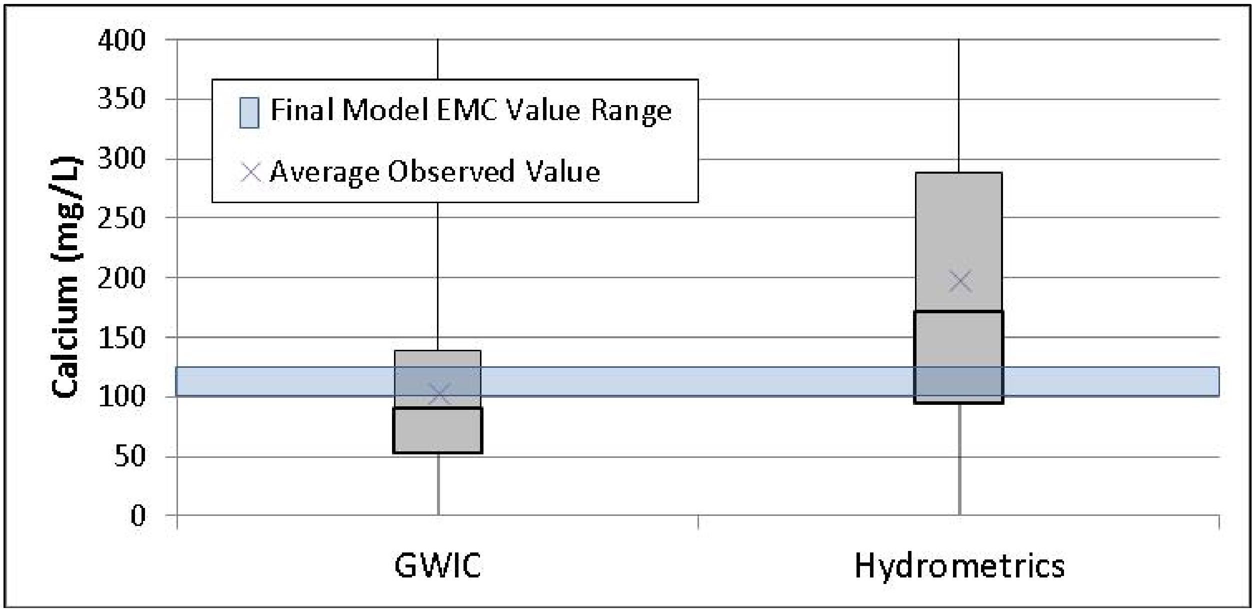

Figure 4-6. Observed calcium concentrations in groundwater samples

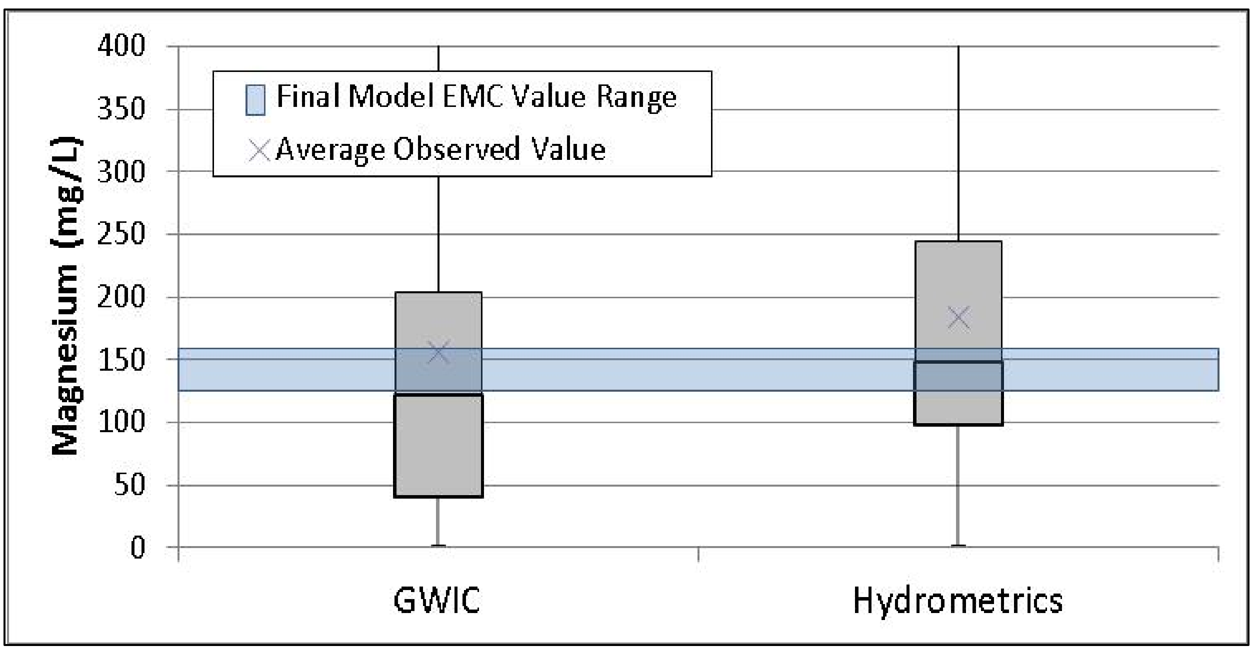

Figure 4-7. Observed magnesium concentrations in groundwater samples

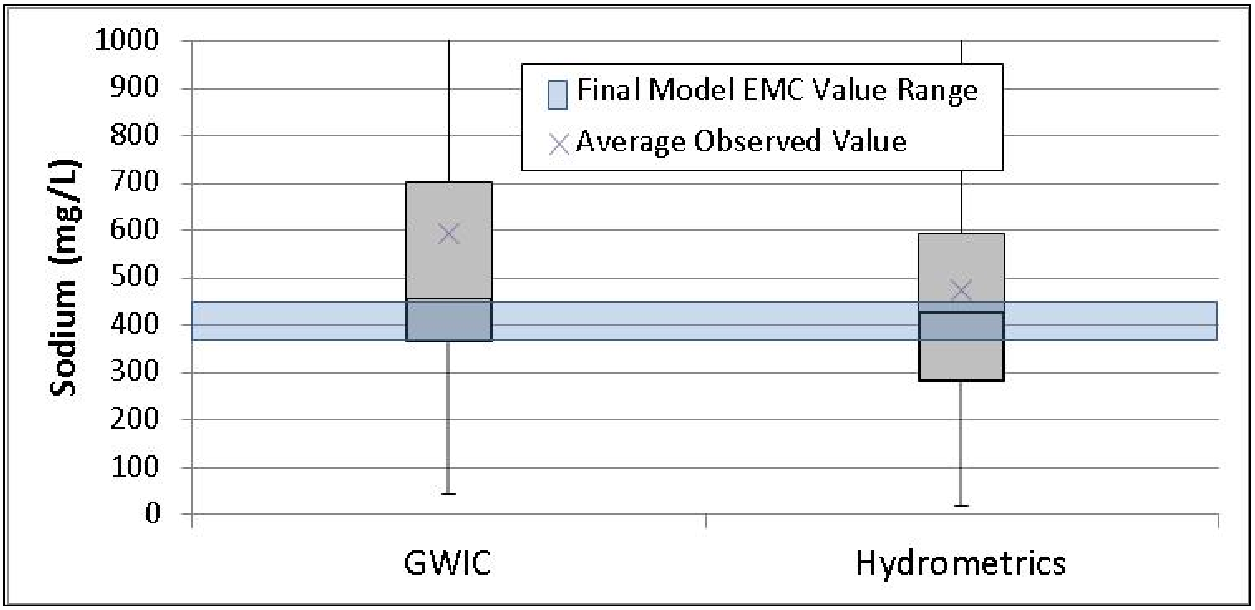

Figure 4-8. Observed sodium concentrations in groundwater samples

4.5.1 Electrical Conductivity (EC)

The USGS collected both continuous EC/SC data and grab samples on Otter Creek near Ashland, MT (gage 06307740) throughout most of the 2003-2010 timeframe. A comparison between observed and simulated SC results at that location are shown in **Figure 4-9** and **Figure 4-10.** Overall, the simulated values (blue) are within the range of the observed data, and fall somewhere between the two observed (continuous and grab sample) data sets (**Table 4-5**). Although the model reproduces salinity values well during times of low and average salinity (**Figure 4-10**), it appears to over-estimate SC during the summer low-flow period in nearly all cases. One explanation for this is the conservative nature of the model – all salts are delivered to the mouth of the stream whereas in reality, when low flows occur, salts are deposited on the streambanks and edges of ponds due to evaporation where they sit until rain or high flow stages re-dissolve them. The model delivers all salts downstream, so it tends to over-predict concentrations in extreme low flow events.

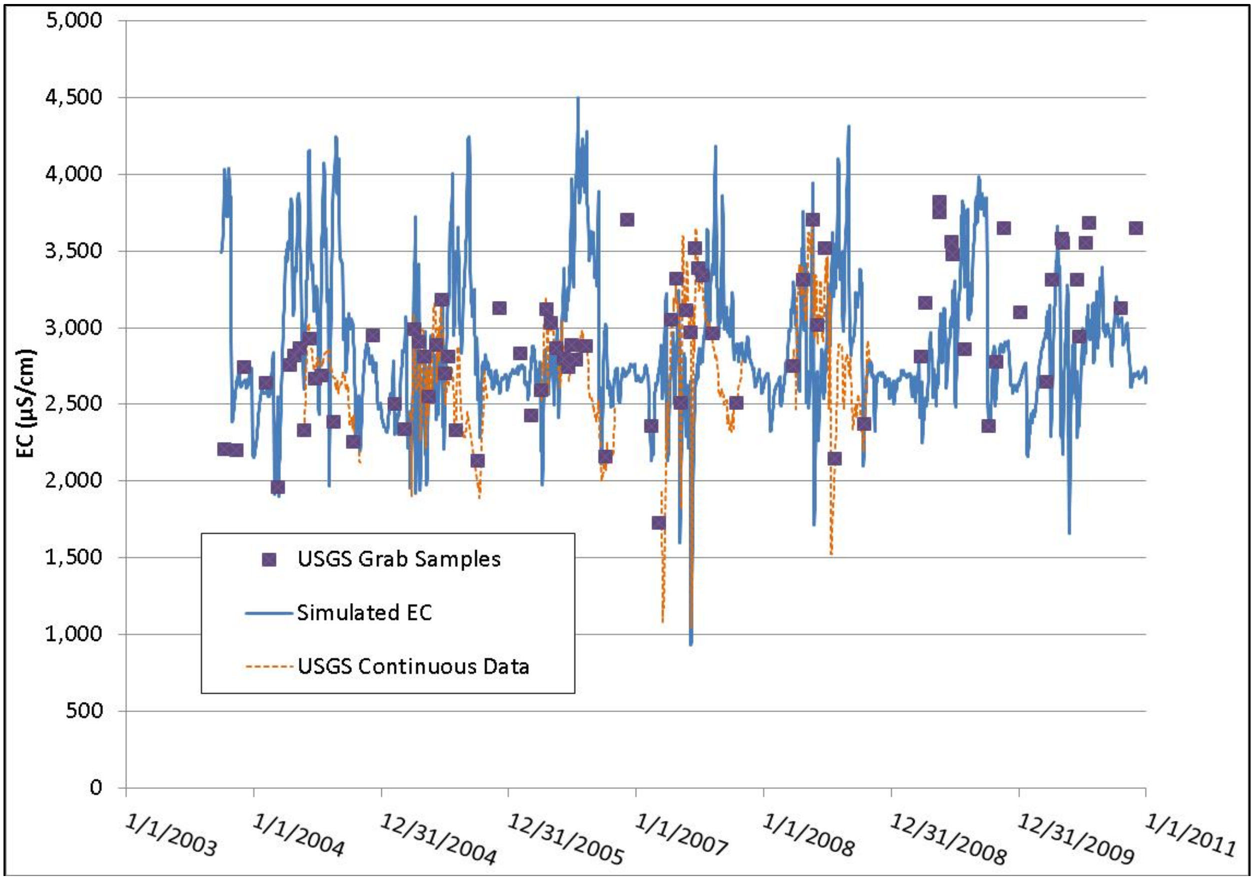

Figure 4-9. Salinity (SC) calibration time series, 2003-2010

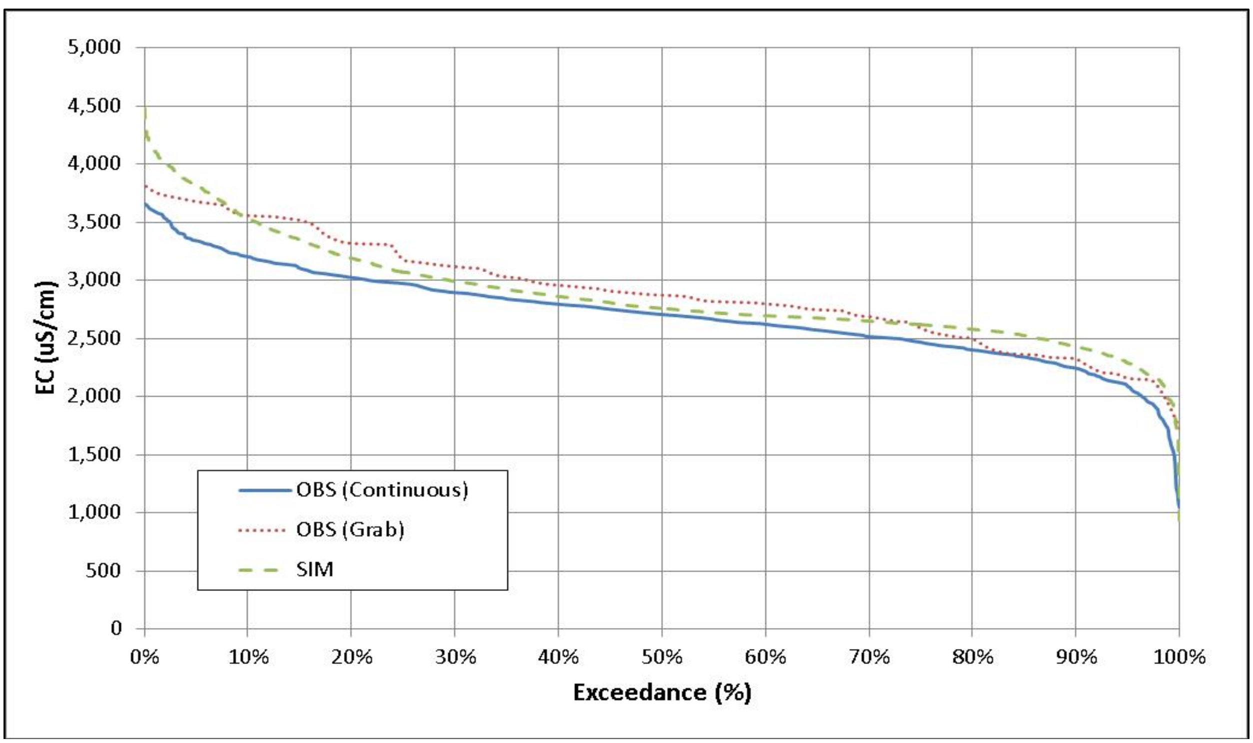

Figure 4-10. Salinity (SC) calibration concentration-duration plot, 2003-2010

Table 4-5. Statistics for SC Calibration

SC Values (µS/cm)	Simulated Value	Observed value (grab samples)	Observed value (continuous data)
Minimum	936	1,730	1,050
Median	2,762	2,870	2,700
Mean	2,877	2,900	2,704
Maximum	4,499	3,820	3,660
Overall Relative Error of median values as compared to continuous meter	2.3%	6.3%	-

4.5.2 Sodium Adsorption Ratio (SAR)

The sodium adsorption ratio calibration was very similar to the SC calibration and results are presented in **Figure 4-11** and **Figure 4-12**. The only difference is that there is not a continuous meter collecting SAR values every day. Hence, it is more difficult to complete statistical analysis when the simulated data is continuous, and the observed data is discrete grab samples. Nonetheless, a similar five-value summary is presented in **Table 4-6**. The same issues with the model tending to over-predict high SAR values during low flow periods; however, the overall relative error between the mean observed data and mean simulated data was about 1%.

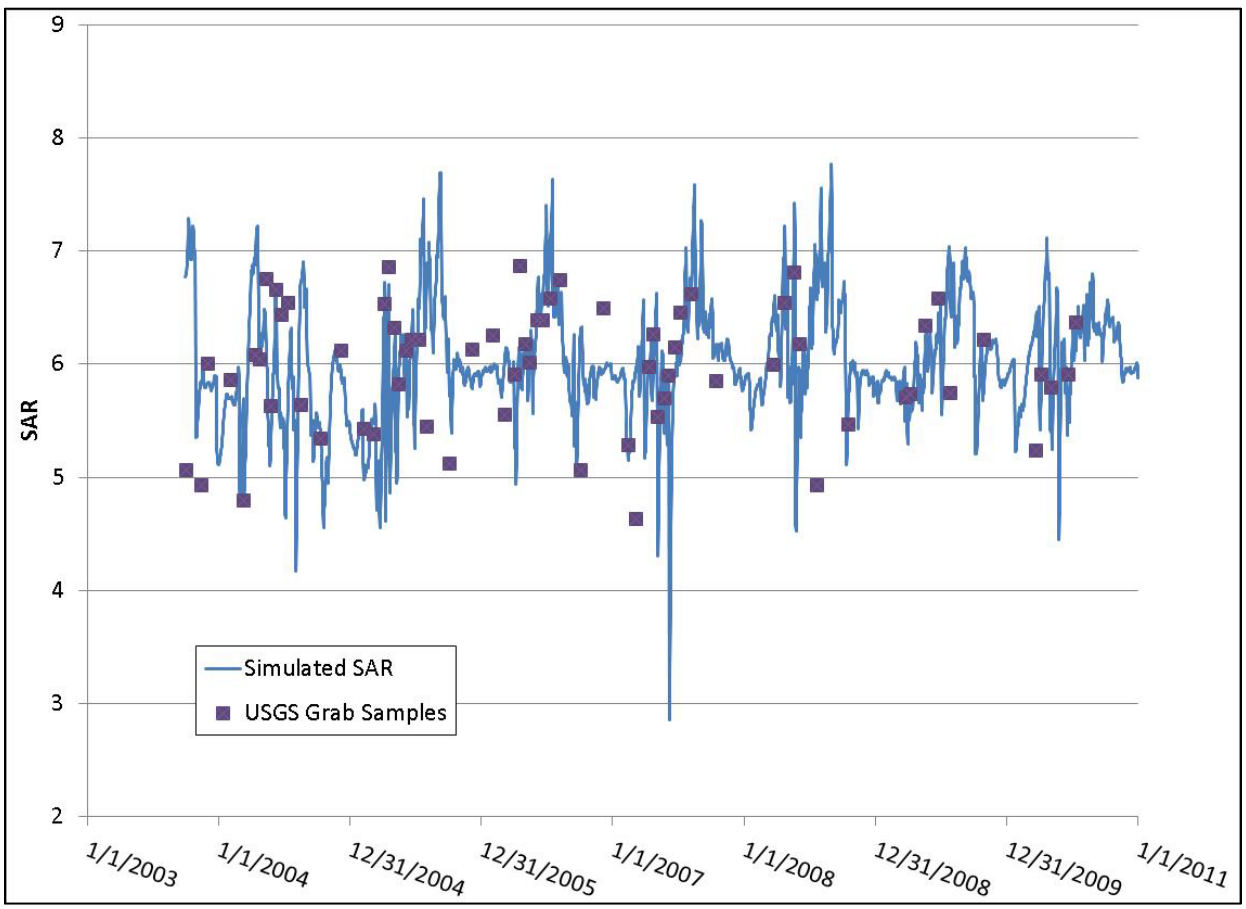

Figure 4-11. Sodium Adsorption Ratio calibration time series, 2003-2010

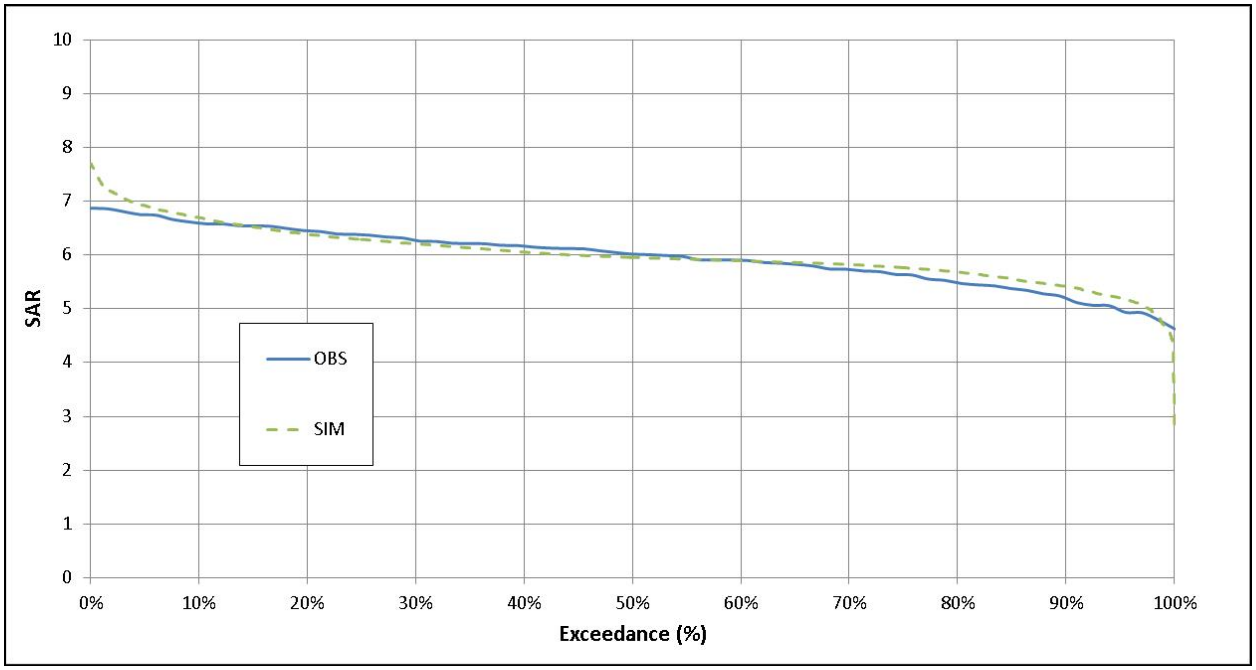

Figure 4-12. Sodium Adsorption Ratio calibration concentration-duration plot, 2003-2010

Table 4-6. Statistics for SAR Calibration

SAR Values	Simulated	Observed (grab sample)
Minimum	2.86	4.63
Median	5.96	6.02
Mean	6.01	5.97
Maximum	7.77	6.87
Relative Error (RE) of median	-1.0%	

4.6 Model Validation/Confirmation

As discussed in **Section 4.2**, the model has not been validated. Instead, a calibration was completed over the entire period (see Wells, 2005 for a discussion on this topic). Original plans to validate the model were altered when the modeling period was shortened to 2003-2010, and this period was sharply divided into a drought period and then a slightly wetter period than normal. As more data becomes available, the modeling period could be extended, providing a possible validation period, or to complete a calibration post-audit. See **Section 6.1** for further discussion on this topic.

5.0 HISTORICAL SIMULATION

Scenario analysis was accomplished using the calibrated LSPC Otter Creek model to evaluate the overall anthropogenic (human caused) influence on salinity in the watershed. This involved simulating both a baseline (i.e. existing condition) and historical condition (i.e. no agricultural, water management, or urban activities) to determine what the EC and SAR values would be in Otter Creek without the influence of human activities (urban development, ranching, irrigation, etc.).

5.1 BASELINE SCENARIO

The calibrated model was used to develop the baseline scenario. The baseline scenario represents the conditions that existed in the watershed in the 2003-2010 time period. Baseline results have been discussed already in **Section 4.0**.

5.2 HISTORICAL SCENARIO

The term 'historical' can be defined in many ways, but in this case DEQ used a conservative approach – taking all human influences out, to determine the maximum impact from human activity. Since there are no existing point sources in the watershed, this meant removing agricultural and urban land uses. This was done by adjusting three factors in the model:

1. *Remove stock ponds and check dams:* The historical Otter Creek did not have any permanent check dams in the mainstem or tributaries, nor did it have stock ponds at natural springs. These impoundments were removed from the model. In places where there had been downstream sub-irrigation due to check dams, the sub-irrigation was removed as well.
2. *Remove urban footprint:* Historical Otter Creek did not have any known permanent human settlements or roadways. Urban landuses were removed from the model including both urban settlements (like Ashland), as well as the roads throughout the watershed (which were classified as urban areas). Since it is unknown what land use these were originally, they were converted to either shrubland or grassland. Urban landuses are not a large area, making up about 0.5% of the watershed area and thus likely has a small overall effect.
3. *Remove irrigated land:* Historically, Otter Creek had no known irrigation. Only about 0.4% of the watershed is irrigated, however, irrigated land has a large effect on the water and salt balance because it uses a large portion of the basin's water supply. Irrigated land was removed from the model and the land was added back into the model using best professional judgment as to what the original land use was (typically grassland, shrubland, or wetlands). EMC values for each land use were left un-adjusted, but the conversion of land use type resulted in lower loadings.

It is important to note that the sum total of all human caused influences in the watershed encompasses approximately 1% of the overall land area (cattle were assumed to not influence salt loading). One might expect by looking at these percentages that the historical scenario wouldn't change significantly from the existing scenario.

5.2.1 Historical Scenario - Salinity

Based on the modeling results, historical EC values were found to be very close to existing values (**Figure 5-1**). The existing scenario appeared to be slightly more extreme – a few higher highs and a few lower lows. A numeric comparison shows that the metrics change by around 1% for most of them (**Table 5-1**).

The difference between the two scenarios is a result of both hydrologic changes and lowered EMC loading potential. With respect to the former, the existing water use is higher than the historical usage due to irrigation. Therefore, many times of the year, there is less water in the creek than would have been the case historically. This is especially true during high flow periods, when fields are being flooded. Additionally, the many stock ponds and check dams in the watershed provide a slow release of water and interflow recharge to the downstream channel during times of low flow. For EMCs, the loading is reduced when moving from irrigation to natural land uses.

The above factors – i.e., less overall water, much less during high flows and a little more during low flows – tend to exacerbate extremes in salinity concentrations (i.e. larger changes in minimum/maximum values in **Table 5-1**). However, overall the differences between the existing and historical condition are minor.

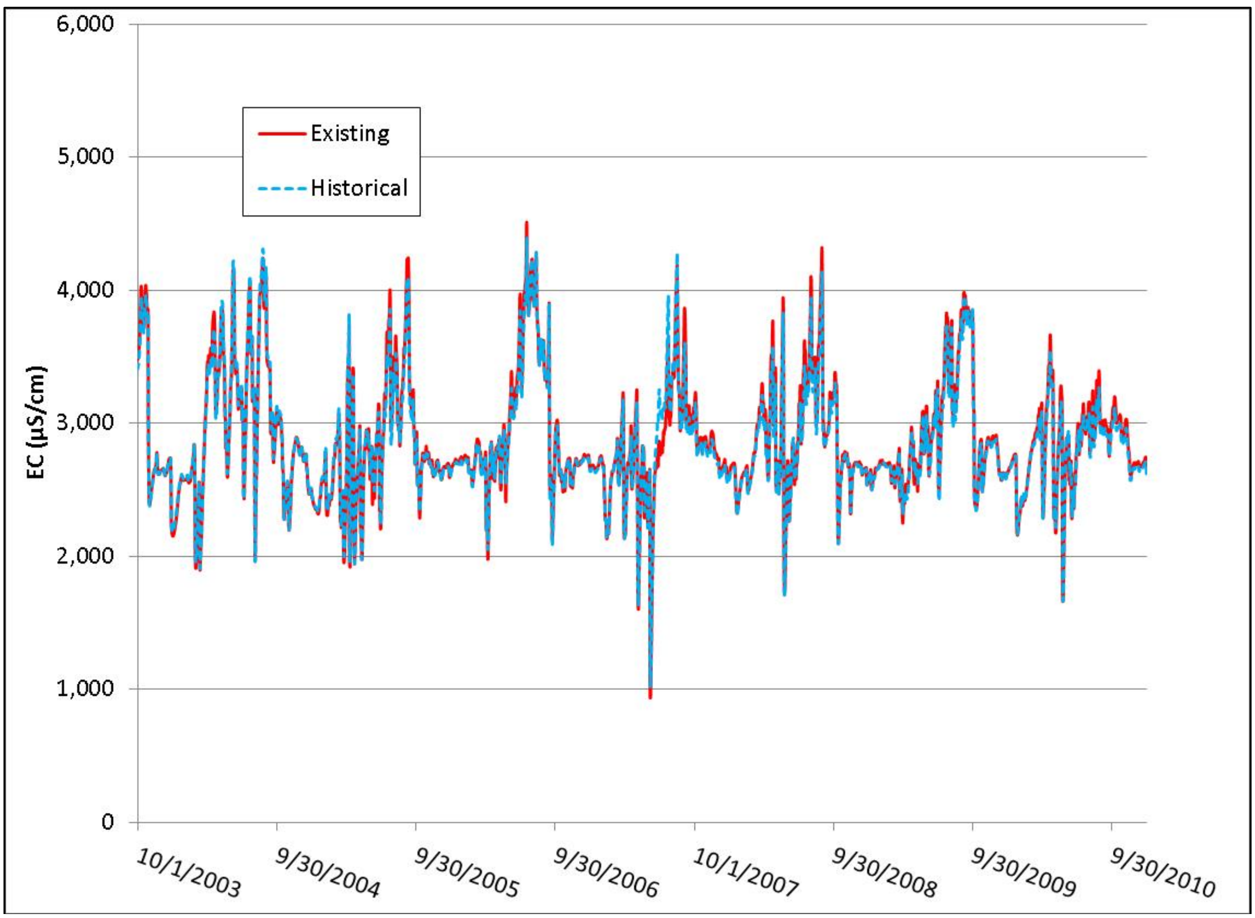

Figure 5-1. Existing vs. Historical Salinity Simulation Results

Table 5-1. Existing vs. Historical Salinity Results

SC (µS/cm)			
	Existing	Historical	% Change
mean	2,877	2,858	-0.7%
median	2,762	2,747	-0.6%
min	936	1,020	8.9%
max	4,499	4,387	-2.5%
p05	2,288	2,291	0.1%
p95	3,820	3,782	-1.0%
st. dev.	444	431	-3.1%

5.2.2 Historical Scenario - SAR

Similar to EC/SC, SAR appears to not be greatly affected by anthropogenic changes in the watershed (**Figure 5-2**). Again, most numeric differences were around 1% (**Table 5-2**). The same rationale for salinity differences applies to SAR differences (**Section 5.2.1**).

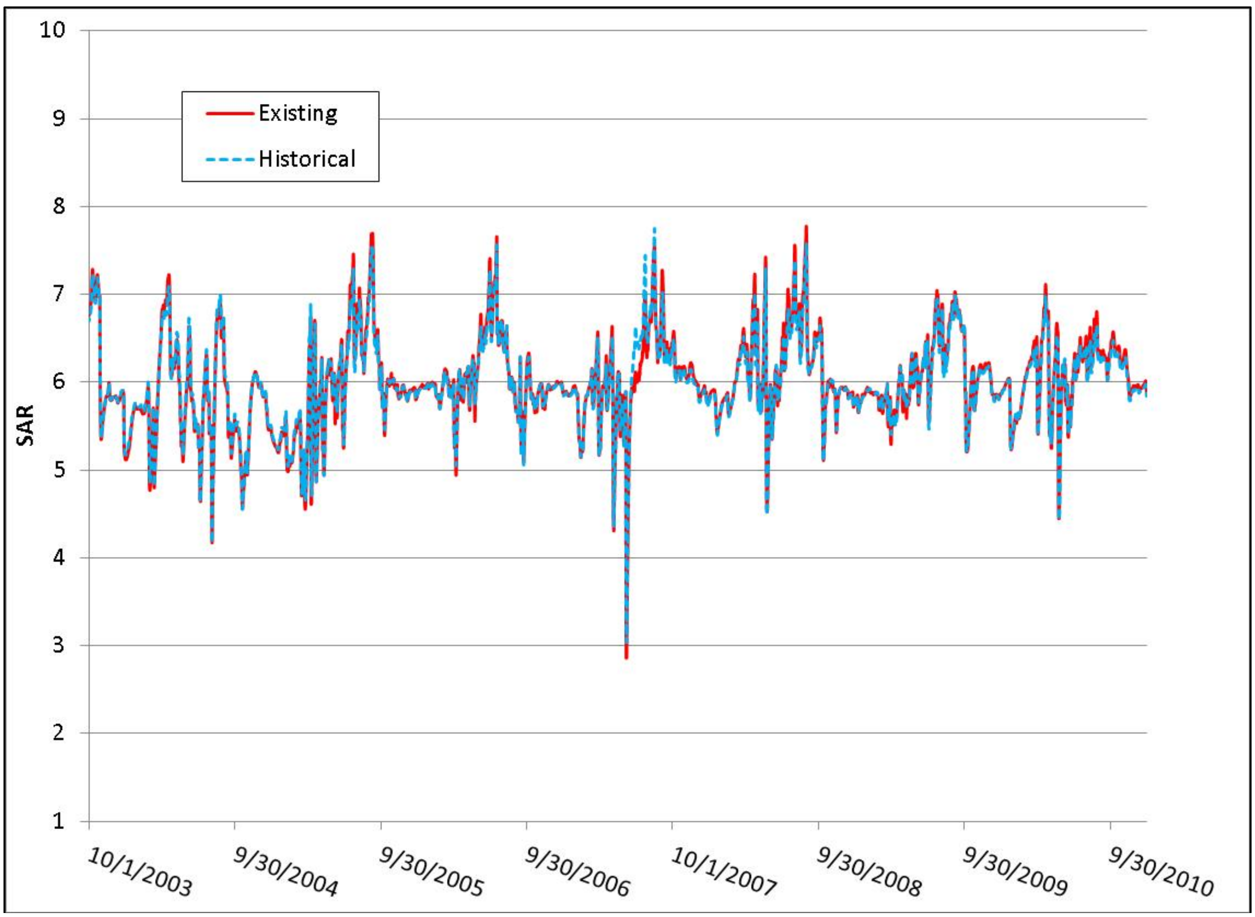

Figure 5-2. Existing vs. Historical SAR Simulation Results

Table 5-2. Existing vs. Historical SAR Simulation Summary

SAR			
	Existing	Historical	% Change
mean	6.01	6.00	-0.2%
median	5.96	5.95	-0.1%
min	2.86	3.04	6.2%
max	7.77	7.74	-0.4%
p05	5.20	5.22	0.4%
p95	6.92	6.85	-1.0%
st. dev.	0.51	0.49	-5.0%

5.3 Scenario Summary

As evidenced in both the existing condition and historical condition scenario analysis, extensive hydrologic and water-quality variability occurs in Otter Creek. Our best estimate is that there has been less than a 1% change in both EC and SAR from historical (natural conditions), which is very close to the instrument accuracy of most conductivity sensors (0.5–1% accuracy for YSI and Hydrolab sensors for example). Furthermore, from one day to the next, flows can change dramatically, with related changes in water quality. In some years, irrigators do not get a crop because water quality is insufficient to support agriculture. The limitation is most apparent when comparing both observed and simulated water quality to nearby watersheds like the Tongue River (**Figure 5-3**). Note the large differences in SC between the Tongue River and Otter Creek (median of 600−700 µS/cm in Tongue River vs. 2,800 µS/cm in Otter Creek).

According to our modeling, 120+ years of agriculture and human influence have had little observable effect on the EC/SAR values in Otter Creek (comparing the two green box and whisker plots), each of which have similar characteristics to the observed data (grey box and whisker). Thus water quality in the watershed is, was, and likely will be representative of 'natural conditions', as long as land use activities remain similar to current day practices. In addition to our modeling (which suggests little has changed in the watershed over time), aerial photos, land use updates, and the type of agricultural practices all support the idea that land use (and subsequently water quality) has changed very little in the watershed over the years.

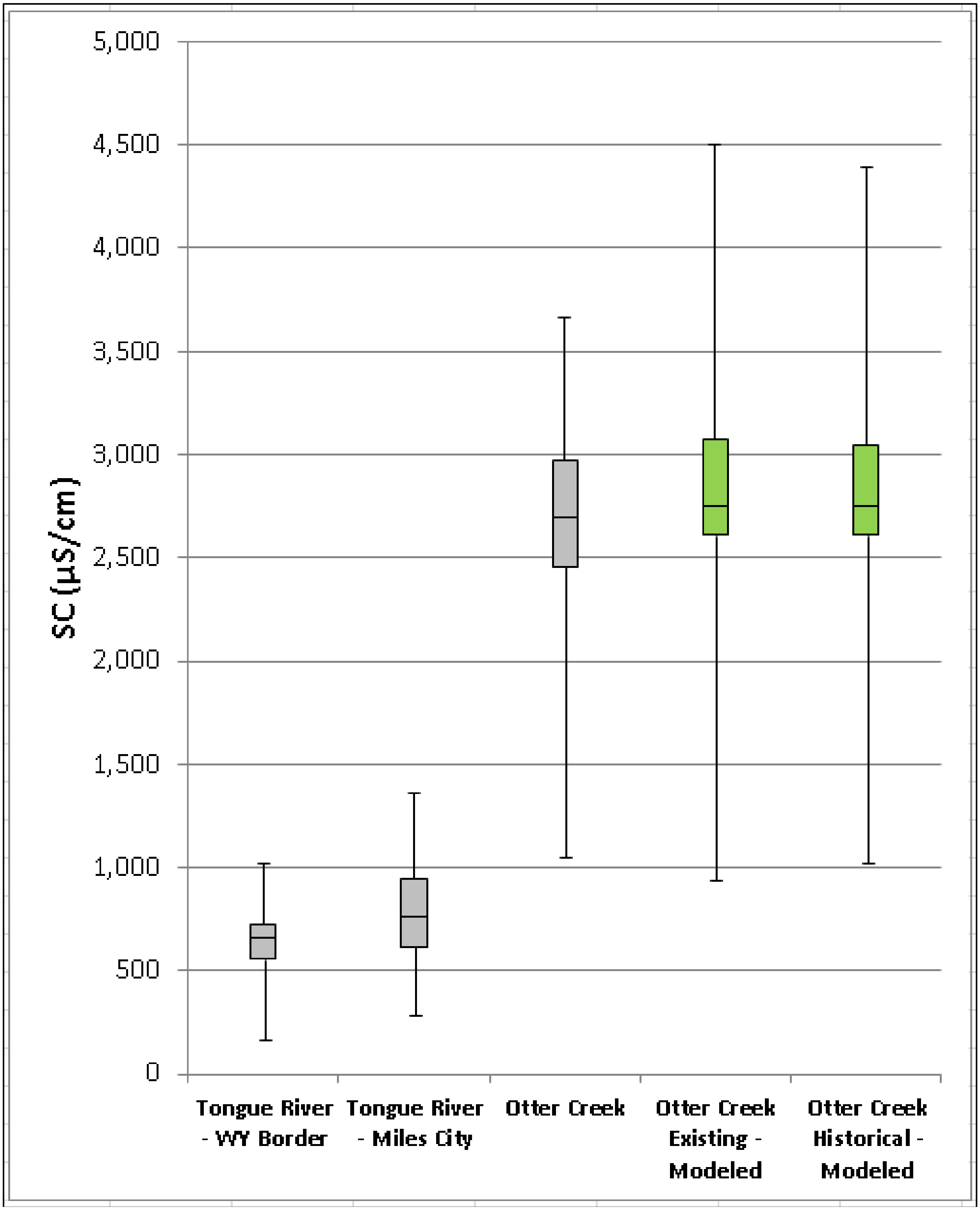

Figure 5-3. Existing and historical simulation compared to observed conditions

6.0 Uncertainty, Limitations, and Conclusions

Uncertainty is an inherent component of every modeling process and describes the lack of knowledge about models, parameters, constants, data, and beliefs (Council for Regulatory Environmental Modeling, 2009). A model is only as good as the input data, assumptions, and parameterization used to develop it. EPA divides uncertainty into three broad categories:

- Uncertainty in the underlying science and algorithms of a model (model framework uncertainty)
- Data uncertainty
- Uncertainty regarding the appropriate application of a model (application niche uncertainty)

All three sources of uncertainty are present in this effort. However, the major source of uncertainty, in DEQ's opinion, is the forcing data (e.g., precipitation, evapotranspiration, etc.). Climatic data including precipitation and evapotranspiration (ET) are crucial governing factors in the hydrologic balance. Regrettably, there was only one long-term weather station located within the physical boundaries of the Otter Creek watershed, while the only available data to calculate ET was located in Miles City or Sheridan, approximately 50 miles away. In addition, the model suffered from a 9 year period of missing flow and water quality on Otter Creek at the USGS gage 06307740 (1995-2003) that occurred in the middle of the modeling period. The lack of continuous salinity data in the winter also made it difficult to set up seasonal calibration for the "non-growing" season. In this regard, there are a number of uncertainties that exist with the current available forcing data.

Many other assumptions were also made that had to do with land management practices. The hydrology in Otter Creek is heavily altered by human activity. There are hundreds of check dams and dikes built throughout the watershed. Management practices and acreage for grazing, irrigation, and hay production were estimated from limited land use data, personal communication with a small subset of land owners in the area, and sporadic field visits. These uncertainties raise the question of how we can improve the model in the future.

6.1 Areas for Improvement

6.1.1 Additional Long Term Flow Gages

The model was calibrated to the gage near the mouth of Otter Creek (#06307740) and we evaluated the spatial distribution of flows using a ratio procedure as described in **Section 4.4**. However, this does not reflect how well the model might predict flows further upstream under all conditions. To achieve a better calibration, it would be useful to evaluate streamflow at more than one location over a longer period of time. While grab sample flows were collected at random times throughout the watershed, singular flow values are not helpful in a flashy stream such as Otter Creek Adding long-term flow data further upstream, or within a tributary, would increase the confidence in the model by fine-tuning the flow calibration. This task is made more difficult by the fact that many of the tributaries, and even the mainstem channel further upstream, are intermittent or ephemeral and do not flow year-round.

6.1.2 Climate Data

Climate data, in particular the spatial distribution of precipitation, is one of the most important factors governing hydrologic computations in a watershed model. Eastern Montana is a large, sparsely inhabited area, and weather station coverage is poor. For example, there was only one long-term precipitation gage within the watershed modeled. Furthermore, review of NEXRAD data from the watershed showed that precipitation during thunderstorms could vary greatly even within a few miles, not to mention across a 30 mile wide watershed. Since 2008, there have been two precipitation gages installed near the mouth of Otter Creek. In the future, extending the modeling period and incorporating those gages could improve the model fit.

6.1.3 Validation

As mentioned in **Section 4.6**, the model has not been validated at this time. This is due to the limited period of data available for the model and the extreme variability from year to year in flows within the watershed. Adding a validation to the modeling period may increase confidence in the model results (see Wells, 2005 for a discussion on this topic).

6.2 Basin-wide Applicability

The modeling effort focused on water quality and flow data collected near the outlet of the watershed, at the USGS gage at Ashland (#06307740). This was mainly due to the amount of daily data collected at this gage, on and off for decades. This large dataset helped to minimize error, increase precision, and evaluate model performance over periods of both high and low flows. However, it is unclear whether this location is an appropriate representation of water quality in the watershed as a whole.

In considering this question, we evaluated data retrospectively along the mainstem of Otter Creek, and a few tributaries, at locations where at least 10 grab samples were collected, to evaluate general longitudinal changes in constituents over the length of the stream. Overall, it appears that the observed salinity values remain the same, or decrease slightly as one goes from headwaters towards the mouth of Otter Creek (**Figure 6-1**). The modeled data show a similar spatial trend. **Figure 6-1** also shows that the two tributaries with data (Home Creek and Bear Creek) are not drastically lower in salinity than the mainstem. Thus when these tributaries are flowing, they are likely about the same salinity concentrations as the mainstem of Otter Creek.

The same conclusion can also be seen in a direct comparison of water quality samples from the early 1980s. From 1982 to 1985, there were two functioning USGS gages in Otter Creek. Gage 06307717 is located about 45 miles upstream from the mouth, and gage 06307740 is located about 3 miles upstream of the mouth. It is apparent that salinity levels are lower at the downstream gage when comparing two datasets from the same exact time period. The data shows that there is a distinct drop in salinity from the upstream to downstream gage (**Figure 6-2**). In fact, the 25th percentile of the upper gage is higher than the 75th percentile of the lower gage.

All of this evidence indicates the modeling effort and major data collection were done at a location that generally represents water quality throughout Otter Creek and it is likely that water quality at the mouth is equal to or slightly better than the water quality upstream (if anything, the mouth may be slightly conservative when it comes to salinity at other locations in the watershed). The model shows a similar trend of steady water quality throughout the mainstem of Otter Creek.

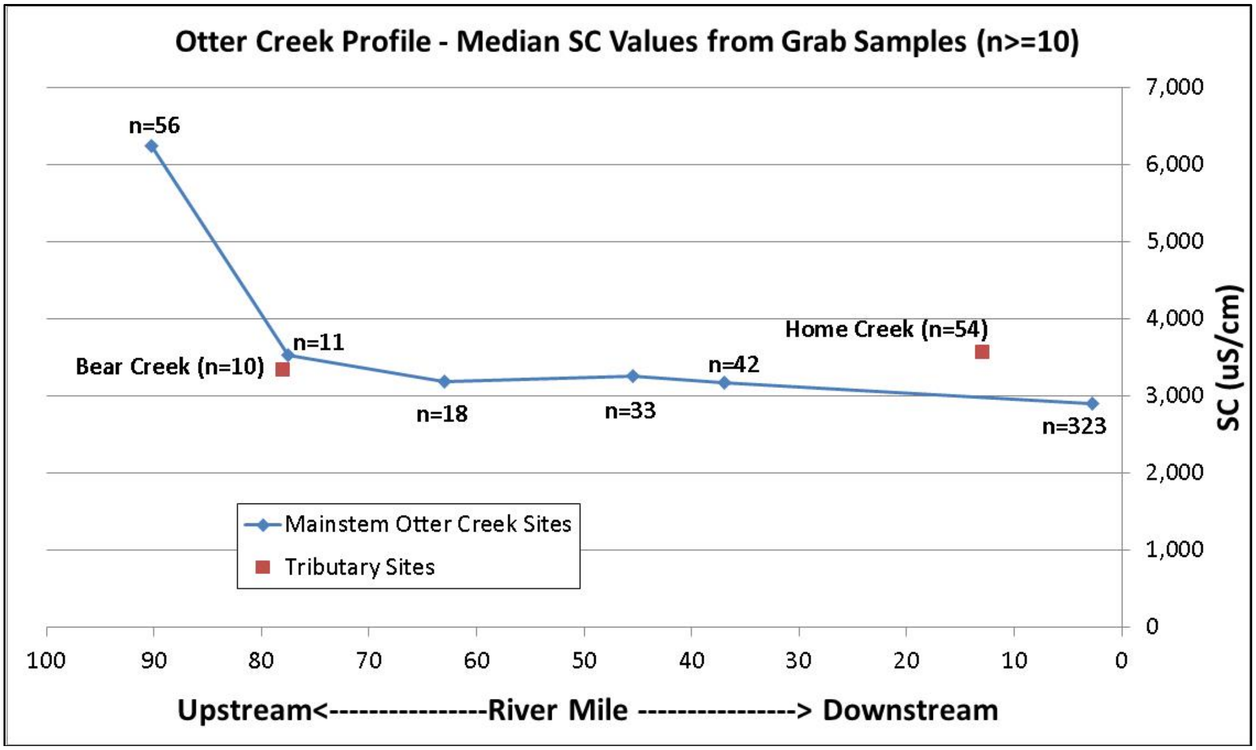

Figure 6-1. Water quality profile of Otter Creek SC data

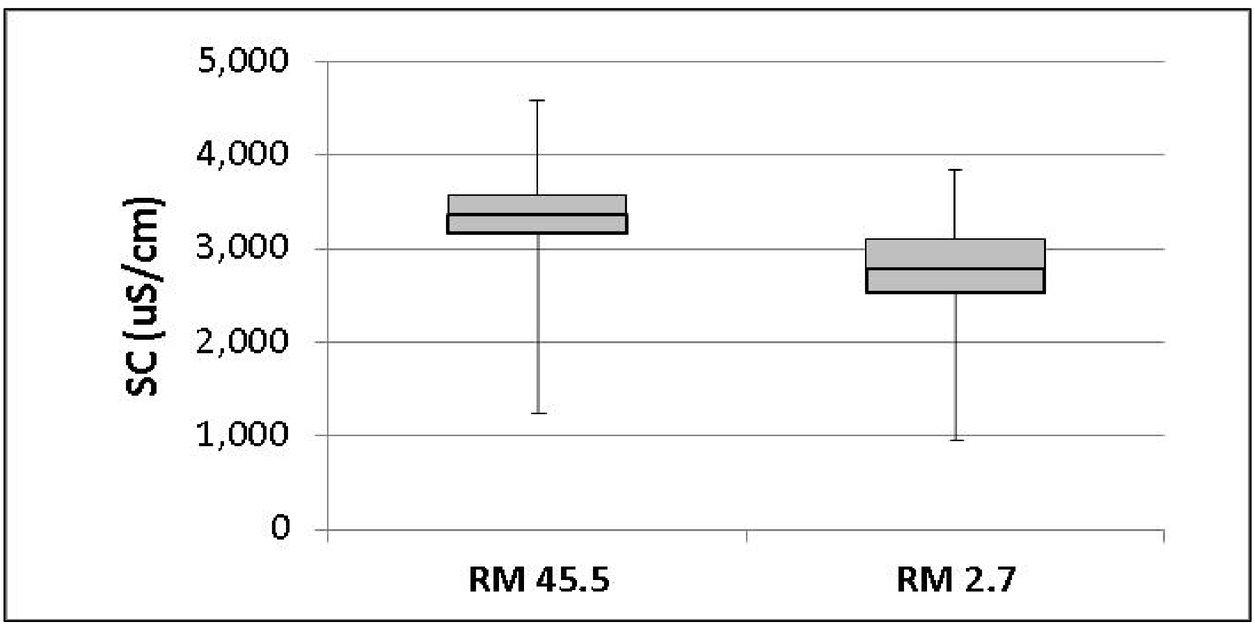

Figure 6-2. Box and whisker plot comparing salinity values at two gages on Otter Creek

The profile for SAR is not as obvious, and hints that SAR levels tend to rise slightly near the mouth (**Figure 6-3**). Otter Creek does flow through an exposed coal seam between about RM 35 and RM 20, and this may expose it to higher sodium levels in groundwater. This may be an indication that the values at the mouth may slightly over-estimate the SAR levels in the watershed. Again, the difference is not fully apparent, and only one tributary had enough data for the analysis (Home Creek), which had somewhat higher SAR than the mainstem of Otter Creek.

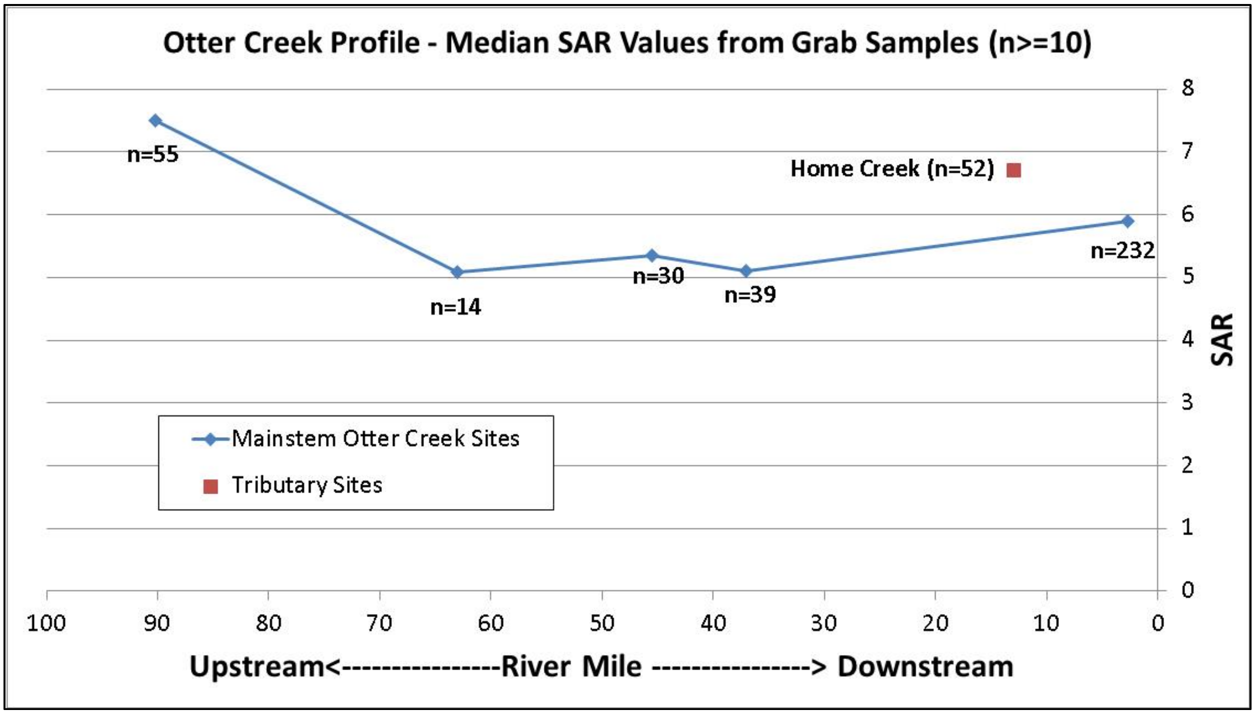

Figure 6-3. Water quality profile of Otter Creek SAR data

6.3 Summary

Watershed modeling was completed on Otter Creek to identify the contribution of different source categories to salt loading, and to assess potential land management scenarios that might address these problems. The calibrated watershed model met nearly all of the pre-determined hydrologic evaluation metrics, and responded well to climatic inputs. Additionally, the salinity and SAR calibrations were reasonable and met relative error analysis requirements. The current application of the model meets DEQ requirements for use as a *relative gage of system response to various management practices*, rather than an absolute loading model.

The only management scenario evaluated in this report was a historical use scenario, where modern human uses were removed from the model. This showed that the current uses of the watershed – agriculture and grazing – do not have a significant effect on the salt concentrations in Otter Creek and only minimally affect SC and SAR (<1% change). In fact, due to the water consumed, there is less salt loading (mass) to the Tongue River than there would be with no agricultural use, i.e. salt is being moved from the water column of Otter Creek either into storage in the soils, or into the groundwater column. Thus, the key management implication from this study is that salinity concentrations in Otter Creek are currently at or near background levels – i.e., natural. This has implications for future efforts, as there is a large amount of existing water quality data available to make further characterizations.

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Appendices (on cd)

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the adoption of New Rule I pertaining to streams with site-specific standards based upon natural conditions	))))	NOTICE OF PUBLIC HEARING ON PROPOSED ADOPTION (WATER QUALITY)

TO: All Concerned Persons

1. On ____________, 2015, at __:__ __.m., the Board of Environmental Review will hold a public hearing [in/at address], Montana, to consider the proposed adoption of the above-stated rule.

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 Elois Johnson, Paralegal, no later than 5:00 p.m., ______________, 2015, to advise us of the nature of the accommodation that you need. Please contact Elois Johnson at Department of Environmental Quality, P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2630; fax (406) 444-4386; or e-mail ejohnson@mt.gov.

3. The proposed new rule provides as follows:

NEW RULE I. STREAMS WITH SITE-SPECIFIC STANDARDS BASED UPON NATURAL CONDITIONS (1) These site-specific standards are based upon natural conditions and therefore protect the uses designated for the corresponding water bodies in ARM 17.30.607 through 17.30.613.

(2) In implementing the criteria in this rule the department shall set effluent limits in permits to provide for the water quality standards for downstream waters to be attained and maintained. The department shall ensure that increased loading of the parameters in (3), or their equivalents in mg/L, do not cause or contribute to violation of downstream water quality standards.

(3) The following water quality criteria for electrical conductivity (EC) and sodium adsorption ratio (SAR) supersede the corresponding numeric water quality criteria in ARM 17.30.670 for Otter Creek:

(a) The EC and SAR criteria for the Otter Creek drainage must be met in Otter Creek at latitude 45.5884, longitude -106.2551. In any permit for discharge above this compliance point, the department shall require that the discharger meet these criteria at this compliance point and, to the extent it may be determined, non-anthropogenic conditions for EC and SAR at the point of discharge.

(b) The EC criterion is 3,100 μS/cm. The 80th percentile of an annual dataset may not exceed this value more than once in a two-year period.

(c) The SAR criterion is 6.5. The 80th percentile of an annual dataset may not exceed this value more than once in a two-year period.

AUTH: 75-5-301, MCA

IMP: 75-5-301, 75-5-306, MCA

REASON: The rulemaking is proposed to accomplish two purposes. First, (1) and (2) of the rule provide a framework for adoption of site-specific standards based on natural conditions in a water body. These sections would apply generally to any stream for which a site-specific standard is set at the natural condition of the water body. It is anticipated that as site-specific standards are developed for a water body based on natural conditions, additional sections will be added to this rule. A new rule for site-specific standards based on natural conditions is necessary because there are water bodies in Montana with parameter values that exceed currently applicable numeric water quality criteria because of non-anthropogenic conditions and that meet their designated uses. Section 75-5-306, MCA, states that wastes do not need to be treated to a purer level than the natural condition of receiving water.

The board recognizes that there is no assimilative capacity for a parameter with a criterion based on the non-anthropogenic condition of the water body. New Rule I(2) protects downstream water quality standards. Careful consideration must be given when the stream flows into a water body with higher water quality. In those cases, New Rule I(2) ensures that pollutant contributions to a tributary will not violate water quality standards in a mainstem stream, river, or other downstream water body.

Adopting site-specific standards based upon natural conditions will also allow the department to better address impaired water bodies. For purposes of implementing 75-5-702, MCA, which requires assessment and listing of impaired water bodies, data collected under the natural condition of the stream will not be assessed as impaired, except when anthropogenic conditions cause exceedances of the criteria.

Section (3) accomplishes the second purpose of this rulemaking. It provides site-specific criteria that supersede the established numeric criteria for EC and SAR in Otter Creek. The numeric criteria described below are to be met at latitude 45.5884, longitude -106.2551 in Otter Creek. However, water quality along Otter Creek and in its tributaries varies, and the standards are written to protect the non-anthropogenic (and therefore natural) condition of the entire Otter Creek watershed.

DEQ used a mathematical model to determine that anthropogenic sources of EC and SAR in the Otter Creek watershed are negligible and that the current condition of the stream is not different than the natural condition of the stream.

Thirteen years of monitoring data for EC at latitude 45.5884, longitude -106.2551 in Otter Creek are available from 1980 through 1985, 2004 through 2008, and 2013 and 2014. Two hundred sixty-two grab samples for SAR, calculated from sodium, calcium, and magnesium, are available near latitude 45.5884, longitude -106.2551 in Otter Creek from 1974 through 1985, 1987 through 1995, and 2003 through 2014. The proposed site-specific criteria in New Rule I(3) are set to the 80th percentile of this data. The 80th percentile is chosen for chronic criteria because it is protective of uses that have adapted to the natural condition of the water body. Additionally, criteria based on the 80th percentile will ensure that permit effluent limits for a stream will be set within the natural range of parameters. The 80th percentile of EC data is approximately 3,100 µS/cm and the 80th percentile of SAR data is approximately 6.5.

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 Elois Johnson, Paralegal, Department of Environmental Quality, 1520 E. Sixth Avenue, P.O. Box 200901, Helena, Montana 59620-0901; faxed to (406) 444-4386; or e-mailed to ejohnson@mt.gov, no later than 5:00 p.m., _______________, 2015. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

5. Ben Reed, attorney for the board, or another attorney for the Agency Legal Services Bureau, has been designated to 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, e-mail, 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 supply; 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. Notices will be sent by e-mail unless a mailing preference is noted in the request. Such written request may be mailed or delivered to Elois Johnson, Paralegal, Department of Environmental Quality, 1520 E. Sixth Ave., P.O. Box 200901, Helena, Montana 59620-0901, faxed to the office at (406) 444-4386, e-mailed to Elois Johnson at ejohnson@mt.gov, or may be made by completing a request form at any rules hearing held by the board.

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

8. With regard to the requirements of 2-4-111, MCA, the department has determined that the amendment of the above-referenced rules will not significantly and directly impact small businesses.

Reviewed by:	BOARD OF ENVIRONMENTAL REVIEW
____________________________	BY: ____________________________
JOHN F. NORTH Rule Reviewer	JOAN MILES Chairman

Certified to the Secretary of State, _______________, 2015.

MAR Notice No. 17-___

DRAFT
Implementation Guidance for Electrical Conductivity and Sodium Adsorption Ratio Site-specific Criteria for Otter Creek

October 16, 2015

Prepared by:
Water Quality Planning Bureau, Water Quality Standards Section
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EXECUTIVE SUMMARY

Water quality in Otter Creek, a tributary to the Tongue River in southeast Montana, is naturally high in total dissolved solids that lead to high values for electrical conductivity and sodium adsorption ratio. Conventional water quality expectations for protective EC and SAR levels are exceeded significantly in the Otter Creek watershed. However, the uses of the water in Otter Creek that might be affected by these high levels, including aquatic life and irrigated agriculture, have adapted to the natural conditions. Site-specific water quality criteria for EC and SAR based on the natural condition of Otter Creek have been proposed, and this document sets forth DEQ's recommended implementation of the criteria that will be protective of designated uses while respecting the natural conditions of the Otter Creek watershed.

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ACRONYMS

Acronym	Definition
AML	Average monthly limit
ARM	Administrative Rules of Montana
CFR	Code of Federal Regulations
CHIA	Cumulative hydrologic impact assessment
cfs	Cubic feet per second
CV	Coefficient of variation
DEQ	Department of Environmental Quality
EC	Electrical conductivity
EPA	Environmental Protection Agency
IEMB	Industrial and Energy Minerals Bureau
LTA	Long term average
MDL	Maximum daily limit
MPDES	Montana Pollutant Discharge Elimination System
MSUMRA	Montana Strip and Underground Mining Reclamation Act
PHC	Probable hydrologic consequences
SAR	Sodium adsorption ratio
SC	Specific conductance
TDS	Total dissolved solids
TSD	Technical Support Document for Water Quality-based Toxics Control
USGS	United States Geological Survey
WLA	Wasteload allocation

1.0 INTRODUCTION

This document sets forth the procedures that DEQ will use to implement the site-specific electrical conductivity (EC) and sodium adsorption ratio (SAR) criteria in Otter Creek. Otter Creek is a tributary to the Tongue River, located in western Powder River County in southeast Montana (**Figure 1**). Otter Creek is classified as a C-3 stream in the Administrative Rules of Montana (ARM) at 17.30.611. The designated uses of C-3 streams are defined at ARM 17.30.629(1):

> "Waters classified C-3 are to be maintained suitable for bathing, swimming, and recreation, and growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. The quality of these waters is naturally marginal for drinking, culinary, and food processing purposes, agriculture, and industrial water supply."

ARM 17.30.602(7) defines EC as "the ability of water to conduct an electrical current at 25°C." This is identical to the definition of specific conductance (SC). Therefore, the terms may be used interchangeably for our purposes. EC will be used throughout the document when referring to the criterion and SC will be used when referring to data. Total dissolved solids (TDS) include salts consisting of cations and anions. Salinity is a term used to refer to salts. TDS and salinity are also used in this document in discussions of EC and SAR.

Water quality criteria for Otter Creek must protect the uses described above. Site-specific criteria that reflect the natural condition of the Otter Creek watershed and protect the designated uses have been proposed for EC and SAR as described below.

The Montana Department of Environmental Quality (DEQ) recently undertook an extensive modeling effort for SC and SAR on Otter Creek. Simulating conditions on Otter Creek without human activities that contribute salts/solids contributing to SC and SAR resulted in natural levels of SC and SAR that are not significantly different from current conditions. The natural condition (including flow and parameter concentration and load) of a stream is protective of existing uses, and from the Otter Creek modeling results, DEQ determined that existing data from the United States Geological Survey (USGS) gaging station 06307740 near Ashland, Montana (latitude 45.5884, longitude -106.2551) could appropriately be used to develop criteria for EC and SAR that characterize the natural condition of Otter Creek (**Figure 1**). The criteria must be protected at any location along Otter Creek and its tributaries.

The 80th percentiles of the long-term existing datasets were then selected as the EC and SAR criteria. The 80th percentile of a dataset is the value, either exact or interpolated depending on the number of samples in the dataset, that corresponds to the 80th percent highest value of the ranked data. The 80th percentile value is the number, or the magnitude, of the criterion. The duration of the criteria is one year, and the accepted frequency of exceedances is one exceedance every two years.

Duration of a numeric water quality criterion is the period of time over which values can be calculated and uses exposed without harm. The EC and SAR criteria are not intended to be instantaneous values never to be exceeded. They are long-term values based on a long-term dataset, and one year is an appropriate duration for the criteria to account for harm to use over a long period of time. Frequency is the number of times that a dataset can exceed the number without impacting a use. This concept is described in detail in **Section 2.1.1**.

Basing site-specific water quality criteria on natural conditions is common in some other states, but has not yet been used extensively in Montana. As a relatively new process in Montana, it is necessary to develop guidance for the implementation of site-specific criteria based on natural conditions.

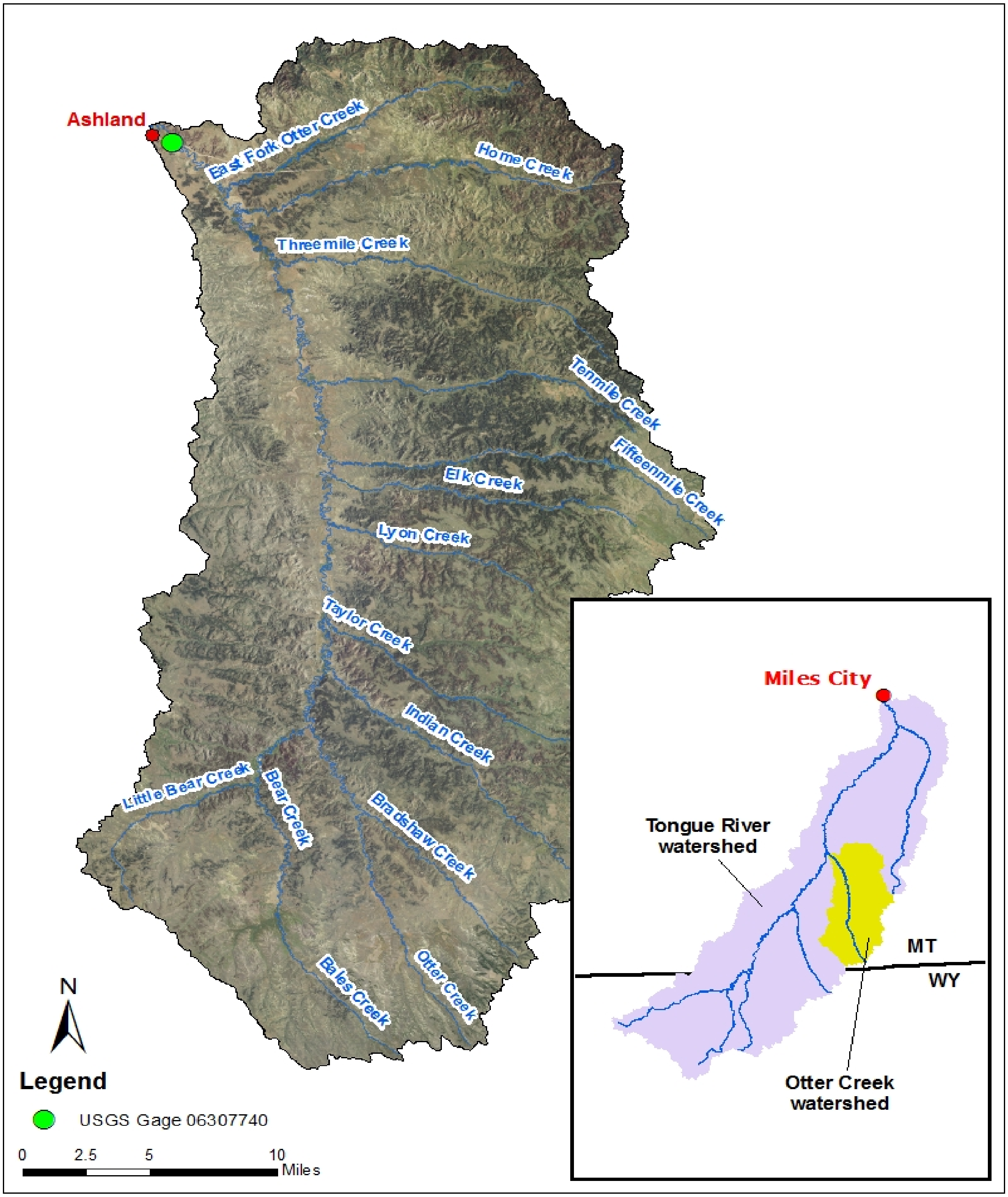

Figure 1. Otter Creek, Tributary to the Tongue River

2.0 IMPLEMENTATION OF THE CRITERIA

All activities in the Otter Creek watershed must be protective of the EC and SAR numeric criteria at latitude 45.5884, longitude -106.2551 by maintaining the natural condition of the stream at any point on Otter Creek and its tributaries. Additionally, per the Code of Federal Regulations (CFR) at 40 CFR 131.10(b) and section (2) of the draft rule, any discharges to Otter Creek or its tributaries must be protective of downstream water quality standards. This includes Montana water quality standards and other Environmental Protection Agency (EPA)-approved state or tribal standards. DEQ will also work closely with the Northern Cheyenne tribe in all permitting processes to protect their water quality standards for the Tongue River.

DEQ has determined that irrigated agriculture is a sensitive use of water with regard to EC and SAR in Otter Creek and the Tongue River because of the effects of EC and SAR on soil and its resulting effects on irrigated crops (Ayers and Wescot, 1985; Oster, 1994). As specified at ARM 17.30.611 and 629, C-3 waters, such as Otter Creek, are marginal for agriculture. In Otter Creek, the use does exist. Irrigation in the Otter Creek watershed is passive and opportunistic. Earthen berms have been built along much of Otter Creek and capture runoff, spreading it over fields and keeping it out of Otter Creek. Another irrigation practice that is used on Otter Creek is check dams. Check dams are built across Otter Creek and whenever precipitation and flow are sufficient, cause water to flow out of the channels and mainstem Otter Creek onto the fields.

Although irrigation occurs on Otter Creek, and sometimes includes water from Otter Creek, the agricultural use of Otter Creek is marginal in that the main source of irrigation water is precipitation and snowmelt. When water from Otter Creek does reach fields, it is significantly diluted from the typical EC and SAR values in Otter Creek. Large runoff events may happen at any time of year, and during those events, Otter Creek may overflow its banks and contribute to irrigation of fields. In the event that the runoff is due to precipitation occurring in the upper portion of the watershed but not in the lower, (the Otter Creek watershed is 710 mi^2) water quality in the lower reaches of Otter Creek must be protected. It follows that the water quality of Otter Creek must be protected year-round.

In contrast to Otter Creek's year-round opportunistic irrigation, irrigation on the Tongue River occurs from March 2 through October 31. The Tongue River at Miles City frequently exceeds the EC and occasionally exceeds the SAR irrigation season maximum and monthly average criteria established at ARM 17.30.670. Assimilative capacity is not available on the Tongue River during irrigation season. While SC and SAR levels in Otter Creek are due solely to natural sources, anthropogenic[1] sources of salts contribute to the EC and SAR levels in the Tongue River. Therefore, it is possible that assimilative capacity could become available if reductions in anthropogenic nonpoint sources (irrigated agriculture) or point sources in the Tongue River watershed are made. Protection of the irrigation use on the Tongue River from SC (TDS) and SAR (sodium, calcium, and magnesium) loading must be maintained from March through October by meeting water quality standards, considering both value and flow of point and nonpoint sources.

[1] Miriam-Webster's Online Dictionary (2015) defines anthropogenic as follows: "of, relating to, or resulting from the influence of human beings on nature."

When calculating loads, SC, which is expressed as µS/cm, must be converted to TDS, which is expressed as mg/L, through the use of a site-specific correlation between the two parameters. The correlation must be based on samples of both SC and TDS. Because seasonal variability is possible, samples must be distributed across at least one year. SAR, which is unitless, must be broken down into its ionic components of sodium, calcium, and magnesium, reported in mg/L. Load contributions then must be calculated for each of the three ions. When grab samples are collected for assessment or permit purposes, SAR should be calculated from the component ions rather than calculated from a regression of measured EC and SAR values.

Water quality criteria based on natural conditions are derived differently than water quality criteria developed to protect aquatic life or human health. It follows that implementation of the criteria is also different. Water quality and beneficial use assessments based on the 80th percentile of a natural dataset need to consider that 20% of the recorded natural data points exceed the selected criteria. Likewise, the permitting process needs to recognize that the criteria are 80th percentile values and to calculate appropriate average monthly and maximum daily effluent limits accordingly to protect existing uses. The implementation of the criteria in assessments and permits is detailed in the following sections.

2.1 Water Quality and Beneficial Use Assessments

Water quality and beneficial use assessments determine if water quality continues to meet the level of natural water quality originally characterized by the criteria. For water quality and beneficial use assessments, data must be collected at latitude 45.5884, longitude -106.2551. Comparison of data to the criteria should only apply at that point because historic data at this location are the basis for generating magnitude, exceedance, and frequency guidance for a water quality assessment. A minimum of two years of data must be collected for water quality beneficial use assessments. During each year, a minimum of 8 water chemistry samples must be collected during different (calendar) months. The following parameters will be analyzed:

- SC (continuous sampler acceptable)
- Sodium
- Calcium
- Magnesium
- Sulfate
- Bicarbonate and other cations and anions as determined necessary in **Section 2.1.2.2**

A continuous SC data sampler may also be used. It should be left in place as long as ice isn't present or expected. Daily averages must be calculated from the continuous data and used for assessment. Other samples may be collected at points along Otter Creek and its tributaries as necessary to assess anthropogenic sources or localized concerns, as described below in **Table 2**.

2.1.1 Statistical Analysis of the 80th Percentile of a Dataset

Attainment of the EC and SAR criteria is determined by comparing the 80th percentile of the ranked annual data sets to the criteria. To calculate the 80th percentile, sort the data from smallest to largest. Next, multiply the number of data points times 0.8 to find the index, which is the numbered value in the dataset that corresponds to the 80th percentile. If the index is a whole number, count the data points from smallest to largest until the index is reached and that is the 80th percentile value. If the index is not a whole number, the 80th percentile value must be interpolated from the dataset as demonstrated in Example 2, below.

Example 1.

Dataset	Ranked Data
15	3
3	4
16	5
5	9
4	10
10	12
19	15
18	16
9	18
12	19

There are 10 data points, so we multiply 10 times 0.8, which is 8.
Next we count the data points starting with 3 until we find the 8th value, which is 16.

The 80th percentile of the dataset is 16.

Example 2.

Dataset	Ranked Data
45	32
32	42
79	44
62	45
90	49
99	50
87	54
44	55
80	62
49	73
73	76
76	79
54	80
55	87
90	90
50	90
42	99

There are 17 data points, so we multiply 17 times 0.8, which is 13.6.

We count to the 13th value, which is 80, and the 14th value is 87. The index is 13.6, so the 80th percentile of the dataset is 6/10th of the way between 80 and 87.

Find the difference between the 13th and 14th values: 87 – 80 = 7
Calculate 6/10th of the difference: 7 * 0.6 = 4.2

Last we add 4.2 to 80 (the 13th value) to find the 80th percentile of the dataset.

The 80th percentile of the dataset is 84.2.

The PERCENTILE function in Excel is one way to easily calculate the percentile of a dataset.

Successive assessments based on the 80th percentile will be affected by normal variability in the data, for example, variability caused by changes in precipitation and groundwater level. Because the criteria were based on long-term datasets (12 years of continuous data for SC and 31 years of grab samples for SAR), and the criteria are assessed against annual 80th percentiles, over the long term, half of the years assessed are expected to exceed the criteria and half are expected to be below the criteria. Observed data generally meets these expectations, as displayed in **Figure 2**.

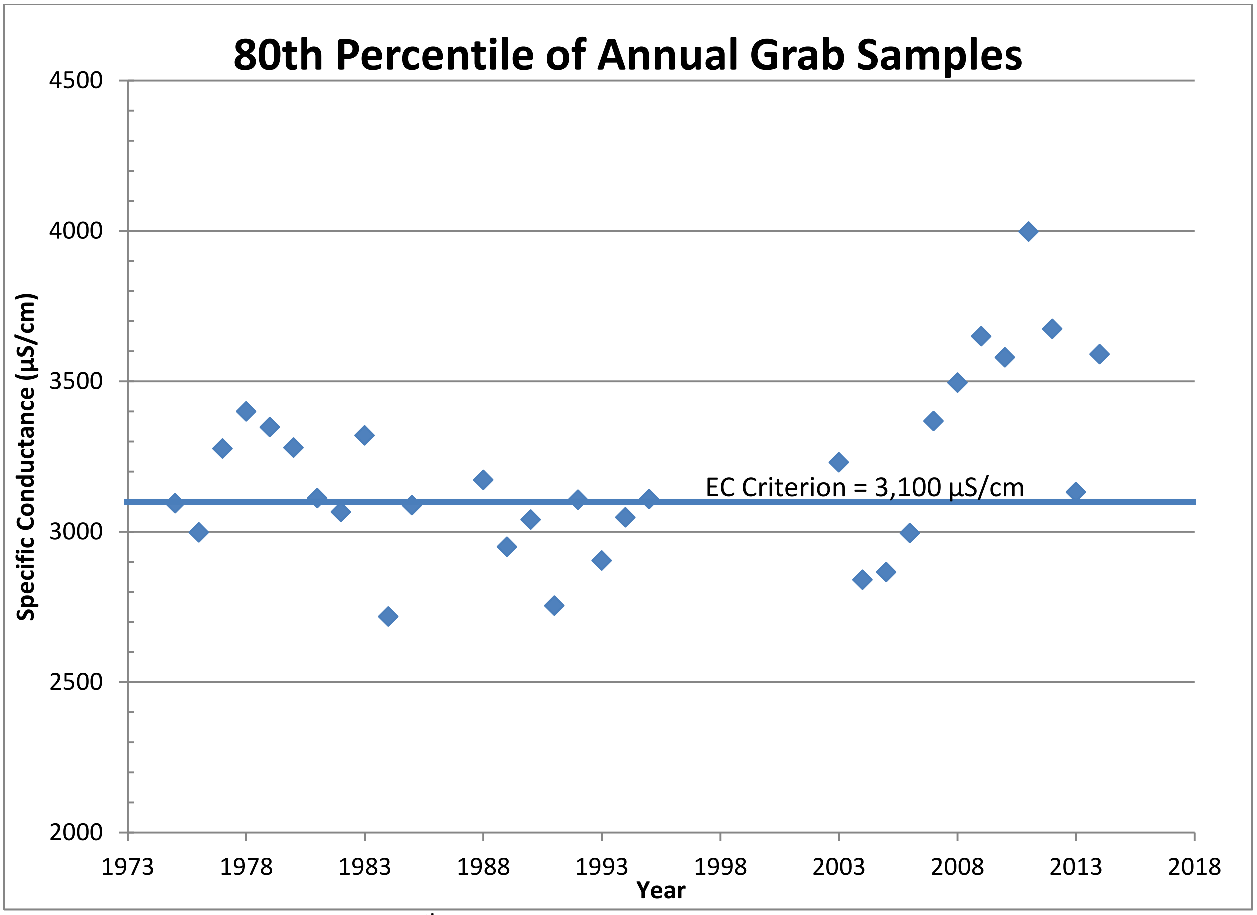

Figure 2. Comparison of Annual 80th Percentile of Samples to the EC Criterion

Therefore, the frequency of exceedance is once every two years. However, the frequency applies over the long-term dataset. It is typical to have the 80th percentile of an annual dataset exceed the long-term 80th percentile for two or more years in a row, and then be below the long-term 80th percentile for two or more years in a row. In order to account for the natural variability of the system, DEQ recommends a statistical approach based on the confidence interval that assessments may use to determine whether the assessed dataset can be considered natural. The Colorado Department of Public Health and Environment has used confidence intervals, calculated using the Wilson Interval, in a similar situation (Colorado Department of Public Health and Environment, 2013).

The confidence interval is most easily understood as a region around an estimate (in this case, the 80th percentile of the assessed annual data) within which the true value is likely to be located (Colorado Department of Public Health and Environment, 2013). The width of the confidence interval, and therefore the range of values it spans, is determined in part by the desired level of confidence. When the level of confidence is set to 95%, it means there is only a 5% probability (a 1-in-20 chance) of mistakenly concluding that the assessed value is greater than the actual value (represented by the criterion) when in truth it is not (i.e., a Type 1 error). We have used the Wilson interval (Wilson, 1927), which calculates the confidence interval for specified percentiles in a data distribution; it can apply to datasets comprising different numbers of samples (Agresti and Coull, 1998). The lower confidence levels for the 95% confidence interval are included in **Table 1**. DEQ will be using the lower confidence level for assessment decisions.

Table 1. Lower Confidence Limits for Various Sample Size (N) Calculated by the Wilson Interval (Colorado Department of Public Health and Environment, 2013)

N	LCL	N	LCL	N	LCL	N	LCL
2	0.278585	27	0.648906	52	0.694979	77	0.715421
3	0.347727	28	0.651924	53	0.69608	78	0.716018
4	0.397517	29	0.654781	54	0.697149	79	0.716603
5	0.435293	30	0.657489	55	0.698188	80	0.717177
6	0.465066	31	0.660061	56	0.699197	81	0.717739
7	0.489224	32	0.662507	57	0.700178	82	0.718291
8	0.509278	33	0.664838	58	0.701133	83	0.718832
9	0.526235	34	0.667061	59	0.702062	84	0.719363
10	0.540793	35	0.669185	60	0.702967	85	0.719884
11	0.55345	36	0.671216	61	0.703848	86	0.720396
12	0.564574	37	0.673161	62	0.704707	87	0.720898
13	0.574442	38	0.675026	63	0.705544	88	0.721392
14	0.583267	39	0.676816	64	0.706361	89	0.721876
15	0.591214	40	0.678535	65	0.707158	90	0.722353
16	0.598415	41	0.680189	66	0.707936	91	0.72282
17	0.604978	42	0.681781	67	0.708695	92	0.72328
18	0.610988	43	0.683314	68	0.709437	93	0.723732
19	0.616517	44	0.684793	69	0.710162	94	0.724177
20	0.621623	45	0.68622	70	0.710871	95	0.724614
21	0.626357	46	0.687598	71	0.711564	96	0.725044
22	0.63076	47	0.688931	72	0.712242	97	0.725467
23	0.634869	48	0.690219	73	0.712905	98	0.725883
24	0.638712	49	0.691466	74	0.713554	99	0.726293
25	0.642319	50	0.692674	75	0.714189	100	0.726696
26	0.64571	51	0.693844	76	0.714811		

From each annual dataset, the number of samples is used to find the lower confidence limit percentile in **Table 1**, and then that percentile will be applied to the annual dataset to find the corresponding value for the lower confidence limit of the dataset. For example, if there were 35 samples in a particular annual SC dataset, one would identify the SC value at the 67^{th} percentile (**Table 1**) of that annual dataset. If the SC value at the 67^{th} percentile of the annual dataset in question is greater than the EC criterion, DEQ would conclude the site is water quality limited, with 95% confidence in that decision. Put another way:

If the confidence interval of the assessed value includes the criterion (i.e., if the lower confidence limit is lower than the criterion), then it is not necessary to assess any further—the watershed meets the water quality criterion.

If the confidence interval of the assessed value does not include the criterion (i.e., if the criterion is less than the value at the lower confidence limit), then the assessed value may be significantly different from the criterion. However, because of the extreme level of variability of the long-term Otter Creek dataset, the confidence interval does not guarantee that natural annual datasets will not mistakenly be assessed as being significantly different from the criterion. Therefore, if the confidence interval of the assessed value does not include the criterion, then further assessment is required.

2.1.2 Further Assessment

The Otter Creek watershed is a complex, highly variable system. Presently, the effects of multi-year flow patterns on EC and SAR values are not well understood, but appear to play a key role. In order to further assess data sets for which the confidence interval does not include the criterion, natural and anthropogenic variability must be assessed as described in **Table 2** and **Sections 2.1.2.1** through **2.1.2.4**.

Table 2. Assessment steps followed if the water quality criterion is below the 95 percent lower confidence level for the 80th percentile of annual data.

Assessment Category	Anthropogenic or Natural Consideration	If Yes…	If No…	If Not Available or Inconclusive…
Modeling	Does modeling indicate that anthropogenic sources caused or contributed to the exceedance? (**Section 2.1.2.1**)	Water Quality Limited	Natural condition	Next question…
Relative Ionic Composition	Does the analysis of individual ions (e.g. Piper diagram) upstream and downstream of an anthropogenic source demonstrate a contribution of source water to Otter Creek? (**Section 2.1.2.2**)	Water Quality Limited	Next question…	Next question…
Mass Balance	Does mass balance bracketing of an anthropogenic source indicate contribution to an exceedance? (**Section 2.1.2.3**)	Water Quality Limited	Next question…	Next question…
Other Anthropogenic Assessment	Does any other information indicate that anthropogenic sources caused or contributed to the exceedance? (**Section 2.1.2.4**)	Water Quality Limited	Natural condition	

2.1.2.1 Modeling

If an appropriate model approved by DEQ demonstrates that anthropogenic effects are or are not significant, the information from the model will supersede conflicting results of other assessment steps described in **Table 2**.

2.1.2.2 Relative Ionic Composition

The dissolved solids makeup of Otter Creek is mixed sodium-magnesium-sulfate-bicarbonate (Sando et. al., 2014). If anthropogenic sources of salinity are introduced to the watershed, effluent characterization (see **Section 2.2.1.4**) must include analysis of the parameters, including individual ions, listed in **Section 2.1**. If nonpoint sources of salinity may be contributing to an exceedance of EC and/or SAR criteria, an assessment may collect individual ion samples above and below the nonpoint source activity to investigate whether the activity is contributing to the exceedance.

The relative ionic composition of samples bracketing anthropogenic activities may then be plotted on a Piper diagram. A Piper diagram provides a method to classify and compare water types based on the ionic composition of different water samples. Cation and anion concentrations for each water sample are converted to total milliequivalents per liter (meq/L) and plotted as percentages of their respective totals in two triangles. The cation and anion relative percentages in each triangle are then used to describe the water type (Bartos and Muller Ogle, 2002).

To test if the ionic composition has shifted, a two-sided rank-sum test is used. The two-sided rank-sum test is a nonparametric hypothesis test that is used to determine the probability that the median dissolved-solids and major-ion concentrations between water samples are the same. The rank-sum test does not require assumptions about the population distribution and is resistant to outliers. The null hypothesis of identical median values between samples should be rejected if the probability (p-value) of obtaining identical medians by chance is less than 0.05 (Bartos and Muller Ogle, 2002).

2.1.2.3 Mass Balance

Prior to initiation of potentially new point sources that may contribute to salinity in the Otter Creek watershed, a network of surface water monitoring locations should be established. Continuous flow and SC, and monthly SAR (sodium, calcium, and magnesium), should be monitored immediately upstream of all anticipated influence and downstream of each proposed outfall or anticipated impact. Monitoring results could then be used to evaluate natural reach-specific loading of TDS and sodium, calcium, and magnesium through time. The pre-anthropogenic data would be used to establish a baseline ratio of natural conditions upstream to downstream of the proposed activity over relatively manageable reaches. Future assessments could then compare the pre-activity ratio to the post-activity ratio and can inform whether specific sources are contributing to SC and SAR loading to the system.

If the confidence interval of the assessed value does not include the EC and/or SAR criterion and a mass balance assessment indicates that a point source has contributed to SC and/or SAR loading, Otter Creek would be determined to be water quality limited.

2.1.2.4 Other Anthropogenic Assessment

There is a small significant increase in Otter Creek salinity as annual median streamflow increases (Sando et. al., 2014). During most years with above-median flows, the 95% confidence level for the 80^{th}

percentile of the annual SC dataset did not meet (was above) the criterion. This effect often continued into the subsequent year. Conversely, during the 1980s, 1990s, and early 2000s, when Otter Creek was mostly under drought conditions, the lower confidence level for the 80th percentile of the annual SC dataset met (was below) the criterion. Multi-year flow patterns tend to reflect SC patterns better than seasonal and/or annual flow patterns, and therefore may help explain some of the variability in the system.

If the criterion is below the lower confidence level for the 80th percentile of an annual dataset but there is no information indicating that anthropogenic sources have contributed to an exceedance of the water quality criteria, then Otter Creek will be considered to meet the level of natural water quality originally characterized by the criterion.

An exceedance of the criteria at latitude 45.5884, longitude -106.2551 will necessitate a total maximum daily load (TMDL) evaluation of point and nonpoint sources of the parameter for the Otter Creek watershed. It will not automatically trigger a review or reopening of upstream point source permits, although results of the TMDL may result in new wasteload allocations, which would then be used to calculate new permit limits. Conversely, the TMDL could find that anthropogenic sources are not a significant contribution to the exceedance and that a review of the criterion is necessary.

2.2 PERMITS

Permits exist to control pollution from point sources that may affect soil, water, or air (e.g., pollution from coal mines, coalbed methane or coalbed natural gas, waste water treatment plants, etc.). Nonpoint sources are also sources of pollution but are not regulated in permits. Implementation of the water quality standards in Montana Pollutant Discharge Elimination System (MPDES) permits and operational permits under the Montana Strip and Underground Mining Reclamation Act (MSUMRA) is explained in the following sections.

2.2.1 Montana Pollutant Discharge Elimination System (MPDES) Permits

A MPDES permit or a Montana Ground Water Pollution Control System permit is required from DEQ to construct, modify or operate a disposal system or to construct or use any outfall for discharge of sewage, industrial, or other wastes into state surface or ground water. Components of a permit include effluent characterization, reasonable potential analysis, nondegradation review (this is part of the effluent limit calculation for new or increased sources), and calculation of effluent limits.

2.2.1.1 Nondegradation Review

Montana's nondegradation policy at ARM 17.30.701 et seq. protects high quality waters and existing uses for new or increased source that may cause degradation. High quality surface waters are all waters in Montana except those that are not capable of supporting any one of the designated uses for their classification or have zero flow for more than 270 days during the year (MCA 75-5-103(13)). Existing and anticipated uses of all waters must be maintained and protected (ARM 17.30.705). A nonsignificance review under 17.30.715 is required for all new and increased sources of pollution to high quality waters prior to issuance of a discharge permit. A nonsignificance review determines whether the discharge of a pollutant into a waterbody will cause a significant change in water quality.

Criteria for determining nonsignificant changes in water quality are listed at ARM 17.30.715.

The criteria consider the quantity and strength of the pollutant but are primarily written for numeric water quality criteria developed from toxicity data to protect aquatic life or human health (ARM 17.30.715(1)), not numeric water quality criteria based on the natural condition of a water body.

ARM 17.30.715(2) and (3) provide additional guidelines for determination of significance and degradation. ARM 17.30.715(2) provides for determination of significance based on changes in flow and loading, cumulative impacts, secondary byproducts, etc. ARM 17.30.715(3) allows DEQ, after a public comment period, to make a determination of nonsignificance based on information that considers potential for harm, the quantity and strength of the pollutant, and the length of time the degradation will occur, and character of the pollutant (e.g. toxic or harmful).

Per ARM 17.30.706(3)(d), DEQ may request an analysis of the quality of downstream waters which may be reasonable expected to be impacted. If a discharge will cause degradation as defined in rule, then the permit applicant must submit an application for an authorization to degrade as described in ARM 17.30.706. “Authorization to degrade” simply means that the water quality criteria may be approached. Authorizations to degrade do not allow water quality standards to be violated and always have a formal public comment period.

In the absence of an authorization to degrade under ARM 17.30.706, effluent limits are always based on nondegradation of water quality in accordance with the nonsignificance criteria included in ARM 17.30.715.

Otter Creek SC and SAR are currently at natural levels with no anthropogenic influence. It meets at least one of its designated uses and has zero flow less than 270 days during the year. As such, it should be considered high quality and all relevant nonsignificance criteria will apply. Water quality criteria based on the natural condition of a waterbody are developed to maintain the natural water quality, recognizing that there is no assimilative capacity available for additional pollution, because adding additional pollution will not be representative of the natural condition. Degradation cannot be allowed because any increase in the value above the criteria has the potential to limit existing uses of Otter Creek. However, discharges with water quality better than what exists in Otter Creek at the time of discharge may be beneficial and nonsignificant in a nondegradation review.

Additionally, as discussed in **Section 2.0**, the TDS and sodium, calcium, and magnesium loads to the Tongue River cannot significantly increase during the irrigation season on the Tongue River. To protect against loading to the Tongue River during irrigation season, the flow criterion at ARM 17.30.715(1)(a) applies for determining nonsignificance: discharges to surface water may only “increase or decrease the mean monthly flow of a surface water by less than 15 percent.” If water with SC and SAR levels at or below the criteria is discharged and the resulting load to the Tongue River is not significantly increased, the discharge is not significant, pursuant to ARM 17.30.715(3).

Following is an example of the extent that a nonsignificant change in flow in Otter Creek could have on the water quality in the Tongue River. The average flow of Otter Creek is about 5 cfs. This value will vary from month to month. At a monthly average flow of 5 cfs, a 15% change would be a 0.75 cfs increase or decrease in flow. At an SC of 3,100 µS/cm, the increased load to the Tongue River from an additional 0.75 cfs is 8,035 pounds of salt per day. At the average flow and SC at the Brandenberg Bridge near Ashland of 815 cfs and 583 µS/cm (Tongue River water quality data taken from USGS daily data from November 6, 2013 to November 6, 2014), the corresponding increase in SC in the Tongue River would be 2.3 µS/cm. During the lowest flow condition at Brandenberg Bridge near Ashland during 2013 and 2014 of 275 cfs, the SC was 770 µS/cm. The increase in SC in the Tongue River resulting from an additional load of 8,035 pounds of salt per day is 6.3 µS/cm. With nonsignificant flow increases from surface or subsurface contributions to Otter Creek, according to ARM 17.30.715(1)(a), the increases in SC contributions to the Tongue River are minimal.

During non-irrigation season on the Tongue River, the Otter Creek EC and SAR values may not exceed the criteria, but the Tongue River has assimilative capacity for SC and SAR, so loading from increased Otter Creek flow may be acceptable during non-irrigation months. An increase in average monthly flow in excess of 15% requires an authorization to degrade, unless the criteria for determining nonsignificance at ARM 17.30.715(3) and Montana Code Annotated 75-5-301(5)(c) indicate that even at a higher flow, the load and resulting increased value in the Tongue River are nonsignificant.

If an authorization to degrade is necessary, demonstration of existing use protection may be achieved by modeling, or mass balance and precipitation predictions. Tongue River water quality standards must be met. Additionally, Otter Creek must be protected against increases in flow that could increase the EC and SAR values of water that is spread over Otter Creek watershed fields irrigated via spreader dike during large precipitation (rain, snowmelt, or rain on snow) events.

2.2.1.2 Reasonable Potential Analysis

A crucial step in the surface water discharge permit process is effluent characterization. The objective of effluent characterization is to project receiving water values based upon existing effluent quality to determine whether or not an excursion above ambient criteria occurs, or has the reasonable potential to occur. In determining reasonable potential, DEQ will consider controls on point and nonpoint sources, the variability of the pollutant parameter in the effluent, and any dilution of downstream waters. All estimates must assume discharge at critical conditions. Therefore, a conservative assumption is used to determine whether or not an impact is projected to occur (EPA, 1991).

With criteria based on natural conditions, if a proposed discharge to Otter Creek would elevate SC and SAR values, reasonable potential would generally exist and necessitate effluent limits.

2.2.1.3 Effluent Limit Calculations

Montana Pollutant Discharge Elimination System (MPDES) permit limits are designed to protect water quality standards.

Effluent limits derived to protect a numeric water quality criterion are typically calculated from a wasteload allocation that protects the water quality criterion, and must be expressed as both a maximum daily limit (MDL) and an average monthly limit (AML). The Otter Creek site-specific criteria for EC and SAR are based on the 80th percentile of long-term data and represent a system that must be maintained without significant increases over time (chronic interval). Therefore, if the criterion is applied at an outfall, the wasteload allocation will be set equal to the EC or SAR criterion and used to calculate the long-term average, and the aquatic life calculation recommended in the Technical Support Document for Water-quality Based Toxics Control (TSD) (EPA, 1991) will be used to derive an MDL and an AML.

The equations used are as follows:

$$LTA_c = WLA_c \bullet e^{(0.5\sigma_4{}^{\wedge}2 - z\sigma_4)}$$

$$\text{where } \sigma_4^2 = \ln(CV^2/4 + 1)$$

z = 2.326 for 99th percentile probability basis

$$MDL = LTA \bullet e^{(z\sigma - 0.5\sigma^2)}$$

where $\sigma^2 = \ln(CV^2+1)$

z = 2.326 for 99th percentile probability basis

$$AML = LTA \bullet e^{(z\sigma_n - 0.5\sigma_n 2)}$$

where $\sigma_n^2 = \ln(CV^2/n + l)$

z = 2.326 for 99th percentile probability basis

And:

CV = Coefficient of variation

σ = Standard deviation

WLA_c = Chronic wasteload allocation in chronic toxic units

LTA_c = Chronic long-term average wasteload

MDL = Maximum daily limit

AML = Average monthly limit

z = z statistic

Example 1:

For new sources subject to nondegradation criteria, water quality based effluent limits must protect existing water quality unless and authorization to degrade state waters has been issued. Existing water quality is typically determined by calculating the 25th percentile of the receiving water data set. For this example, we assume that the existing water quality at the location of a proposed permitted activity is 3,500 µS/cm . Because the existing water quality is worse than the standard, we will set the waste load allocation equal to the EC criterion of 3,100 µS/cm. The coefficient of variation will not likely be known upon issuance of a new permit, so the default coefficient of variation will be 0.6 as recommended in the TSD (1991). The resulting LTA from the first equation above is 1,635 µS/cm. entering the LTA into the AML calculation with four samples per month results in an AML of 2,538 µS/cm. The MDL calculation equation results in an MDL of 5,092 µS/cm. This MDL is approximately 600 µS/cm larger than the maximum value in the period of record considered in calculation of the EC numeric water quality criterion.

This larger MDL value will not have significant long-term impacts to water quality for two reasons. First, lower daily values than what naturally occur will be necessary to balance out the higher values, should they occur, in order to meet the AML. Additionally, the average monthly limit is slightly lower than the long-term average SC, protecting against the possibility of many large values of SC in a month. And second, because flow will be maintained at levels that will protect high quality water and existing uses, (included in both the nondegradation policy and in the draft rule), flows will be maintained at low levels, and water in Otter Creek will dilute the effluent (the 7Q10 of Otter Creek is 0 cfs, so there is no mixing zone available, but most of the time, water will be available in Otter Creek to dilute effluent).

However, as described in **Section 2.0**, loading of SC and SAR to the Tongue River must not increase above natural levels during the irrigation season on the Tongue River. During this time, depending on values of SC and SAR in the Tongue River and the values in the proposed effluent, DEQ has the authority to limit discharge to protect downstream water quality standards. Increased flow above the nondegradation significance criterion may be permitted during the Tongue River non-irrigation season if DEQ has determined that the value and resulting load are not significant, or if the permit applicant has an authorization to degrade.

As effluent data become available, the CV may decrease. A lower CV will tighten the range of expected values, therefore the permit could be modified in accordance with ARM 17.30.1361(2)(b) or during renewal so that the MDL will decrease and the AML will increase. At a very low coefficient of variation such as 0.15, the calculated MDL in our example would be 3,654 µS/cm, and the calculated AML would be 2,946 µS/cm.

2.2.1.4 Assessing Compliance with Permit Requirements

The extreme natural variability of SC and SAR in Otter Creek must be accounted for when assessing compliance with water quality standards. Compliance point determination is dependent on a facility's storage and discharge design and is typically the end of pipe or last point of control. The monitoring frequency must be adequate to characterize discharges. For example, for intermittent discharges, a daily sample must be collected when a discharge occurs; whereas a minimum of four samples per month should be collected for continuous discharges. Samples should be analyzed for SC, calcium, magnesium, and sodium, at a minimum.

In order to determine compliance with permit requirements, samples will be compared to the MDL and the AML. The MDL must not be exceeded at any time. If any sample exceeds the MDL, a violation has occurred. To determine permit violations based on the AML, 12 months of data are necessary. For tracking and informational purposes, the 80th percentile of the first two months of data should be calculated (this may not be possible until four or more months of data are collected for intermittent dischargers), and 80th percentiles of received data should be calculated each month thereafter, until the 80th percentile can be calculated on a rolling 12-month basis.

If the criterion is exceeded, the 95 percent confidence interval for the 80th percentile of the 12-month dataset is calculated as described in **Section 2.1.1**. The criterion is then compared to the lower confidence limit. If the criterion is above the lower confidence limit, the water quality standard is met, and if it is below the lower confidence limit, a violation has occurred.

2.2.2 Montana Strip and Underground Mine Reclamation Act (Cumulative Hydrologic Impact Assessments, etc)

This section sets forth the procedures that DEQ's Coal and Uranium Program (Coal Program) will use to implement the site-specific criteria representing natural conditions for SC and SAR in Otter Creek. The Coal Program determines whether direct or indirect impacts to surface water quality in Otter Creek will or are occurring as a result of activities related to coal and uranium mining under the Montana Strip and Underground Mine Reclamation Act (MSUMRA). The Coal Program will not separately evaluate impacts regulated by other programs such as MPDES regulated discharges.

Evaluation of hydrologic impacts occurs at multiple points of the MSUMRA regulatory process:

1) when reviewing a mine's permit application to determine whether the proposed operation is designed to prevent material damage to the hydrologic balance of both surface water and ground water outside the permit area;
2) on an annual basis through evaluation of data submitted by the permitted mine as part of the Annual Hydrology Report; and
3) during the mine's permit renewal or mid permit review. Review of hydrologic data may also occur on a more frequent basis as determined by DEQ.

For the purposes of determining whether the operation is designed to prevent material damage, DEQ evaluates the probable cumulative impact of all anticipated mining in the area on the hydrologic balance based in part on the Probable Hydrologic Consequences (PHC) of mining provided by the applicant. DEQ's assessment of the PHC is set forth in the Cumulative Hydrologic Impact Assessment (CHIA), which is part of the findings prepared by DEQ in support of its decision on the permit application. See ARM 17.24.405(6)(c). The PHC and the CHIA may be revised from time to time as a part of the mine permit renewal and permit revisions that would alter the hydrologic balance. See ARM 17.24.415(3)(c). Otherwise, after the permit is issued, the mine must be operated to prevent material damage to the prevailing hydrologic balance outside the permit area. See ARM 17.24.631(1).

Material damage, as defined in ARM 17.24.301, "with respect to protection of the hydrologic balance, degradation or reduction by coal mining and reclamation operations of the quality or quantity of water outside of the permit area in a manner or to an extent that land uses or beneficial uses of water are adversely affected, water quality standards are violated, or water rights are impacted. Violation of a water quality standard, whether or not an existing water use is affected, is material damage." The CHIA is part of DEQ's Written Findings and is written for new permits or permit revisions as detailed in ARM 17.24.415. The natural-condition site-specific standard proposed for Otter Creek, if adopted, will serve as one of the criteria for determining whether a proposed coal mining operation is designed to prevent material damage to the hydrologic balance outside the permit area, and will inform the monitoring plan deemed necessary to protect the hydrologic balance while the mine is operating.

2.2.2.1 Establishment of Natural Conditions

DEQ's Industrial and Energy Minerals Bureau (IEMB) will require surface water monitoring stations immediately upstream and downstream of the location of any proposed coal mine in the Otter Creek drainage. The surface water stations will be required to measure continuous flow and SC of Otter Creek. SAR will also be monitored at these sites. A schedule of field instrument calibration and water quality samples analyzed by a certified laboratory will be required to measure, among other analytes, SAR and laboratory-derived SC. Data collected before mining operations commence would be used to establish baseline natural conditions for the stream location (determined at the discretion of IEMB) adjacent to mining. This natural condition could be used to create a location-specific target to support SC and SAR natural conditions at latitude 45.5884, longitude -106.2551 on Otter Creek as identified in the proposed rule. To accommodate natural variability in the surface water quality, the location-specific target may be made from a comparison of the upstream and downstream condition. A location-specific target will be incorporated as a permit stipulation into any mine permits issued by IEMB in the Otter Creek drainage. Surface water monitoring stations will be designated as necessary to ensure that the PHC thoroughly describes conditions at a coal mine prospect in the Otter Creek watershed, along with such additional monitoring stations as DEQ may require based on the PHC and the CHIA.

It is not known whether upstream to downstream relationships will be sufficient to confidently evaluate any anthropogenic changes to water quality or quantity. Intensive data collection will inform whether this approach will be feasible from a mine permitting perspective. Groundwater stations will also be required to assess SC (TDS) and SAR (sodium, calcium, and magnesium) loads from mine spoils that migrate to Otter Creek. It is likely that some version of this approach will be used. However, at this time, the efficacy of this approach has not been tested or evaluated.

2.2.2.2 Evaluation of the Standard and Material Damage

During mining and until final bond release the same surface water monitoring stations used to establish the location-specific target will serve to evaluate the effect of coal mining on the hydrologic balance by using the proposed numeric criteria, duration, and frequency. Furthermore, additional surface water and groundwater monitoring stations will be used to determine the water quality and quantity leaving the mine's permit boundary.

If the location-specific target is negatively altered by mining activities during the monitoring period and the upstream to downstream ratio of salt load in Otter Creek demonstrates increased loading of salts by the mine departing from natural conditions, DEQ will find that material damage has occurred. Furthermore, when writing a CHIA, DEQ will determine if the mine's proposed action is predicted to negatively alter the natural condition of the stream location, which would be considered material damage. If material damage is predicted to occur, the proposed action will be not approved.

According to ARM 17.24.801, with few exceptions, strip or underground coal mining operations must preserve the essential hydrologic functions such that farming is not precluded on alluvial valley floors outside the coal mine permit area. The Otter Creek alluvial valley floor is flood irrigated, and this use must be maintained or material damage will occur. If coal mining operations result in diversion of water away from Otter Creek, thereby reducing the amount of water available for irrigation, a land application of water of sufficient quality and quantity to permit farming operations and protect the essential hydrologic functions of the Otter Creek alluvial valley floor must be made. When these applications are made, they must be applied to fields at agronomic rates that will minimize runoff and return flow that could increase SC and SAR values in Otter Creek.

3.0 CONCLUSION

The approaches in this guidance document are conceptual at this time and the efficacy of some of the approaches has not been tested or evaluated. Data collection will inform the validity of the approaches, and other approaches may also be acceptable. This document may be updated and revised as necessary to best protect water quality standards.

4.0 ACKNOWLEDGMENTS

The Water Quality Standards Section would like to thank the stakeholders and interested parties who have provided valuable feedback throughout the site-specific criteria rulemaking process. We would also like to thank IEMB for its help writing the MSUMRA EC and SAR criteria implementation, and the individuals within DEQ who provided review of the criteria and this document.

5.0 References

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From:	Wittenberg, Joyce
To:	Houle, Hillary
Subject:	FW: BER Cases No. 2015-04a-c AQ
Date:	Friday, September 25, 2015 10:43:15 AM

Hillary:

Please put this in the file also.

Thanks.

Joyce L. Wittenberg
Business & Records Manager
DEQ Director's Office
406-444-6701

From: Reed, Ben
Sent: Friday, September 25, 2015 10:25 AM
To: Mullen, Norman; 'patrick@johnsonbrothers.net'
Cc: Wittenberg, Joyce; Hoffman, Tiffany
Subject: FW: BER Cases No. 2015-04a-c AQ

All,

Patrick Pozzi just sent me this and called; I assume that Mr. Mullen will send him some formal document, but I would think that this concludes the matter. Please advise me if this is not the case.

Regards,
Ben

From: Patrick Pozzi [mailto:patrick@johnsonbrothers.net]
Sent: Friday, September 25, 2015 10:17 AM
To: Reed, Ben
Subject: Re: BER Cases No. 2015-04a-c AQ

Ben,
Let them expire, we had to shut the mills down. MRR has been transferred yet EPM Superior and EPM Eureka are closed.

Thank you,

-Patrick

Sent from my iPhone

On Sep 25, 2015, at 9:55 AM, Reed, Ben <BenReed@mt.gov> wrote:

Gentlemen,

I write this e-mail as counsel for the Board of Environmental Review. I note that Mr. Patrick Pozzi filed the appeal to these revocations. I do not believe that Mr. Pozzi is an attorney licensed to practice law in the State of Montana and is hereby advised that the corporate entities on behalf of which he has filed must be represented by counsel if this matter is to proceed.

Mont. Code Ann. § 37-61-201 provides that any person who appears before a judicial body, referee, commissioner, or other officer appointed to determine any question of law or fact by a court or who shall engage in the business and duties and perform such acts, matters, and things as are usually done or performed by an attorney at law in the practice of his profession shall be deemed practicing law. Montana Ethics Opinion 000008 provides that an attorney acting as an administrative law judge may not ethically permit a corporation to represent itself pro se through an unlicensed individual, stating, "[a] lawyer should assist in preventing unauthorized practice of law." The Hearing Examiner in the instant case will be a licensed attorney and subject to the constraints established for attorneys.

While this contested case has yet to be scheduled, I would ask that appellant parties in these cases represented by counsel to ensure that the matter goes forward smoothly. If you have any comments, questions, or concerns, please do not hesitate to let me know.

Regards,
Ben

Benjamin Reed
Assistant Attorney General
Agency Legal Services Bureau
State of Montana Department of Justice
1712 Ninth Ave.
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Montana Department of
ENVIRONMENTAL QUALITY
MEMO

TO: Ben Reed, Hearing Examiner
Board of Environmental Review

FROM: Joyce Wittenberg, Board Secretary
Board of Environmental Review
P.O. Box 200901
Helena, MT 59620-0901

DATE: August 18, 2015

SUBJECT: Board of Environmental Review Case No. BER 2015-05 WQ

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW

OF THE STATE OF MONTANA

IN THE MATTER OF: HEART K LAND & CATTLE CO.'S APPEAL OF ITS FINAL 401 CERTIFICATION WITH CONDITIONS, APPLICATION NO. MT4010948, MWO-2013-00590-MTB-ADDENDUM, ISSUED BY DEQ, YELLOWSTONE RIVER, PARK COUNTY, MONTANA.	Case No. BER 2015-05 WQ

The BER has received the attached request for hearing. Also attached is DEQ's administrative document(s) relating to this request.

Please serve copies of pleadings and correspondence on me and on the following DEQ representatives in this case.

John North
Chief Legal Counsel
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Todd Teegarden, Bureau Chief
Technical & Financial Assistance Bureau
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Attachments

Wittenberg, Joyce

From:	Losey, Valerie K. <Valerie.Losey@millernash.com>
Sent:	Monday, August 17, 2015 4:26 PM
To:	Wittenberg, Joyce
Cc:	Steding, Doug J.
Subject:	Notice of Appeal - Heart K Land and Cattle Co.
Attachments:	Notice of Appeal.pdf; Declaration of D. Steding.pdf; Motion for Pro Hac Vice Admission.pdf
Follow Up Flag:	Follow up
Flag Status:	Completed
Categories:	BER

Good afternoon Ms. Wittenberg,

Attached please find the following documents:

1. Notice of Appeal;
2. Declaration of Douglas Steding in Support of Notice of Appeal; and
3. Motion for Pro Hac Vice Admission.

Please note the exhibits to the Declaration of Douglas Steding will be forthcoming. Hard copies of these documents (with exhibits) will follow via FedEx delivery.

Thank you!

Valerie K. Losey
Assistant to Madeline Engel, John T. John, Steve Miller, and Doug Steding

Miller Nash Graham & Dunn LLP
Pier 70 | 2801 Alaskan Way - Suite 300 | Seattle, Washington 98121
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E-Mail | Web | Social | Blogs

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

HEART K LAND AND CATTLE CO. APPLICATION NO. MT4010948; NWO-2013-00590-MTB-ADDENDUM	**NOTICE OF APPEAL** **CASE NO. ___________**

NOTICE OF APPEAL

Pursuant to ARM 17.30.109, Heart K Land and Cattle Company ("Heart K"), owner of real property located at 5785 Highway 89 South, Livingston, Montana appeals the Final 401 Certification with Conditions issued by Montana Department of Environmental Quality ("DEQ"), application number MT4010948; NWO-2013-00590-MTB-Addendum, dated July 17, 2015, a copy of which is attached hereto as Exhibit A. Heart K is represented by the undersigned counsel, Douglas Steding, Miller Nash Graham & Dunn LLP (pursuant to anticipated *pro hac vice* admission), and Trent Gardner Goetz, Baldwin & Geddes, P.C.

FACTS

A. The Heart K Land and Cattle Company

The Heart K is located on the south bank of the Yellowstone River, immediately downstream of the town of Livingston. Family-owned since 1971, it is a working cattle ranch, also producing hay and grain. It also is the site of a 42,000 square foot indoor riding arena and a 60,000 square foot outdoor arena, which hosts numerous ranching events that draw participants

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from all over the Western United States, bringing valuable tourist dollars to the area economy and providing an important community resource.

The Ranch is approximately 2,400 acres, consisting of more than 4 miles of the Yellowstone River, and is bounded to the west and east by bridges on old U.S. Highway 89. It has grown in size over the years, with the most recent acquisition being a parcel of land on the western side of the Ranch (commonly known as the "Rustad Ranch") that was slated for subdivision and development prior to acquisition by the Heart K. That land is now used by the Heart K in its cattle operations.

B. The Heart K's Efforts to Protect its Land from Avulsion and Erosion

The portion of the Rustad Ranch that is adjacent to the Yellowstone River is dominated by a mature cottonwood gallery, a relatively unique habitat resource in this area. Over the past few years, hydrologists employed by the Heart K have identified the strong potential for avulsion (the creation of new river channels) to occur in this cottonwood gallery, which would likely result in the loss of the gallery. In response to this risk, the Heart K undertook a series of studies to identify measures it could take to preserve its land, preserve the cottonwood gallery, and minimize environmental impacts in doing so.

Ultimately, the Heart K's consultants assembled a package of activities that were designed to achieve the goals of (1) preserving the cottonwood gallery and its flood plain functionality; (2) protect Ranch land from loss due to erosion and avulsion; and (3) accomplish these goals in the least environmentally impactful way possible. That package of activities is detailed in the application the Ranch submitted to DEQ in early 2014, and includes the installation of below-grade structures within the cottonwood gallery to halt the headcutting of flood channels and the installation of Engineered Log Jams ("ELJ") along a portion of the cottonwood gallery streambank. Declaration of Douglas Steding, Ex. 1. The ELJs are designed using natural materials (Douglas Fir and river rock) and are constructed in a manner along the bank of the Yellowstone to provide roughness and deflect high current velocities from the bank,

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decreasing erosive forces, especially during high flow. The ELJs have the added benefit of being much less environmentally impactful than traditional bank stabilization methods utilized on this stretch of the Yellowstone, particularly as compared to rip-rap or armoring of the bank or use of buried revetments.

C. The Heart K's Efforts to Obtain a Clean Water Act 401 Certification for the Project

On January 7, 2014, after the Heart K determined the scope of the project, it submitted a Joint Application for Proposed Work in Montana's Streams, Wetlands, Floodplains and Other Water Bodies to DEQ. Steding Decl. Ex. 1. In response to this application, DEQ issued Authorization No. MTB006314 on April 28, 2014 for the project. Steding Decl. Ex. 2. DEQ did not act on the Section 401 Certification request at that time.

The Heart K engaged in a series of discussions with the Army Corps of Engineers during the summer and fall of 2014 regarding mitigation requirements for the Clean Water Act Section 404 permit for the project, ultimately coming to agreement with the Corps that the Heart K could mitigate impacts through recording of a deed restriction on another portion of the Ranch. After the details of that mitigation were agreed upon, the Corps and DEQ issued a Joint Public Notice for the Heart K's Section 404 permit application and a Section 401 Water Quality Certification on November 12, 2014. Steding Decl. Ex. 3. The public comment period originally was set to expire on December 2, 2014, but was extended until December 12, 2014 at the request of DEQ staff.

Despite having received a complete application for a 401 Certification in January 2014 (when the Ranch applied for a Section 318 authorization), and despite the Joint Public Notice issued by the Corps and DEQ on November 12, 2014, DEQ notified the Heart K that it needed to resubmit its 401 Certification application and pay additional fees. Steding Decl. Ex. 4. Concerned about the timing of construction of the project because it needed to be completed during low-flow conditions, the Heart K approached DEQ to inquire regarding the timeline for the completion of the Section 401 Certification. Steding Decl. Ex. 5. The Heart K, in the interest

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of being cooperative and obtaining the 401 Certification in a timely manner, submitted a newly signed copy of its application and the requested fees. DEQ staff responded by acknowledging receipt of the application and noting that DEQ would issue a completeness determination by February 12, 2015. Steding Decl. Ex. 6. DEQ staff then, via email transmittal in response to inquiries from the Heart K, sent a deficiency determination on February 13, 2015 (more than thirty days after DEQ acknowledged receipt of the Heart K's second application) with a hard copy following via first class mail postmarked February 17, 2015. Steding Decl. Ex. 7. That deficiency determination asked the Heart K for a number of items to clarify its application. *Id.*

The Heart K provided DEQ this additional information on March 12, 2015. Steding Decl. Ex. 8. DEQ then issued a Completeness Letter for the Heart K's application, which was dated April 10, 2015, and received by the Heart K's counsel on April 17, 2015. Steding Decl. Ex. 9. DEQ then issued a tentative determination dated May 11, 2015. Steding Decl. Ex. 10. DEQ posted the tentative determination for public comment on May 18, 2015, with the comment period closing on June 17, 2015. DEQ then issued its final determination, dated July 17, 2015, postmarked July 20, 2015 and received by Heart K representatives on July 23, 2015. Steding Decl. Ex 11.

The final 401 Certification contained a number of conditions. Relevant to this appeal, it included a condition inserted by DEQ in response to a letter from the Bureau of Land Management referencing a "Wilderness Study Area" designated by BLM under the Federal Land Policy Management Act that is located across the river from the Heart K and about a mile and a half downstream of the project area. Steding Decl. Ex. 11 at 2. DEQ is requiring the Heart K to perform a geomorphological study to "evaluate potential impacts to the Yellowstone River Island WSA and other points downstream" and DEQ is reserving the right in the 401 Certification to "make possible modifications or amendments" based on the results of that study. DEQ is also reserving the right to revoke the 401 Certification based on its review of this study. *Id.*

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D. DEQ Staff Involvement in the Evaluation of the Heart K's 401 Certification Application

Originally, the Heart K's 401 Certification application was being processed by Jeff Ryan, a Water Quality Specialist in the Water Quality Projection Bureau at DEQ. Mr. Ryan retired in 2014, and after his retirement, the evaluation of this application has been handled by Lynda Saul, who is the Wetland Program Coordinator at DEQ. *See* Steding Decl. Ex. 6 (email from Tommy Griffeth noting that "Lynda Saul is the review point person for this project").

Ms. Saul is an outspoken opponent of streambank stabilization projects, and is also a Director of the Montana Aquatic Resources Services ("MARS"). Steding Decl. Ex. 12. MARS is the non-profit originally formed with the task of administering Montana's "In-Lieu Fee program," which collects payments from project proponents like the Heart K to implement mitigation of impacts as required under the Clean Water Act and Rivers and Harbors Act. Although MARS' original mission was focused on administering the In-Lieu Fee program, its present work includes securing easements from property owners to allow for channel migration.[1]

Ms. Saul's email files, obtained by the Heart K in response to a records request, demonstrate that Ms. Saul, early on, decided to try and oppose the Heart K's project at any cost. Stepping outside of her Section 401 Certification authority, and deciding to do so *four months* prior to making a determination that the Heart K's second 401 Certification Application was complete, Ms. Saul tried to coordinate with other regulatory agencies to identify a "justification to deny this application" and worked to identify "which agency (DEQ, COE, EPA) may have the grounds to do that and under what authority." Steding Decl. Ex 13. She pre-judged what—in DEQ's opinion at the time— was an incomplete application, noting that, the proposal "is not good, it's not even okay," *Id.* Remarkably, and consistent with DEQ staff's pre-judging of this project, Lynda Saul's colleague Joe Meek, acknowledged, in response to a shared belief that streambanks should not be stabilized in any manner, that they "really need to change the system"

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[1] *See* http://montanaaquaticresources.org/about-mars/, last visited August 13, 2015.

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and "build a new approach at DEQ now that there may be an opportunity." *Id.* Later on, she attempted to stir up enforcement activity at EPA Region 8 related to the procurement of materials for this project. Steding Decl. Ex 14. Then, in drafting the completeness determination, Ms. Saul expressed a continued hope that the Heart K "will pull the plug on the project," and, remarkably, acknowledged that the completeness determination had been redrafted to be "more targeted toward water quality." Steding Decl. Ex 15 and 16. This clear bias and decision to ignore the legal boundaries of the 401 Certification process in favor of pushing a policy agenda resulted in DEQ issuing a 401 Certification that is factually and legally flawed.

ERRORS OF FACT AND LAW MADE BY DEQ

The 401 certification process has been one fraught with delay and frustration for the Heart K. However, in the interest of obtaining permits and authorizations for this project, the Heart K waited patiently for this process to reach completion. The Heart K's hope was that, despite the bias of DEQ staff, it would receive a fair shake under the law and obtain a 401 Certification from DEQ that was reasonable and within DEQ's legal authority. That did not happen. This appeal is being filed out of necessity and to protect the Heart K's legal rights, and assigns the following legal and factual errors to the DEQ's processing of the Heart K's 401 Certification Application and the resulting final certification issued by DEQ.

A. DEQ Consistently Missed Deadlines in Evaluating the Heart K's 401 Certification Application

DEQ's 401 Certification Regulations contain strict deadlines for DEQ to act on a 401 Certification application. DEQ has 30 days to review an application for completeness. ARM 17.30.103(4). If DEQ determines an application is incomplete, it "shall notify the applicant of any additional materials reasonably necessary for review of the application," and an applicant is then required to promptly submit the additional materials. *Id.*

An initial application is deemed complete by DEQ under three distinct circumstances:

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1. If DEQ fails to make a determination of completeness within 30 days of receipt of the application; or

2. If the application is deemed incomplete, making a determination of completeness "within 30 days of receipt of materials submitted by the applicant that supplement the application;" or

3. Where DEQ notifies the applicant the application is complete.

ARM 17.30.103(6)(a)-(b). Once an application is deemed complete, DEQ has 30 days to notify the applicant of its tentative determination to either "issue, issue with conditions, or deny certification." ARM 17.30.106(1). That tentative determination becomes subject to a public notice and comment period, if such a notice and comment had not already been provided by the Army Corps of Engineers on the associated Section 404 permit. ARM 17.30.108(1), (5). Then, if no public hearing is required (and there was none required in this matter), the deadline for written comments is 30 days from the date of issuance of the public notice. ARM 17.30.108(4). Finally, after the close of the written comment period, DEQ has 30 days to issue its final determination. ARM 17.30.108(6).

Here, DEQ consistently ignored or played fast and loose with these deadlines. For instance, the original application for a 401 Certification was submitted by the Heart K in early 2014. Despite the issuance of a Section 318 Authorization on April 28, 2014, DEQ never made a completeness determination, never issued a tentative determination, and never issued a final determination on the 401 Certification application. Accordingly, by operation of the procedures outlined above, the Heart K's original 401 Certification application should have been deemed granted more than a year ago.

DEQ waited until December 11, 2014, many months after initially receiving the 401 Certification application, and a month after the Joint Public Notice on the project was issued by the Corps and DEQ, to notify the Heart K that its application was incomplete because it lacked fees DEQ had never requested before. Steding Decl. Ex. 4. After the Heart K submitted the fees

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and a new signed copy of the 401 Application, DEQ acknowledged that its completeness determination was due on February 12, 2015. Steding Decl. Ex. 5. On the afternoon of February 12, 2015, DEQ staff acknowledged that they were "cutting it close." Steding Decl. Ex. 16. They did more than just cut it close, they missed their own acknowledged deadline, finally transmitting the incompleteness determination on February 13, 2015 after inquiries by the Heart K, and mailing that application on February 21, 2015. Steding Decl. Ex. 7. The apparent back-dating of the incompleteness determination is of no merit because DEQ's own regulations state that it "shall notify" an applicant within 30 days of receipt of the determination of incompleteness. DEQ acknowledged that February 12, 2015 was the deadline to do so, and then failed to notify the Heart K until February 13, 2015. Accordingly, by operation of DEQ's regulations, the Heart K's application should have been deemed complete due to DEQ's failure to act within its own, self-imposed deadlines. Propagated forward, this failure to meet its deadlines should have resulted in the same outcome that results from DEQ's failure to act on the earlier application: the Heart K's 401 Certification application should have been deemed approved by DEQ waiving certification through inaction.

B. The Conditions Imposed by DEQ Are Outside of its Clean Water Act Section 401 Authority

Section 401 of the Clean Water Act requires parties applying for a Federal permit under the Clean Water Act to provide the Federal agency issuing that permit a certification that the discharge being permitted will comply with the state water quality standards. 33 U.S.C. § 1341(a)(1). DEQ's 401 Certification regulations, ARM Title 17, Chapter 30, implement this requirement. ARM 17.30.101(2). DEQ can take three actions in response to a 401 Certification application: (1) issue the certification; (2) deny the certification when DEQ finds that the activity will result in a "discharge that will violate any effluent limitation or water quality standard state in or developed pursuant to ARM Title 17, chapter 30;" or (3) issue a conditional certification "for any activity that, *with the conditions imposed* will not result in *a discharge that*

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will violate any effluent limitation or water quality standard stated in or developed pursuant to ARM Title 17, Chapter 30." ARM 17.30.105(a)-(c) (emphasis added).

Here, DEQ issued a conditional 401 Certification, but the conditions imposed are not imposed to ensure discharges associated with the project will not "violate any effluent limitation or water quality standard stated in or developed pursuant to ARM Title 17, Chapter 30." A number of these conditions fall into this category, most notably the "Geomorphological Study Condition," which requires the Heart K to "[c]omplete a geomorphological study to evaluate potential impacts to the Yellowstone River Island WSA and other points downstream" and requires that the Heart K provide that study to DEQ so DEQ can "make possible modifications or amendments to the 401 Certification." Steding Decl. Ex. 11 at 3.

This condition was inserted by DEQ in response to a letter sent from the United States Bureau of Land Management (BLM) to DEQ on June 12, 2015. Steding Decl. Ex. 17; Ex. 11 at 2. The BLM raised the concern that the project may impact an area known as the Yellowstone River Island Wilderness Study Area ("WSA"), an approximately 53 acre island located about a mile and a half downstream of the project area. The Yellowstone River Island was designated by BLM as a WSA in response to Congress's direction to BLM, contained in Section 603 of the Federal Land Policy and Management Act of 1976 (FLPMA) to study BLM managed lands for suitability as designation as Wilderness under the Federal Wilderness Act of 1964. Steding Decl. Ex. 17. After further study—also required of BLM under FLPMA, BLM concluded in 1983 that the Yellowstone River Island *was not* suitable for designation as Wilderness (see Steding Decl. Ex. 18 at iii). Despite this conclusion more than 30 years ago, BLM took the position in its letter to DEQ that it was concerned that the proposed project would "result in downstream channel modification which may cause sediment or erosional effects to this island WSA." Steding Decl. Ex. 17.

DEQ, in the final 401 Certification, justified the inclusion of the condition related to the Yellowstone River Island WSA because "the suitability for consideration of the WSA as

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wilderness may be compromised if the proposed project *alters the physical and biological character of the island*." Steding Decl. Ex. 11 at 2 (emphasis added). Setting aside the fact that BLM concluded more than 30 years ago that the Yellowstone River Island WSA *was not* suitable for designation as "Wilderness" the inclusion of the conditions related to this WSA by DEQ are in no way designed to ensure the project "will not result in a discharge that will violate any effluent limitation or water quality standard stated in or developed pursuant to ARM Title 17, Chapter 30," as required by ARM 17.30.105(c). Instead, this condition is being imposed on the Heart K to ensure an *island* is not altered in any form by the project. This condition is clearly outside of DEQ's 401 Certification authority.

3. DEQ's Actions in Addressing the Heart K's 401 Certification Application Violate Montana's Code of Ethics

Finally, the Heart K notes that the actions of Lynda Saul in evaluating the Heart K's 401 Certification application are violations of Montana's Code of Ethics, contained in Title 2, Government Structure and Administration, Chapter 2, Standard of Conduct. Specifically, § 2-2-121(5), MCA, prohibits a government official from participating in a proceeding where an organization of "which the public officer or public employee is an officer or director" is "attempting to influence a local, state, or federal proceeding in which the public officer or public employee represents the state or local government." As detailed above, Lynda Saul is a director and founder of MARS, and MARS has submitted lengthy comments on both the 401 Certification application and the 404 Permit application pending before the Corps. In many places, Ms. Saul has noted that she believes the mitigation requirements imposed by the Corps are insufficient,[2] and it is worth noting that MARS stated similar concerns—with MARS being the potential economic beneficiary of the Corps altering its mitigation requirements and requiring

[2] *E.g.* Steding Decl. Ex. 13, where Ms. Saul lays out her "thoughts and strategy" and notes that she is not "ready to give up on this project," and then questioning whether "mitigation is adequate," and noting that if it is not, she will coordinate with other agencies to request additional mitigation requirements for the project.

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the Heart K to mitigate through participation in the In Lieu Fee Program administered by MARS. Steding Decl. Ex. 19.

CONCLUSION

The Heart K fully intends to continue in its mission to be a responsible steward of its lands and an important supporter and participant in the community it is a part of. Nevertheless, the Heart K feels it is necessary to appeal to this Board to correct the above errors of fact and law committed by DEQ in responding to the Heart K's application for a 401 Certification. The Heart K is requesting findings by this Board that DEQ, through inaction or missing its own deadlines, waived 401 certification for this project; and, in the alternative, if this Board finds DEQ did not waive 401 Certification through its inaction or missed deadlines, a finding that the conditions imposed are beyond DEQ's 401 Certification authority.

RESPECTFULLY SUBMITTED AND DATED this 17th day of August, 2015.

MILLER NASH GRAHAM & DUNN LLP

By ______________________
Douglas Steding, WA Bar No. 37020
anticipated *pro hac vice* admission

GOETZ BALDWIN & GEDDES P.C.

By ______________________
Trent Gardner, MT Bar No. 7477

Attorneys for Heart K Land and Cattle Company, Project Applicant

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Exhibit A

DEQ
Montana Department of Environmental Quality

Received
JUL 23 2015
Miller Nash Graham & Dunn

July 17, 2015

Mary Murfey
Heart K Land and Cattle Company
PO Box 275
Livingston, MT 59047

Re: **Final 401 Certification with Conditions**
Application No: MT4010948; NWO-2013-00590-MTB - Addendum
Applicant: Heart K Land and Cattle Co.
Waterway: Yellowstone River, Park County, MT

Dear Ms. Murfey:

The Montana Department of Environmental Quality (DEQ) reviewed your application for 401 Water Quality Certification that was received on January 13, 2015. The following outlines the proposed project and DEQ's **final determination**:

Description of the Proposed Project:
The applicant proposes to construct 11 engineered log jam (ELJ) structures at key locations on a one mile reach of the Yellowstone River. Each of the 11 ELJs will impact approximately 40 linear feet of streambank and upland bench. A total of 2,175 feet of bank will be stabilized. In addition, 21 floodplain channel grade control structures will be constructed along several high flow channels with the channel migration zone.

Beneficial Use Designations:
Yellowstone River (MT43B003_010) at this project location is classified as a B-1 (ARM 17.30.623) water and is 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.

Status of Affected Waters:
This assessment unit of the Yellowstone River is listed as not supporting aquatic life due to physical substrate habitat alterations and alteration in stream-side or littoral vegetative covers.

401 Water Quality Certification General:
Section 401 of the Federal Clean Water Act (CWA) provides DEQ the jurisdiction to implement the Montana Water Quality 401 Certification. 401 Certification is a federal/state cooperative program that increases the role of the state in decisions regarding the protection of natural resources. The program gives the state authority to

Steve Bullock, Governor | Tom Livers, Director | P.O. Box 200901 | Helena, MT 59620-0901 | (406) 444-2544 | www.deq.mt.gov

review proposed activities affecting state waters and deny or place conditions on federal permits or licenses that authorize if the proposed may violate state water quality standards. State water quality standards were adopted to protect, maintain, and improve the quality of water, including uses for public water supplies, wildlife, fish and aquatic life, agriculture, industry, recreation, and other beneficial uses.

State water quality standards include: the beneficial uses of a waterbody; the numeric and narrative water quality criteria that are necessary to protect the uses of the waterbody; and a nondegradation policy. In the event beneficial uses, such as aquatic habitat or aquatic life are unavoidably impacted or lost, conditions of the 401 certification may require the applicant to provide compensatory mitigation for the impacts or losses that occur.

DEQ's narrative water quality standards as specified in ARM 17.30.623(f) states that "No increases are allowed above naturally occurring concentrations of sediment or suspended sediment, settleable solids, oils, or floating solids which will or are 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."

Public Comment:
On May 18, 2015, DEQ solicited comments from the public regarding DEQ's tentative water quality certification as described in the public notice. DEQ received a comment from the United States Bureau of Land Management (BLM) dated June 12, 2015 regarding concerns that the proposed project may result in downstream channel modifications which may cause sedimentation or erosional effects to the Yellowstone River Island, Wilderness Study Area (WSA), a 53-acre island managed by BLM located approximately ½ mile downstream of the proposed project. As a WSA, the BLM is required to maintain the wilderness character of the island until Congress can make a determination on its suitability for designation as a Wilderness Area. The suitability for consideration of the WSA as wilderness may be compromised if the proposed project alters the physical and biological character of the island. BLM requested that before issuing a permit, "a geomorphological study be completed to evaluate the potential for accretion, reliction, and avulsion that could occur on or around the island as a result of the proposal" (i.e., the proposed project from Heart K Land and Cattle Co.).

DEQ's Final 401 Certification Determination:
In order to ensure that the proposed project will not cause an exceedance of water quality standards, this 401 water quality certification is conditioned upon the requirement that a geomorphological study be performed to evaluate the potential impacts to the Yellowstone River Island, WSA and other points downstream. The results of the study shall be provided to DEQ prior to construction for review to determine compliance with Montana water quality standards (WQS) pursuant to Section 401 of the CWA. Construction of the 21 floodplain channel grade control structures and 11 engineered log jam (ELJ) structures may not occur until DEQ has determined whether additional certification is necessary.

Pending review of the study, DEQ reserves the right to modify, amend, or revoke certification if DEQ determines that there is no longer reasonable assurance of compliance with WQS or other appropriate requirements of state law based on the study.

Project Specific Conditions:
The proposed use of ELJs for stream bank stabilization is a new technique on large rivers in Montana and DEQ determined that 401 certification conditions are warranted. An explanation was provided in DEQ's tentative determination dated May 11, 2015. It is DEQ's opinion that the project as proposed will not meet Montana's water quality standards unless the following conditions are implemented:

Geomorphological Study Condition

1. Complete a geomorphological study to evaluate potential impacts to the Yellowstone River Island WSA and other points downstream and provide DEQ with the results so that DEQ can make possible modifications or amendments to the 401 Certification.

Construction Conditions

1. Grade control structure shall be built below existing grade, this will allow side channels to activate at higher flows, but preserve the biological and physical integrity of the side channels.
2. It appears that the construction activity has a total area of ground disturbance through clearing, excavating, grading, or placement/removal of earth material which is equal to or greater than one acre. In that case, the applicant shall apply for a general permit for storm water discharges associated with construction activity.
3. All work in and near the water shall be done so as to minimize turbidity, erosion, and other water quality impacts. Construction stormwater, sediment, and erosion control Best Management Practices (BMP's) suitable to prevent exceedances of state water quality standards shall be in place prior to commencement of clearing, filling, and grading work and shall be maintained throughout construction.
4. Wood is intended to remain submerged or partially submerged, so wood buoyancy can pose a problem during installation. To address this problem, the site shall be dewatered and the applicant shall apply for a general permit for construction dewatering. Construction shall occur during low water to allow for placement and anchoring of large pieces.
5. Willow cuttings shall be interspersed among the log layers to create a vegetated ELJ structure to provide additional structural support and a native vegetation reestablishment.
6. Ballast gravel used to backfill ELJs shall be of a sufficiently coarse caliber to ensure that the median particle size (D50) is not transported by the typical over-topping flow (e.g. the mean annual flood).
7. No soil, cobble, gravel, alluvium or other materials shall be stockpiled in the floodplain for longer than needed during the installation period, and, in no case, shall remain in the floodplain during the flooding season.
8. The project shall be clearly marked/staked prior to construction. Clearing limits, travel corridors and stockpile sites shall be clearly marked. Sensitive areas and buffers that are to be protected from disturbance shall be marked so as to be clearly visible to equipment operators. Equipment shall enter and operate within the marked clearing limits corridors and stockpile areas.
9. A separate contained area for washing down vehicles and equipment shall be established that does not have any possibility of draining to surface waters and wetlands. No wash water containing sediments, oils, grease, or other hazardous materials resulting from wash down of the work area, tools, and equipment shall be discharged into state waters.

10. Machinery and equipment used during construction shall be serviced, fueled, and maintained on uplands in a confined area in order to prevent containment to waters of the state. Fueling areas will be provided with adequate spill containment. Fueling equipment and vehicles within 100 feet of state waters and wetlands is not allowed.
11. Appropriate Best Management Practices (BMP's) shall be implemented to minimize track-out during construction. Protection of the existing riparian zone shall be a high priority, particularly due to the drier climate where replacement of the canopy can take decades. The use of walking excavators, winches and hand labor may be necessary.

<u>Weed Control and Vegetation Conditions</u>

1. Riparian weed management and native vegetation reestablishment shall be regarded as a high priority.
2. Logs or LWD used in the construction of the ELJs shall be free of weed seeds.
3. Control of invasive weeds on disturbance areas shall be with herbicides rated for safety near aquatic areas.
4. All disturbed areas shall be revegetated with salvaged sod and re-seeded with non-invasive native wetland, riparian, or upland species seed mix or plants. Certified weed free straw mulch shall be used to control erosion in areas of disturbance.
5. Vegetated replanting shall be irrigated for 3 years with a performance requirement of 80% live trees after 5 years. Fencing may be necessary to limit browse or beaver damage.

<u>Timing Requirement Conditions</u>

1. This certification is valid for one year from 401 certification issuance.

<u>Water Quality Monitoring and Reporting Conditions</u>

1. During project construction, the Applicant or their contractor shall monitor for turbidity discharges at the point of compliance. If water quality exceedances of 100 NTU are observed outside of the point of compliance, work shall cease immediately and the Applicant or the contractor shall assess the cause of the water quality problem and take appropriate measures to correct the problem and/or prevent further water quality turbidity exceedances. The Applicant or their contractor shall notify DEQ of the exceedances.
2. Monitoring shall be conducted during or following high-water events to ensure the project is functioning as intended. At a minimum, large woody debris placements shall be monitored during and/or after two-year flow events for a minimum of five years following project completion to ensure the integrity of the anchors. If individual pieces have moved or become loose, they should be re-anchored. Objectives of monitoring include:
    - evaluating the structural integrity of installed structures;
    - evaluating structures relative to objectives of bank protection and fish habitat;
    - measuring and surveying (topographically and photographically) any changes to banks and bed of stream; and
    - measuring hydraulic and hydrologic impacts of the project.

3. If the results of the monitoring show that the water quality standards or project performance standards are not being met, additional monitoring and mitigation may be required.
4. Any changes to the monitoring requirements shall be approved in writing by DEQ.

Public Safety Conditions

1. Design, install, and document ELJ structures consistent with Integrating Recreational Boating Considerations Into Stream Channel Modification & Design Projects (American Whitewater).
2. Warning signs for public safety shall be required and the Applicant shall complete the WDNR Public Safety Checklist for Woody Debris Projects (revised July 23, 2013 http://www.dnr.wa.gov/Publications/aqr_safety_checklist_lwd.docx) to detail the mitigations measures and obtain DEQ approval of required actions.

DEQ certifies that this project in its current form and with the expressed conditions will not violate water quality standards. Certification of this proposal does not authorize the Applicant to exceed applicable state water quality standards.

Please contact Water Protection Bureau Staff at (406) 444-3080, if you have questions.

Sincerely,

Christina Schmidt on behalf of Jon Kenning

Jon Kenning
Bureau Chief
Water Protection Bureau
Department of Environmental Quality

Enclosures

cc: Todd Tillinger – USACE
Catherine Juhas – USACE
Thomas Coleman – KC Harvey Environmental, LLC
Russell Smith – KC Harvey Environmental, LLC
Douglas Steding – Miller Nash Graham & Dunn, LLP

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DEQ

Montana Department of Environmental Quality

P.O. Box 200901 | Helena, MT 59620-0901

Received

JUL 23 2015

Miller Nash Graham & Dunn

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JUL 20 2015

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DOUGLAS STEDING
MILLER NASH GRAHAM & DUNN LLP
2801 ALASKAN WAY SUITE 300
SEATTLE WA 98121

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Montana Department of
ENVIRONMENTAL QUALITY
MEMO

TO: Ben Reed, Hearing Examiner
Board of Environmental Review

FROM: Joyce Wittenberg, Board Secretary
Board of Environmental Review
P.O. Box 200901
Helena, MT 59620-0901

DATE: September 30, 2015

SUBJECT: Board of Environmental Review Case No. BER 2015-06 WQ

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW

OF THE STATE OF MONTANA

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, MONTANA.	Case No. BER 2015-06 WQ

The BER has received the attached request for hearing. Also attached is DEQ's administrative documents relating to the request.

Please serve copies of pleadings and correspondence on me and on the following DEQ representatives in this case.

Kirsten Bowers
Legal Counsel
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Jon Kenning, Bureau Chief
Water Protection Bureau
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Attachments
c: Jesse Noel, P.E., Westmoreland Resources, Inc.

Westmoreland Resources, Inc. - *Absaloka Mine*
A Subsidiary of WESTMORELAND COAL COMPANY

9/29/2015

Via Email and Certified Mail Return Receipt Requested

Secretary
Montana Board of Environmental Review
Department of Environmental Quality
Metcalf Building
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

ber@mt.gov

Re: MPDES Permit No. MT0021229

Dear Sir or Madam:

Pursuant to ARM 17.30.1370, 75-5-403 MCA and 75-5-611 MCA, Westmoreland Resources, Inc. hereby appeals the Department of Environmental Quality decision with respect to the above referenced MPDES permit and requests a hearing of the Board of Environmental Review.

Westmoreland Resources appeals this decision as a protective matter in order to facilitate discussions with the Department of Environmental Quality regarding the Permit.

Respectfully Submitted,

Jesse Noel, P.E.
Westmoreland Resources, Inc.
Absaloka Coal Mine
Ph: 406-342-4511
Fax: 406-342-5401
E-mail: jnoel@westmoreland.com

cc: Tom Livers, Director, Department of Environmental Quality
John North, Chief Counsel, DEQ
Kirsten Bowers, Attorney, DEQ

PERMIT NO.: MT0021229
Minor Industrial

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

AUTHORIZATION TO DISCHARGE UNDER THE
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (MPDES)

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.,

WESTMORELAND RESOURCES, INC (the Permittee)

is authorized to discharge from its **ABSALOKA MINE**

located at **100 SARPY CREEK ROAD, HARDIN, MT, 59034**

to receiving waters named **UNNAMED EPHEMERAL TRIBUTARY TO SARPY CREEK, UNNAMED EPHEMERAL TRIBUTARY TO MIDDLE FORK SARPY CREEK, UNNAMED EPHEMERAL TRIBUTARY TO EAST FORK SARPY CREEK**

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: October 1, 2015

This permit and the authorization to discharge shall expire at midnight, September 30, 2020.

FOR THE MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

Jon Kenning, Chief
Water Protection Bureau
Permitting & Compliance Division

Issuance Date: August 31, 2015

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I. EFFLUENT LIMITATIONS AND MONITORING & REPORTING REQUIREMENTS

A. Description of Discharge Point(s) and Mixing Zone(s)

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 Montana Water Quality Act, Section 75-5-632.

Table 1 below provides a description of the discharge points and mixing zones for each outfall. Treatment consists of the use of sediment ponds or traps, with a minimum 10-year, 24-hour design capacity, to remove suspended solids from commingled storm water and pit water or coal plant wash down water.

Table 1. Description of Discharge Points and Mixing Zones

Outfall	Latitude	Longitude	Receiving Water/Mixing Zone(1)
001	45.8109	-107.0884	Unnamed ephemeral tributary to Sarpy Creek
002	45.7872	-107.0760	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
006	45.8232	-107.0426	Unnamed ephemeral tributary to East Fork Sarpy Creek
007	45.8257	-107.0366	Unnamed ephemeral tributary to East Fork Sarpy Creek
008	45.8263	-107.0261	Unnamed ephemeral tributary to East Fork Sarpy Creek
009	45.8209	-107.0128	Unnamed ephemeral tributary to East Fork Sarpy Creek
011	45.8018	-107.0196	Unnamed ephemeral tributary to East Fork Sarpy Creek
012	45.8060	-107.0155	Unnamed ephemeral tributary to East Fork Sarpy Creek
013	45.7729	-107.0536	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
015	45.7751	-107.0570	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
016	45.7685	-107.0480	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
017	45.7712	-107.0538	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
018	45.7723	-107.0585	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
020	45.7734	-107.0587	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
021	45.7731	-107.0632	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
023	45.7728	-107.0671	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
024	45.7723	-107.0700	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
026	45.7718	-107.0785	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
027	45.8072	-107.0155	Unnamed ephemeral tributary to East Fork Sarpy Creek

Footnotes

(1) There are no acute, chronic, or human health mixing zones allowed for any outfall.

B. **Final Effluent Limitations and Monitoring Requirements**

Effective immediately and lasting through the term of the permit, the quality of effluent discharged at each outfall shall, as a minimum, meet the limitations set forth in Tables 2 through 4, below. All monitoring shall be conducted at the overflow structure where effluent discharges as overflow from the sediment control structure, or at the end of the discharge pipe when pumped or drained, and prior to contact with the receiving water. Monitoring must be conducted at a minimum monitoring frequency and sampling type specified in Tables 2 through 4. Samples must achieve the listed required reporting value (RRV) or minimum level (ML).

Table 2. Final Numeric Effluent Limitations and Monitoring Requirements – Outfalls 001 and 002

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML(1)
Flow	gpm	Report only		1/Day	Continuous	--
Total Volume Discharged	Acre feet	Report only		1/Discharge	Continuous	--
Total Suspended Solids (TSS)	mg/L	35	70	1/Month	Grab	10
Total Dissolved Solids (TDS)	mg/L	Report only		1/Month	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Month	Grab	0.1
Oil and Grease	mg/L	--	10	1/Month	Grab	1
Aluminum, dissolved	μg/L	Report only		1/Month	Grab	9
Arsenic, total	μg/L	Report only		1/Month	Grab	1
Cadmium, total	μg/L	Report only		1/Month	Grab	0.03
Chloride	mg/L	Report only		1/Month	Grab	--
Chromium, total	μg/L	Report only		1/Month	Grab	1
Copper, total	μg/L	Report only		1/Month	Grab	1
Iron, total	mg/L	3.5	7.0	1/Month	Grab	0.05
Lead, total	μg/L	Report only		1/Month	Grab	0.05
Nickel, total	μg/L	Report only		1/Month	Grab	10
Nitrate + Nitrite (as N)	mg/L	Report only		1/Month	Grab	0.01
Nitrogen, total	mg/L	Report only		1/Month	Calculated	10
Phosphorus, total	mg/L	Report only		1/Month	Grab	1
Selenium, total	μg/L	Report only		1/Month	Grab	1
Zinc, total	μg/L	Report only		1/Month	Grab	10
Whole Effluent Toxicity, Acute(2)	% Effluent	Report only		1/Year	Grab	--

Footnotes:

(1) Required reporting values (RRV) for parameters listed in *Circular DEQ-7 Montana Numeric Water Quality Standards* are current as of the October 2012 edition.

(2) Applicable only to outfalls associated with coal preparation plants and coal preparation plant associated areas (Outfall 001). Upon the detection of acute toxicity in the effluent at one of the routine monitor locations where accelerated monitoring is triggered, monitoring for acute toxicity at all outfalls at their respective monitoring locations shall occur for 12 months.

Table 3. Final Numeric Effluent Limitations and Monitoring Requirements – Outfalls 023, 024, and 026

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML(1)
Flow	gpm	Report only		1/Day	Continuous	--
Total Volume Discharged	Acre feet	Report only		1/Discharge	Continuous	--
Total Suspended Solids (TSS)	mg/L	35	70	1/Month	Grab	10
Total Dissolved Solids (TDS)	mg/L	Report only		1/Month	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Month	Grab	0.1
Oil and Grease	mg/L	--	10	1/Month	Grab	1
Aluminum, dissolved	µg/L	Report only		1/Month	Grab	9
Arsenic, total	µg/L	Report only		1/Month	Grab	1
Cadmium, total	µg/L	Report only		1/Month	Grab	0.03
Chloride	mg/L	Report only		1/Month	Grab	--
Chromium, total	µg/L	Report only		1/Month	Grab	1
Copper, total	µg/L	Report only		1/Month	Grab	1
Iron, total	mg/L	3.0	6.0	1/Month	Grab	0.05
Lead, total	µg/L	Report only		1/Month	Grab	0.05
Nickel, total	µg/L	Report only		1/Month	Grab	10
Nitrate + Nitrite (as N)	mg/L	Report only		1/Month	Grab	0.01
Nitrogen, total	mg/L	Report only		1/Month	Calculated	10
Phosphorus, total	mg/L	Report only		1/Month	Grab	1
Selenium, total	µg/L	Report only		1/Month	Grab	1
Zinc, total	µg/L	Report only		1/Month	Grab	10

Footnotes:

(1) Required reporting values (RRV) for parameters listed in *Circular DEQ-7 Montana Numeric Water Quality Standards* are current as of the October 2012 edition.

Table 4. Final Numeric Effluent Limitations and Monitoring Requirements – Outfalls 013, 015, 016, 017, and 018

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML(1)
Flow	gpm	Report only		1/Day	Continuous	--
Total Volume Discharged	Acre feet	Report only		1/Discharge	Continuous	--
Total Suspended Solids (TSS)	mg/L	35	70	1/Month	Grab	10
Total Dissolved Solids (TDS)	mg/L	Report only		1/Month	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Month	Grab	0.1
Oil and Grease	mg/L	--	10	1/Month	Grab	1
Aluminum, dissolved	µg/L	Report only		1/Month	Grab	9
Arsenic, total	µg/L	Report only		1/Month	Grab	1

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML(1)
Cadmium, total	μg/L	Report only		1/Month	Grab	0.03
Chloride	mg/L	Report only		1/Month	Grab	--
Chromium, total	μg/L	Report only		1/Month	Grab	1
Copper, total	μg/L	Report only		1/Month	Grab	1
Iron, total	mg/L	1.0	6.0	1/Month	Grab	0.05
Lead, total	μg/L	Report only		1/Month	Grab	0.05
Nickel, total	μg/L	Report only		1/Month	Grab	10
Nitrate + Nitrite (as N)	mg/L	Report only		1/Month	Grab	0.01
Nitrogen, total	mg/L	Report only		1/Month	Calculated	10
Phosphorus, total	mg/L	Report only		1/Month	Grab	1
Selenium, total	μg/L	Report only		1/Month	Grab	1
Zinc, total	μg/L	Report only		1/Month	Grab	10

Footnotes:

(1) Required reporting values (RRV) for parameters listed in *Circular DEQ-7 Montana Numeric Water Quality Standards* are current as of the October 2012 edition.

a. Narrative Effluent Limitations: All Outfalls

Effective immediately and lasting through the term of this permit, discharges from all outfalls shall be free from substances that 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 globule of grease or other floating materials;
iii. produce odors, colors, or other conditions that create a nuisance or render undesirable tastes to fish flesh or make fish inedible;
iv. create conditions that produce undesirable aquatic life; or
v. create concentrations or combinations of materials which are toxic or harmful to human, animal, plant, or aquatic life.

b. Monitoring Locations:

The Permittee shall establish monitoring locations at each outfall to demonstrate compliance with the effluent limitations and other requirements in section I of this Permit. Appropriate monitoring locations include: at the overflow structure where the effluent discharges as overflow from the sediment control structure, or at the end of the discharge pipe when pumped or drained, and prior to contact with the receiving water.

The Permittee shall monitor effluent at the specific monitoring location during discharge. The location of each outfall regulated by this permit shall be permanently identified in the field.

1. Alternate Numeric Effluent Limitations and Monitoring Requirements –

Alternate effluent limitations and monitoring requirements will be applied to discharges driven by precipitation events and/or snowmelt. Effluent limitations and monitoring requirements presented in Tables 5 through 8 will be applied alternately to the otherwise applicable effluent limitations and monitoring requirements presented in Tables 2 through 4.

Table 5. Final Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events Less than or Equal to the 10-year, 24-hour event – Outfalls 001, 002, 023, 024, and 026

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[(1)]
Flow	gpm	Report only		1/Discharge	Calculated	--
Total Volume Discharged	Acre feet	Report only		1/Discharge	Calculated	--
Settleable Solids (SS)	ml/L	--	0.5	1/Discharge	Grab	10
Total Dissolved Solids (TDS)	mg/L	Report only		1/Discharge	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Oil and Grease	mg/L	--	10	1/Discharge	Grab	1
Aluminum, dissolved	μg/L	Report only		1/Discharge	Grab	9
Arsenic, total	μg/L	Report only		1/Discharge	Grab	1
Cadmium, total	μg/L	Report only		1/Discharge	Grab	0.03
Chloride	mg/L	Report only		1/Discharge	Grab	--
Chromium, total	μg/L	Report only		1/Discharge	Grab	1
Copper, total	μg/L	Report only		1/Discharge	Grab	1
Iron, total	mg/L	Report only		1/Discharge	Grab	0.05
Lead, total	μg/L	Report only		1/Discharge	Grab	0.05
Nickel, total	μg/L	Report only		1/Discharge	Grab	10
Nitrate + Nitrite (as N)	mg/L	Report only		1/Discharge	Grab	0.01
Nitrogen, total	mg/L	Report only		1/Discharge	Calculated	10
Phosphorus, total	mg/L	Report only		1/Discharge	Grab	1
Selenium, total	μg/L	Report only		1/Discharge	Grab	1
Zinc, total	μg/L	Report only		1/Discharge	Grab	10
Whole Effluent Toxicity, Acute[(2)]	% Effluent	Report only		1/Year	Grab	--

Footnotes:

(1) Required reporting values (RRV) for parameters listed in *Circular DEQ-7 Montana Numeric Water Quality Standards* are current as of the October 2012 edition.

(2) Applicable only to outfalls associated with coal preparation plants and coal preparation plant associated areas (Outfall 001). Upon the detection of acute toxicity in the effluent at one of the routine monitor locations where accelerated monitoring is triggered, monitoring for acute toxicity at all outfalls at their respective monitoring locations shall occur for 12 months.

Table 6. Final Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events Less than or Equal to the 10-year, 24-hour event – Outfalls 013, 015, 016, 017, and 018

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML(1)
Flow	gpm	Report only		1/Discharge	Calculated	--
Total Volume Discharged	Acre feet	Report only		1/Discharge	Calculated	--
Settleable Solids (SS)	ml/L	--	0.5	1/Discharge	Grab	10
Total Dissolved Solids (TDS)	mg/L	Report only		1/Discharge	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Oil and Grease	mg/L	--	10	1/Discharge	Grab	1
Aluminum, dissolved	µg/L	Report only		1/Discharge	Grab	9
Arsenic, total	µg/L	Report only		1/Discharge	Grab	1
Cadmium, total	µg/L	Report only		1/Discharge	Grab	0.03
Chloride	mg/L	Report only		1/Discharge	Grab	--
Chromium, total	µg/L	Report only		1/Discharge	Grab	1
Copper, total	µg/L	Report only		1/Discharge	Grab	1
Iron, total	mg/L	--	6.0	1/Discharge	Grab	0.05
Lead, total	µg/L	Report only		1/Discharge	Grab	0.05
Nickel, total	µg/L	Report only		1/Discharge	Grab	10
Nitrate + Nitrite (as N)	mg/L	Report only		1/Discharge	Grab	0.01
Nitrogen, total	mg/L	Report only		1/Discharge	Calculated	10
Phosphorus, total	mg/L	Report only		1/Discharge	Grab	1
Selenium, total	µg/L	Report only		1/Discharge	Grab	1
Zinc, total	µg/L	Report only		1/Discharge	Grab	10

Footnotes:
(1) Required reporting values (RRV) for parameters listed in *Circular DEQ-7 Montana Numeric Water Quality Standards* are current as of the October 2012 edition.

Table 7. Final Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events Greater than the 10-year, 24-hour event – Outfalls 001, 002, 023, 024, and 026

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML(1)
Flow	gpm	Report only		1/Discharge	Calculated	--
Total Volume Discharged	Acre feet	Report only		1/Discharge	Calculated	--
Total Dissolved Solids (TDS)	mg/L	Report only		1/Discharge	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Oil and Grease	mg/L	--	10	1/Discharge	Grab	1
Aluminum, dissolved	µg/L	Report only		1/Discharge	Grab	9
Arsenic, total	µg/L	Report only		1/Discharge	Grab	1

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
Cadmium, total	µg/L	Report only		1/Discharge	Grab	0.03
Chloride	mg/L	Report only		1/Discharge	Grab	--
Chromium, total	µg/L	Report only		1/Discharge	Grab	1
Copper, total	µg/L	Report only		1/Discharge	Grab	1
Iron, total	mg/L	Report only		1/Discharge	Grab	0.05
Lead, total	µg/L	Report only		1/Discharge	Grab	0.05
Nickel, total	µg/L	Report only		1/Discharge	Grab	10
Nitrate + Nitrite (as N)	mg/L	Report only		1/Discharge	Grab	0.01
Nitrogen, total	mg/L	Report only		1/Discharge	Calculated	10
Phosphorus, total	mg/L	Report only		1/Discharge	Grab	1
Selenium, total	µg/L	Report only		1/Discharge	Grab	1
Zinc, total	µg/L	Report only		1/Discharge	Grab	10
Whole Effluent Toxicity, Acute[2]	% Effluent	Report only		1/Year	Grab	--

Footnotes:

(3) Required reporting values (RRV) for parameters listed in *Circular DEQ-7 Montana Numeric Water Quality Standards* are current as of the October 2012 edition.

(4) Applicable only to outfalls associated with coal preparation plants and coal preparation plant associated areas (Outfall 001). Upon the detection of acute toxicity in the effluent at one of the routine monitor locations where accelerated monitoring is triggered, monitoring for acute toxicity at all outfalls at their respective monitoring locations shall occur for 12 months.

Table 8. Final Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events <u>Greater than</u> the 10-year, 24-hour event – Outfalls 013, 015, 016, 017, and 018

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
Flow	gpm	Report only		1/Discharge	Calculated	--
Total Volume Discharged	Acre feet	Report only		1/Discharge	Calculated	--
Total Dissolved Solids (TDS)	mg/L	Report only		1/Discharge	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Oil and Grease	mg/L	--	10	1/Discharge	Grab	1
Aluminum, dissolved	µg/L	Report only		1/Discharge	Grab	9
Arsenic, total	µg/L	Report only		1/Discharge	Grab	1
Cadmium, total	µg/L	Report only		1/Discharge	Grab	0.03
Chloride	mg/L	Report only		1/Discharge	Grab	--
Chromium, total	µg/L	Report only		1/Discharge	Grab	1
Copper, total	µg/L	Report only		1/Discharge	Grab	1
Iron, total	mg/L	--	6.0	1/Discharge	Grab	0.05
Lead, total	µg/L	Report only		1/Discharge	Grab	0.05
Nickel, total	µg/L	Report only		1/Discharge	Grab	10

Nitrate + Nitrite (as N)	mg/L	Report only	1/Discharge	Grab	0.01
Nitrogen, total	mg/L	Report only	1/Discharge	Calculated	10
Phosphorus, total	mg/L	Report only	1/Discharge	Grab	1
Selenium, total	µg/L	Report only	1/Discharge	Grab	1
Zinc, total	µg/L	Report only	1/Discharge	Grab	10

Footnotes:
(1) Required reporting values (RRV) for parameters listed in *Circular DEQ-7 Montana Numeric Water Quality Standards* are current as of the October 2012 edition.

a. Flow Monitoring and Sampling Units
The Permit requires the Permittee to install and use flow monitoring and sampling equipment at each outfall. A crest gauge or equivalent equipment can measure flow at the crest, with the establishment of a ratings curve that shows the relationship between peak flow and gauge height. Remote sampling units can sample a representative sample of the discharged effluent when discharge occurs. The discharge point and monitoring location shall be permanently marked and identified at the overflow. Sampling equipment must be inspected and maintained to ensure flow measurement and automatic sample collection regardless of weather and/or site conditions.

b. Sample Methods
The permittee shall collect a grab sample within the first thirty minutes of discharge from any permitted outfall for any discharges which results from a precipitation related events, at minimum. As an alternative to a single grab sample, the permittee may take a flow-weighted composite of either the entire discharge or for the first three hours of the discharge. For a flow-weighted composite, only one analysis of the composited aliquots is required. Flow weighted composite samples are not allowed for pH, total phenols, and oil and grease.

2. Effluent Limitations and Monitoring Requirements – Western Alkaline Coal Mining
During the period beginning on the effective date of this permit and lasting through the date of expiration, the permittee is authorized to discharge runoff from those outfalls listed in Table 9 to their corresponding receiving waters. Effluent sampling and flow measurement are not required, and numeric effluent limitations do not apply to discharges from those outfalls listed in Table 9. Such discharges shall be limited and monitored by the permittee as specified below. The permittee has submitted a site-specific Sediment Control Plan (SCP) that identifies Best Management Practices (BMPs), including design specifications, construction specifications, maintenance schedules, criteria for inspection, and expected performance and longevity of the BMPs. The SCP has also demonstrated using watershed models that implementation of the SCP will result in average annual sediment yields that will not be greater than the sediment yield levels from pre-mined, undisturbed conditions. The watershed model is the same model that was used to acquire the permittee's SMCRA permit.

Table 9. Outfalls Subject to Western Alkaline Coal Mining Standards

Outfall	Receiving Water
006	Unnamed ephemeral tributary to East Fork Sarpy Creek
007	Unnamed ephemeral tributary to East Fork Sarpy Creek
008	Unnamed ephemeral tributary to East Fork Sarpy Creek
009	Unnamed ephemeral tributary to East Fork Sarpy Creek
011	Unnamed ephemeral tributary to East Fork Sarpy Creek
020	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
012	Unnamed ephemeral tributary to East Fork Sarpy Creek
027	Unnamed ephemeral tributary to East Fork Sarpy Creek

Sediment Control Plan

The permittee shall during the term of this permit operate the facility in accordance with the SCP. Department approval of the SCP is based upon a demonstration that the Best Management Practices (BMP) given in the Plan will result in an average annual sediment yield that is less than the pre-mine undisturbed condition for the outfalls and watersheds specified in Table 9, above. The approved SCP applies to, and is limited to, reclamation areas, brushing and grubbing areas, topsoil stockpiling areas, and regraded areas, and is applicable until the facility receives final bond release.

a. Best Management Practices (BMPs)

Roadway Conveyances. Conveyance structures (ditches) are constructed to route the 10-year, 24-hour storm event to sediment traps and along roads during mining. Ditch transitions and intersections are constructed to minimize erosion and sedimentation. Where conveyance crosses a road, culverts are sized to convey a 10-year, 24-hour storm event.

Maintenance of Conveyance Structures. Ditches and culverts are inspected periodically for blockages and erosion. Erosion and/or sedimentation that compromise the ability of the ditch to convey its design flow are addressed by reconstructing the ditch to its design geometry. Where ditch erosion occurs, more frequent trap maintenance to maintain design capacity may be required. Sediment accumulations in culverts will be removed as necessary to maintain design flow capacities.

Sediment Capture. Sediment traps are employed in low spots along the undisturbed topsoil edge to confine sediment to the disturbed area to the extent practicable. Sediment traps are not designed if the ultimate point of control is a designed sediment trap or sediment pond downstream.

Sediment Ponds. Sediment ponds or traps located at final discharge points are designed to detain runoff from a 10-year 24-hour event during active mining operations. Ponds or traps may be reduced in size to 2-year, 24-hour capacity during the reclamation phase, or they may be eliminated, with IEMB approval, when the contributing watershed is fully reclaimed and revegetated. Sediment traps may be reclaimed as small depressions for topographic, vegetative and wildlife habitat diversity per plans approved by IEMB. Sediment accumulations in sediment traps and ponds will be cleaned when sediment accumulation may interfere with detention of the 2-year or 10-year, 24-hour event, as appropriate.

Small Depressions. During reclamation, sediment traps and ponds may be converted to small depressions designed for vegetation diversity and wildlife habitat enhancement in addition to short-term sediment capture. Small depressions may also be established on an opportunistic basis within the reclaimed area for vegetation diversity and wildlife habitat enhancement in addition to short-term sediment control. Small depressions will meet the following criteria (or as otherwise approved by DEQ):

- Each depression on the interior of the reclaimed area will be one acre-foot or less in capacity;
- Each depression at the margin of the reclaimed area will be two acre feet or less in capacity;
- No depression will be deeper than three feet;
- Depressions will be soiled and revegetated; and
- Maximum slopes will be 5:1 on the uphill (inflow) side and 3:1 on the lateral and downhill (outflow) sides.

Recontouring. After mining, overburden spoil piles are regraded to a topography meeting the SMCRA requirement of approximate original contour to facilitate erosion control, revegetation and the post-mining land use.

Soil Redistribution. Soil salvaged prior to mining disturbance is redistributed on recontoured spoils to re-establish infiltration and runoff characteristics, and to promote revegetation establishment, similar to the pre-mining conditions, consequently promoting erosion and sediment control similar to pre-mining conditions.

Minimizing Potential for Erosion During Reclamation. Slope lengths are minimized by constructing complex topography. With the exception of agricultural areas, regraded landscapes are left in a roughened condition to minimize compaction. Coarse-textured substrates, including soils with high coarse-fragment content are used, particularly on sites with increased erosion potential, or where establishment of woody species is desired.

Soil Preparation on the Contour. Spoil scarification, soil placement, soil preparation and seeding are done on the contour provided the safety of equipment operators is not compromised.

Establishment of Vegetation. Seedbed preparation techniques that create a roughened surface to retard surface runoff and increase infiltration are used. Reclaimed vegetative cover must be similar to pre-mining vegetative cover. Permanent vegetation cover appropriate for the site typically is established by the end of the third growing season following initial seeding, although the reclaimed plant community will continue to develop. From a hydrologic perspective the objective is 75 percent cover, including litter, which defines "good" hydrologic condition for runoff and sediment modeling purposes.

Reclamation of Rills and Gullies. Rills and gullies developed post-reclamation are remediated on a site-specific basis if they adversely impact the establishment of vegetation, disrupt post-mine land use and/or cause or contribute to a violation of a water quality standard. Unless otherwise approved, any rill of gully greater than 30 inches in depth will be considered disruptive and will be remediated.

Establishment of Sediment Control Measures for Site-Specific Control. Sediment control measures such as contour scarification, straw dikes, rip-rap, check dams and erosion control products will be used when necessary to minimize erosion and sediment transport in areas requiring site-specific erosion control.

b. Inspection and Maintenance

The Permittee will perform routine inspections of erosion and sediment control structures as required by state and federal regulations. Federal regulations (40 CFR 434.82(a)) require "sediment control plans to identify best management practices (BMPs) and also must describe design specification, construction specifications, maintenance schedules, criteria for inspections, as well as expected performance and longevity of the best management practices."

Comprehensive inspections are required annually for all areas covered under the SCP. Visual inspections will be conducted annually or after significant storm events ($\geq$1.4 inches in 24 hours) on areas where vegetation has been established for less than two years. Based on the outcomes of these inspections, maintenance will be scheduled. Maintenance activities will be documented (date, type and location of activity, supervisor or contractor), and records will be retained for a minimum of three years.

c. Reporting

For discharges that are regulated under the Western Alkaline Coal Mining Effluent Limitation Guidelines (ELGs), Comprehensive Site Inspections must be conducted and an annual Compliance Evaluation Report must be submitted to evaluate the BMPs performance as identified in the Plan

i. Comprehensive Site Inspection

Comprehensive site inspections must be performed annually. Comprehensive site inspections must assess the following:

- Whether the description of area covered by the Plan is accurate as required under the discharge permit;
- Whether the site map has been updated or otherwise modified to reflect current conditions;
- Whether the BMPs to control sediment as identified in the Plan are being effectively implemented; and
- Whether any Plan revisions such as additional BMPs are necessary.

Based on the results of the Comprehensive Site Inspection, the description of potential pollutant sources and BMPs identified in the SCP must be revised as appropriate and submitted to the DEQ within 14 days of such inspection for review. All changes to the SCP must be reviewed and approved by the DEQ prior to implementation.

ii. *Compliance Evaluation Report*
A compliance evaluation report must be submitted to the DEQ addressing the site inspections performed during each calendar year.

- The report must identify personnel making the inspection and the date(s) of the inspection.
- The report must summarize observations made based on the items stated in Section 6.1.
- The report must summarize actions taken in accordance with Section 6.1.
- The report must be retained with the Plan.
- The permittee shall submit a copy of the report to the DEQ by January 28th of each year for the preceding calendar year's inspection.
- The report must identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report must contain a certification that the facility is in compliance with the Plan and this permit.
- The report must be signed in accordance with the signatory requirements stated in Part IV. G, of the MPDES Permit.

iii. *Record Retention*
Records of the Comprehensive Site Inspection, the Compliance Evaluation Report, and any related follow-up actions must be maintained by the permittee for a minimum of three years.

A tracking or follow-up procedure, including a schedule for implementation, must be used and identified in the annual Compliance Evaluation Report which ensures adequate response and corrective actions have been taken in response to the Comprehensive Site Inspection and/or noncompliance.

d. Transfer of Additional Outfalls
As outfalls defined in this permit are reclaimed, the approved SCP may be updated to incorporate the newly reclaimed outfalls. A revised SCP and revised watershed model must be submitted to and approved by DEQ before it becomes effective. Revisions to the SCP must meet all requirements contained at 40 CFR Part 434.82, and 100% of the drainage area to an outfall must meet the definition of "western alkaline reclamation, brushing and grubbing, topsoil stockpiling, and regraded areas" (as defined at 40 CFR 434.80) to be considered for coverage. DEQ's approval of an updated SCP and reclassification of an existing outfall to a

Western Alkaline area will be considered a minor modification to the permit in accordance with ARM 17.30.1362(1)(f).

3. Other Monitoring Requirements

a. Precipitation Monitoring. Precipitation shall be monitored and recorded in each of the drainage basins where regulated outfalls are located and precipitation-dependent effluent limitations are applicable (Sarpy Creek and Middle Fork Sarpy Creek) using a precipitation gauge which meets the standards provided in National Weather Services Instructional Bulletin 10-1302 (October 4, 2005), *Instrument Requirements and Standards for the NWS Surface Observing Programs (Land)*, and provided in Table 10.

Table 10. Precipitation Gauge Performance Standards

Parameter	Accuracy	Range	Resolution
Liquid Precipitation Accumulated Amount	±0.02 inches or 4 percent of hourly amount (whichever is greater)	0-10"/Hour	0.01 inches
Snow Depth	0 to 5 inches: ±0.5 inches >5 to 99 inches: ±1.0 inch	0 to 99 inches	1 inch
Freezing Precipitation	Detection occurs whenever 0.01" accumulates	0 to 40 inches	0.01 inches
Frozen Precipitation (water equivalent)	±0.04 inches or 1% of total accumulation	0 to 40 inches	0.01 inches

C. General Monitoring and Reporting Requirements

Samples or measurements shall be representative of the volume and nature of the monitored discharge as specified. If no discharge occurs during the entire reporting period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge occurred. The reporting period for discharges is monthly. If multiple discharge events occur during the monthly reporting period the permittee must report the highest calculated or measured values that conform to the numeric effluent in the permit.

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.

1. Monitoring Locations

The Permittee shall establish monitoring locations at each outfall to demonstrate compliance with the effluent limitations and other requirements in section I of this Permit. Appropriate monitoring locations include: at the overflow structure where the effluent discharges as overflow from the sediment control structure, or at the end of the discharge pipe when pumped or drained, and prior to contact with the receiving water.

The Permittee shall monitor effluent at the specific monitoring location during discharge. The location of each outfall regulated by this permit shall be permanently identified in the field.

2. Whole Effluent Toxicity Testing

a. Acute Whole Effluent Toxicity Testing

Whole effluent toxicity testing is required for any outfall where activities that meet the definition of "coal preparation plant", "coal preparation plant associated areas" and "coal plant water circuit", as defined in 40 CFR 434.11 are conducted or are located. As defined by the Permittee's application, this includes Outfall 001.

i. **Sampling and Dilution Series Requirements**. Beginning in the calendar year in which this Permit becomes effective, the Permittee shall conduct annual acute static replacement toxicity tests on grab samples of the effluent. Testing will employ two species per test and will consist of five effluent concentrations (100, 50, 25, 12.5, 6.25 percent effluent) and a control. Dilution water and the control shall consist of grab samples of the receiving water. If a sample of the receiving water is unavailable, because of its ephemeral nature, standard synthetic water may be used.

ii. **Methods**. Acute WET tests shall be conducted in general accordance with the procedures set out in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012 <http://www.epa.gov/waterscience/WET/disk2/atx.pdf> (or a subsequent edition) and the "Region VIII USEPA NPDES Acute Test Conditions—Static Renewal Whole Effluent Toxicity Test" contained in the *Region VIII NPDES Whole Effluent Toxics Control Program, August 1997.* The Permittee must conduct a 48-hour static renewal acute toxicity test using *Ceriodaphnia dubia* (USEPA Method 2002.0) and a 96-hour static renewal acute toxicity test using *Pimephales promelas* (fathead minnow) (USEPA Method 2000.0). Acute toxicity is measured by determining the LC_{50} (i.e., the percent of effluent that is lethal to 50 percent of the exposed test organisms) for each type of test.

iii. **Test Validity**. 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 the Department. This exception may be granted if less than 10 percent mortality was observed at the dilutions containing high effluent concentrations.

iv. **Accelerated Testing**. 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 the Department. In all cases, the results of all toxicity tests must be submitted to the Department in accordance with Section III.A of this Permit.

4. **Monitoring Periods and Reporting Schedule**
Monitoring periods and reporting for all required monitoring shall be completed according to the schedule in Table 11.

Table 11. Monitoring Periods and Reporting Schedule

Required Monitoring Frequency	Monitoring Period Begins On...	Monitoring Period	Reporting Due Date
1/Day	OCTOBER 1, 2015	Midnight through 11:59 PM or any 24-hour period that reasonably represents a calendar day for purposes of monitoring.	Due date for next DMR submittal
1/Month	OCTOBER 1, 2015	1st day of calendar month through last day of calendar month	Due date for next DMR submittal
Annually	JANUARY 1, 2016	January 1 through December 31	28 days from the end of the monitoring period
1 / Discharge	OCTOBER 1, 2015	Duration of discharge event	Due date for next DMR submittal

5. **Discharge Monitoring Reports**
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 USEPA Region VIII's *Guidance for Whole Effluent Reporting.*

If no discharge occurs during the monitoring period, "No Discharge" shall be reported on the report form.

Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the "Signatory Requirements" (see Section III.C.7. 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

Whole Effluent Toxicity (WET) results from the laboratory shall be reported along with the next DMR form submitted. The format for the laboratory report shall be consistent with the latest revision of *Region VIII Guidance for Acute Whole Effluent Reporting and Chronic Whole Effluent Reporting*, and shall include all chemical and physical data as specified.

II. SPECIAL CONDITIONS

A. Additional Monitoring and Special Studies

1. Toxicity Identification Evaluation (TIE)/Toxicity Reduction Evaluation (TRE)

The Permittee shall submit to the Department and initiate implementation of a TIE/TRE plan within 45 days of detecting acute toxicity during any accelerated testing required under section I.C.3. The TIE/TRE shall describe steps to 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.

If implementation of the TIE/TRE establishes that the toxicity cannot be eliminated, the Permittee shall submit a proposed compliance plan to the Department. The compliance plan shall include the proposed approach to control toxicity and a proposed compliance schedule for achieving control. If the approach and schedule are acceptable to the Department, this permit may be reopened and modified.

If the TIE/TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with parameter-specific numeric limitations, the Permittee may:

a. Submit an alternative control program for compliance with the parameter-specific numeric effluent limitations,
b. If necessary, provide a modified whole effluent testing protocol, which compensates for the pollutant(s) being controlled with parameter-specific numeric effluent limitations.

Based on the results of WET testing and a TIE/TRE conducted by the Permittee, the Department may reopen and modify this Permit in accordance with the provisions in section II.D to incorporate any additional WET or parameter-specific numeric limitations, a modified compliance schedule if judged necessary by the Department, and/or a modified whole effluent toxicity protocol.

B. Reopener Provisions

This permit shall 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 limitations 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 limitations or the water quality management plan. Trigger Values are used to determine if a given increase in the concentration of toxic parameters is significant or non-significant as per the non-degradation rules ARM 17.30.701 et seq. and are listed in Circular DEQ-7.

3. **TMDL or Wasteload Allocation**
TMDL requirements or a wasteload allocation is developed and approved by the Department and/or USEPA 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 Clean Water Act Section 307(a) 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.

III. STANDARD CONDITIONS

A. Monitoring, Recording, and Reporting

1. **Representative Sampling:** Samples and measurements taken for the purpose of monitoring must be representative of the monitored activity. [*ARM 17.30.1342(10)(a)*]

2. **Monitoring and Reporting Procedures:** Monitoring results must be reported on a Discharge Monitoring Report (DMR) form at the intervals specified in Section I of this permit. Calculations for all limitations that require averaging of measurements must use an arithmetic mean unless otherwise specified by the Department in the permit [*ARM 17.30.1342(12)(d)(i),(iii)*]. Monitoring must be conducted according to test procedures approved under Title 40 of the Code of Federal Regulations (40 CFR) Part 136, unless other test procedures have been specified in this permit. [*ARM 17.30.1342(10)(d)*]

3. **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. [*MCA 75-5-633*]

4. **Compliance Schedule Reporting:** 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. [*ARM 17.30.1342(12)(e)*]

5. **Additional Monitoring by the Permittee:** If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. [*ARM 17.30.1342(12)(d)(ii)*]

6. **Records Contents** [*ARM 17.30.1342(9)(c)*]: Records of monitoring information must include:
   a. the date, exact place, and time of sampling or measurements;
   b. the initials or name(s) of the individual(s) who performed the sampling or measurements;
   c. the date(s) analyses were performed;
   d. the initials or name(s) of individual(s) who performed the analyses;
   e. the analytical techniques or methods used; and
   f. the results of such analyses;

7. **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. [*ARM 17.30.1342(10)(b)*]

8. **Twenty-four Hour Notification** [*ARM 17.30.1342(12)(f)*]: The permittee shall report any serious incident 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.
   a. *Oral notification.* The report shall be made orally to the Water Protection Bureau at (406) 444-3080 or the Office of Disaster and Emergency Services at (406) 841-3911. The following examples are considered serious incidents of noncompliance:
      i. Any noncompliance which might endanger health or the environment;
      ii. Any unanticipated bypass that exceeds any effluent limitation in the permit (See Subsection III.B.7 of this permit, "Bypass of Treatment Facilities");
      iii. Any upset which exceeds any effluent limitation in the permit (See Subsection III.B.8 of this permit, "Upset Conditions") or;
      iv. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in this permit to be reported within 24 hours.
   b. *Written notification.* 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:
      i. A description of the noncompliance and its cause;
      ii. The period of noncompliance, including exact dates and times;
      iii. The estimated time noncompliance is expected to continue if it has not been corrected; and
      iv. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
   c. *Waiver of written notification requirement*: 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. Reports shall be submitted to the addresses in Subsection I.C.5 of this permit ("Discharge Monitoring Reports").

9. **Other Noncompliance Reporting**: Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Subsection I.C.5 of this permit ("Discharge Monitoring Reports") are submitted. The reports shall contain the information listed in Subsection III.A.8 of this permit ("Twenty-four Hour Notification"). [*ARM 17.30.1342(12)(g)*]

10. **Inspection and Entry** [*ARM 17.30.1342(9)*]: The permittee shall allow the head of the Department, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:
   a. 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;
   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Montana Water Quality Act, any substances or parameters at any location.

B. Compliance Responsibilities

1. Duty to Comply: The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Montana Water Quality Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. [*ARM 17.30.1342(1)*]

2. 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:

- The alteration or addition to the permitted facility may meet one of the criteria for determining whether a facility is a new source under ARM 17.30.1340(2); or
- The alteration or addition could significantly change the nature or increase the quantity of pollutant discharged. This notification applies to pollutants that are subject neither to effluent limitations in the permit, nor to notification requirements under ARM 17.30.1343(1)(a).

The permittee shall give advance notice to the Department of any planned changes at the permitted facility or of an activity that could result in noncompliance with permit requirements. [*ARM 17.30.1342(12)(b)*]

3. Penalties for Violations of Permit Conditions

a. In an action initiated by the Department to collect civil penalties against a person who is found to have violated a permit condition, the person is subject to a civil penalty not to exceed $25,000. Each day of violation constitutes a separate violation. [*MCA 75-5-631*], [*ARM 17.30.1342(1)(b)*].

b. The Montana Water Quality Act provides that any person who willfully or negligently violates a prohibition or permit condition is subject, upon conviction, to criminal penalties not to exceed $25,000 per day or one year in prison, or both, for the first conviction, and $50,000 per day of violation or by imprisonment for not more than two years, or both, for subsequent convictions. [*MCA 75-5-632*], [*ARM 17.30.1342(1)(b)*].

c. MCA 75-5-611(9)(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.

d. Except as provided in permit conditions on Subsection III.B.7 of this permit ("Bypass of Treatment Facilities") and Subsection III.B.8 of this permit ("Upset Conditions"), nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

4. Need to Halt or Reduce Activity Not a Defense: It may 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. [*ARM 17.30.1342(3)*]

5. **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. [*ARM 17.30.1342(4)*]

6. **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. [*ARM 17.30.1342(5)*]

7. **Bypass of Treatment Facilities** [*ARM 17.30.1342(13)*]
   a. *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 under "Prohibition of bypass" and "Notice" (Subsections III.B.7.b and c of this permit) below.

   b. *Prohibition of bypass.* Bypass is prohibited and the Department may take enforcement action against a permittee for a bypass, unless:
      i. The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
      ii. 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
      iii. The permittee submitted notices as required under "Notice" below (Subsection III.B.7.c of this permit).

   c. *Notice*:
      i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten (10) days before the date of the bypass.
      ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Subsection III.A.8 of this permit ("Twenty-four Hour Reporting").

   d. *Approval of bypass under certain conditions.* 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 under "Prohibition of bypass" (Subsection III.B.7.b of this permit).

8. **Upset Conditions** [*ARM 17.30.1342(14)*]
   a. *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 Subsection III.B.8.2 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.

   b. *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:
      i. An upset occurred and that the permittee can identify the cause(s) of the upset;
      ii. The permitted facility was at the time being properly operated;
      iii. The permittee submitted notice of the upset as required under Subsection III.A.8 of this permit ("Twenty-four Hour Notification"); and
      iv. The permittee complied with any remedial measures required under Subsection III.B.5 of this permit, ("Duty to Mitigate").

   c. *Burden of proof.* In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

C. <u>**General Requirements**</u>

1. **Planned Changes** [*ARM 17.30.1342(12)(a)*]: 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:
   a. The alteration or addition could significantly change the nature or increase the quantity of pollutant discharged. This notification applies to pollutants that are subject neither to effluent limitations in the permit, nor to notification requirements under Subsection III.D.1 of this permit ; or

   b. The alteration or addition to the permitted facility may meet one of the criteria in ARM 17.30.1340(2) for determining whether a facility is a new source.

2. **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 [*ARM 17.30.1342(12)(b)*].

3. **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. [*ARM 17.30.1342(6)*]

4. **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 first apply for and obtain a new permit. [*ARM 17.30.1342(2)*] In accordance with ARM 17.30.1322(4), the application must be submitted at least 180 days before the expiration date of this permit.

5. **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. [*ARM 17.30.1342(8)*]

6. **Other Information:** Where 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 [*ARM 17.30.1342(12)(h)*].

7. **Signatory Requirements**
   a. All applications, reports or information submitted to the Department shall be signed and certified. [*ARM 17.30.1342(11)*]

   b. All permit applications must be signed as follows:
   i. *For a corporation*: By a responsible corporate officer, which means
      1) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or
      2) The manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
   ii. *For a partnership or sole proprietorship*: By a general partner or the proprietor, respectively.
   iii. *For a municipality, state, federal, or other public agency*: By either a principal executive officer or ranking elected official. A principal executive office of a federal agency includes:
      1) The chief executive officer of the agency; or
      2) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

   c. *Authorized representatives*. All reports required by the permit and other information requested by the Department shall be signed by a person described above in Subsection III.C.7.b of this permit or by a duly authorized representative of that person. A person is considered a duly authorized representative only if:
   i. The authorization is made in writing by a person described above in Subsection III.C.7.b and submitted to the Department; and
   ii. The authorization specifies 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 well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (a duly authorized representative may thus be either a named individual or an individual occupying a named position).

d. *Changes to authorization.* If an authorization under Subsection III.C.7.c 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 Subsection III.C.7.c 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.

e. *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."

8. **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 both. [*MCA 75-5-633*]

9. **Property or Water Rights:** The issuance of this permit does not convey any property or water rights of any sort, or any exclusive privilege. [*ARM 17.30.1342(7)*]

10. **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. [*ARM 17.30.1302*]

11. **Transfers** [*ARM 17.30.1360(2)*]: This permit may be automatically transferred to a new permittee if:
    - **a.** The current permittee notifies the Department at least 30 days in advance of the proposed transfer date;
    - **b.** 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;
    - **c.** The Department 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 Subsection III.C.11.b of this permit; and

d. Required annual and application fees have been paid.

12. Fees [*ARM 17.30.201(8)*]: 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:

a. 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

b. 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 subsection. Suspensions are limited to one year, after which the permit will be terminated.

D. <u>Notification Levels</u>

1. The permittee shall comply with effluent standards or prohibitions established under Clean Water Act Section 307(a) 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. [*ARM 17.30.1342(1)(a)*]

2. Notification shall be provided to the Department as soon as the permittee knows of, or has reason to believe [*ARM 17.30.1343(1)(a)*]:

a. 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":

i. One hundred micrograms per liter (100 μg/l);

ii. 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;

iii. 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

iv. The level established by the Department in accordance with 40 CFR 122.44(f).

b. 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":

i. Five hundred micrograms per liter (500 μg/l);

ii. One milligram per liter (1 mg/l) for antimony;

iii. 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

iv. The level established by the Department in accordance with 40 CFR 122.44(f).

IV. DEFINITIONS AND ABBREVIATIONS

"1-year, 2-year, and 10-year, 24-hour precipitation events" means the maximum 24-hour precipitation event with a probable recurrence interval of once in one, two, and ten years, respectively, as defined by the National Weather Service Technical Paper No. 40, *Rainfall Frequency Atlas of the U.S.*, May 1961, or equivalent regional or rainfall probability information developed therefrom.

"Act" means the Montana Water Quality Act, Title 75, chapter 5, MCA.

"Active mining area" means the area, on and beneath land, used or disturbed in activity related to the extraction, removal, or recovery of coal from its natural deposits. This term excludes coal preparation plants, coal preparation plant associated areas, and post-mining areas.

"Acute Toxicity" occurs when 50 percent or more mortality is observed for either species (See Subsection 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.

"Administrator" means the administrator of the United States Environmental Protection Agency.

"Alkaline mine drainage" means mine drainage which, before any treatment, has a pH equal or greater than 6.0, and total iron concentration of less than 10 mg/L.

"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.

"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.

"Average weekly limitation" means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

"Best Management Practices" (BMPs) mean schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States.

"Bond release" means the time at which the appropriate regulatory authority returns a reclamation or performance bond based upon its determination that reclamation work has been satisfactorily completed.

"Brushing and grubbing area" means the area where woody plant materials that would interfere with soil salvage operations have been removed or incorporated into the soil being salvaged.

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

"CFR" means the Code of Federal Regulations.

"Chronic toxicity" occurs when, during a chronic toxicity test, the 25% inhibition concentration (IC_{25}) for any tested species is less than or equal to 100% effluent (i.e., $IC_{25} \leq$ 100% effluent).

"Clean Water Act" means the federal legislation at 33 USC 1251, et seq.

"Coal preparation plant" means a facility where coal is subjected to cleaning, concentrating, or other processing preparation in order to separate coal from its impurities and then is loaded for transit to a consuming facility.

"Coal preparation plant associated areas" means the coal preparation plant yards, immediate access roads, coal refuse piles, and coal storage piles and facilities.

"Composite samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, 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.

"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.

"Department" means the Montana Department of Environmental Quality (MDEQ). Established by 2-15-3501, MCA.

"Director" means the Director of the Montana Department of Environmental Quality.

"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.

"Effluent Limitations Guidelines" (ELGs) mean regulations published by the Administrator under Section 304(b) of the CWA that establishes national technology-based effluent requirements for a specific industrial category.

"EPA" or "USEPA" means the United States Environmental Protection Agency.

"GPM" means gallons per minute.

"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.

"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.

"Instantaneous Measurement", for monitoring requirements, means a single reading, observation, or measurement.

"Maximum Daily Limit" means the highest 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.

"mg/L" means milligrams per liter.

"Mine drainage" means any drainage, and any water pumped or siphoned, from an active mining area or a post-mining area.

"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))

"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.

"mL/L" means milliliters per liter.

"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 the Department prior to April 29, 1993.

"Reclamation area" means the surface area of a coal mine which has been returned to required contour and on which re-vegetation (specifically, seeding or planting) work has commenced.

"Regraded area" means the surface area of a coal mine that has been returned to required contour.

"Regional Administrator" means the administrator of Region VIII of EPA, which has jurisdiction over federal water pollution control activities in the state of Montana.

"Settleable solids" means that matter measured by the volumetric method specified in 40 CFR 434.64.

"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.

"SMCRA" means the Surface Mining Control and Reclamation Act.

"Storm water" means storm water runoff, snow melt runoff, and surface run-off and drainage in response to a precipitation event.

"TIE" means a toxicity identification evaluation.

"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.

"Topsoil stockpiling area" means the area outside the mined-out area where topsoil is temporarily stored for use in reclamation, including containment berms.

"TRE" means a toxicity reduction evaluation.

"TSS" means the pollutant parameter total suspended solids.

"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.

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Permitting and Compliance Division

MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (MPDES)

Permit Fact Sheet

Permittee:	Westmoreland Resources, Inc. 529 Sarpy Basin Road Hardin MT 59034
Permit No.:	MT0021229
Receiving Waters:	Unnamed ephemeral tributary to Sarpy Creek, Unnamed ephemeral tributary to Middle Fork Sarpy Creek, Unnamed ephemeral tributary to East Fork Sarpy Creek
Facility Information:	
Name:	Absaloka Mine
Contact:	David Kuzara, Permit Coordinator
Fee Information:	
Type:	Privately Owned Treatment Works – Minor (SIC 1221)
Number of Outfalls:	4 (for fee determination only)

I. BACKGROUND

This Fact Sheet identifies the legal requirements and technical rationale that serve as the basis for the requirements of this permit.

A. Description of Facility, Discharge Point(s), and Mixing Zone(s)

1. Description and Location of Facility

Table 1 summarizes general information related to the facility.

Table 1. Facility Information

Permittee	Westmoreland Resources, Inc.
Name of Facility	Absaloka Mine
Facility Address	100 Sarpy Creek Road
	Hardin MT 59034
	Big Horn County
Facility Contact, Title and Phone	David Kuzara, Permit Coordinator
Authorized Person to Sign and Submit Reports	SAME
Mailing Address	P.O. Box 449, Hardin MT 59034
Billing Address	SAME
Type of Facility	Industrial (SIC 1221)
Major or Minor Facility	Minor
Pretreatment Program	Not applicable
Number of Outfalls	19
Receiving Waters	Unnamed ephemeral tributary to Sarpy Creek, Unnamed ephemeral tributary to Middle Fork Sarpy Creek, Unnamed ephemeral tributary to East Fork Sarpy Creek

Westmoreland Resources, Inc. (hereinafter permittee) is the owner and operator of the Absaloka Mine (hereinafter facility), a surface coal mine. For the purposes of this permit, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, policy, plans, or implementation procedures are held to be equivalent to references to the permittee in this permit.

The Absaloka Mine is a surface coal mine that has operated since 1974 under surface mine permit No. C1985005. Mine facilities include the railroad loop, coal handling and processing plant, coal storage areas, warehouse and shops, miscellaneous storage buildings, and a boiler plant. The current mine permit area encompasses 7110 acres of the total lease area. As of the 2013 Annual Mine Report, 4934 acres have been disturbed. Of these disturbed acres, 803 contain active mining and 3476 acres are in various phases of reclamation. Annual production in recent years has been approximately 4.0 to 5.5 million tons of coal. The primary coal seams are the Rosebud and the McKay, which fuse together in parts of the mine area into a single seam. A third seam, the Robinson, underlies the McKay seam and is a large reserve, but is lower in quality due to high sodium content. Two stray rider seams are also present but are not market quality coal.

During the mining process, topsoil is first removed and stored in stockpiles for later reclamation uses. Overburden is then blasted and removed, exposing the coal seam. The overburden is placed in the empty pit where coal has previously been removed. The replaced overburden is graded to approximate the original land contour and scarified to relieve compaction. Soil is redistributed and revegetated for reclamation.

During active mining, dewatering activities are required when groundwater infiltrates into the open pit and when precipitation events cause runoff from disturbed areas that collects in the pit. Sediment traps or ponds are used to collect storm water runoff and water from pit dewatering activities to prevent sediment from leaving the mine site for protection of areas downstream of the mining operation. Sediment pond water is largely used for road dust control.

The permittee expanded mining onto the Crow Reservation in 2009, requiring issuance of a separate National Pollutant Discharge Elimination System (NPDES) permit (permit No. MT0030783) by the United States Environmental Protection Agency (USEPA). NPDES permit No. MT0030783 regulates discharges associated with mining operations within the Crow Reservation boundaries, also known as the South Extension. The South extension NPDES permit was most recently renewed on October 1, 2014, and shall expire on September 30, 2019.

2. **Wastewater and Biosolids Treatment or Controls**
Outfalls in active mining areas are associated with sediment ponds designed to contain the runoff from a 10-year, 24-hour rainfall event. Influent flow to sediment ponds in an area of active mining consists of mine drainage. Mine drainage is defined at 40 Code of Federal Regulations (CFR) 434.11(h) as any drainage, or any water pumped or siphoned, from an active mining area, which includes groundwater infiltration into the pit, storm water which collects in the pit, and storm water runoff over any area of active mining. During the process of storm water runoff over disturbed soils, suspended solids become entrained in the runoff. Sediment ponds are discharged periodically by pumping to retain pond storage capacity, only after adequate time for settling has occurred such that the discharge will comply with applicable effluent limitations. Precipitation events that cause the design capacity of a pond to be exceeded also periodically cause overflow discharges from the ponds. See Appendix I for a diagram illustrating water flow at the facility.

3. **Discharge Points and Receiving Waters**
The facility discharges wastewater to an unnamed ephemeral tributary to Sarpy Creek, unnamed ephemeral tributaries to Middle Fork Sarpy Creek, and unnamed ephemeral tributaries to East Fork Sarpy Creek. The Sarpy Creek drainage basin is part of the Lower Yellowstone-Sunday Hydrologic Unit (HUC 10100001). All receiving waters are considered waters of the State and all are classified in the Administrative Rules of Montana (ARM) 17.30, Subchapter 6 as C-3 waters.

Table 2 provides a description of the discharge point for each outfall established by this permit. Outfalls 013, 015, 016, 017, 018, 020, and 027 were constructed during the term of the previous permit; outfalls 021, 023, 024, and 026 are expected to be constructed during the term of this permit. See Appendix II for a map illustrating outfall locations.

Table 2. Description of Discharge Points

Outfall	Latitude	Longitude	Description	Outflow Structure	Receiving Water
001	45.8109	-107.0884	Storm water runoff, mine drainage, and coal processing water	Riser	Unnamed ephemeral tributary to Sarpy Creek
002	45.7872	-107.0760	Storm water runoff and mine drainage	Riser	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
006	45.8232	-107.0426	Western Alkaline Coal Mining discharge	none	Unnamed ephemeral tributary to East Fork Sarpy Creek
007	45.8257	-107.0366	Western Alkaline Coal Mining discharge	Riser	Unnamed ephemeral tributary to East Fork Sarpy Creek
008	45.8263	-107.0261	Western Alkaline Coal Mining discharge	Riser	Unnamed ephemeral tributary to East Fork Sarpy Creek
009	45.8209	-107.0128	Western Alkaline Coal Mining discharge	Riser	Unnamed ephemeral tributary to East Fork Sarpy Creek
011	45.8018	-107.0196	Western Alkaline Coal Mining discharge	Grass waterway	Unnamed ephemeral tributary to East Fork Sarpy Creek
012	45.8060	-107.0155	Western Alkaline Coal Mining discharge	Dam crest	Unnamed ephemeral tributary to East Fork Sarpy Creek
013	45.7729	-107.0536	Storm water runoff and mine drainage	Dam crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
015	45.7751	-107.0570	Storm water runoff and mine drainage	Dam crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
016	45.7685	-107.0480	Storm water runoff and mine drainage	Dam crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
017	45.7712	-107.0538	Storm water runoff and mine drainage	Dam crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
018	45.7723	-107.0585	Storm water runoff and mine drainage	Dam crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
020	45.7734	-107.0587	Western Alkaline Coal Mining discharge	Sediment pond crest	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
021	45.7731	-107.0632	Western Alkaline Coal Mining discharge	Post-mining only; Outfall not constructed	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
023	45.7728	-107.0671	Storm water runoff and mine drainage	Outfall not constructed	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
024	45.7723	-107.0700	Storm water runoff and mine drainage	Outfall not constructed	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
026	45.7718	-107.0785	Storm water runoff and mine drainage	Post-mining only; Outfall not constructed	Unnamed ephemeral tributary to Middle Fork Sarpy Creek
027	45.8072	-107.0155	Western Alkaline Coal Mining discharge	Grass waterway	Unnamed ephemeral tributary to East Fork Sarpy Creek

4. Permit Fee Determination

The Montana Water Quality Act requires that permit fees be assessed that are sufficient to cover the costs of administering the permit program (75-5-516, Montana Code Annotated)(MCA). Permit fees are based on the type of waste (sewage, process wastewater, storm water, noncontact cooling water, etc.) and receiving water or stream segment. This analysis is based on ARM 17.30.201(6)(a) which states an application and annual fee for multiple outfalls is not required unless the discharges are to different receiving waters or result in multiple or variable effluent limits. Table 3 identifies, individually or by group, the type of wastewater and receiving water by outfall for which effluent limits will be required.

Table 3. Outfalls for Fee Purposes

Group	Effluent Description	Receiving Water(s)	Outfalls
A	Mine drainage, coal processing	Ephemeral tributary to Sarpy Creek	001
B	Mine drainage	Ephemeral tributaries to Middle Fork Sarpy Creek	002, 013, 015
C	Mine drainage (New source mine)	Ephemeral tributaries to Middle Fork Sarpy Creek	016, 017, 018, 023, 024, 026
D	Storm water runoff from regraded/reclaimed and soil stockpile areas (Western Alkaline Standards)	Ephemeral tributaries to East Fork Sarpy Creek and Ephemeral tributaries to Middle Fork Sarpy Creek	006, 007, 008, 009, 011, 012, 020, 021, 027

B. Permit and Application Information

The facility is currently regulated by Montana Pollutant Discharge Elimination System (MPDES) permit No. MT0021229, which became effective on June 1, 2000, and expired on April 30, 2005. The permittee submitted an application for permit renewal dated October 29, 2004; the application was determined to be complete on December 3, 2004. The permittee submitted a supplemental application dated June 18, 2007, with a request to add eleven additional outfalls. The permittee submitted additional supplemental material on December 18, 2007, which included operational and post-mining drainage plans. The permittee also submitted an updated application on December 3, 2014; the updated application was determined to be complete on March 3, 2015. The update was necessary due to changes in mining configuration and drainage control, and it was necessary to submit a revised Sediment Control Plan. Per ARM 17.30.1313, the terms and conditions of the current permit have been automatically continued and remain in effect until a new permit is issued.

1. Summary of Existing Permit Requirements and Effluent Quality Data

To evaluate effluent quality at the facility, the last five years of data were selected to represent current mine conditions. Data consist of field and laboratory analyses conducted for permit requirements between January 1, 2010, and September 30, 2014 ("period of record"), and submitted to DEQ via Annual Hydrology Reports in support of Surface Mine Permit C1985002. Due to the presence of different activities at the mine, effluent monitoring data have been divided into the following two groups: Outfall 001 and All Other Outfalls.

<u>Outfall 001</u>

Dry Coulee Dam receives storm water runoff comingled with mine drainage and coal processing runoff, and discharges at Outfall 001. During the period of record, no "planned" discharges (dry weather pumping) have occurred at Outfall 001. During the heavy rains in spring of 2011, Outfall 001 discharged continuously throughout the months of May and June. The average daily flow rate measured was 28.2 gallons per minute (gpm). All measurements of effluent quality met permit requirements; however, it should be noted that samples collected from the 2011 wet weather were inadvertently analyzed for total suspended solids instead of total settleable solids.

Starting in 2012 and lasting through 2014, Outfall 001 discharged through most of the spring and summer months due to leakage in the dam structure. A continuous recorder measured daily flows throughout most of this period; the average measured flow rate was 15.2 gpm. All measurements of effluent quality during the time the dam structure was leaking met permit requirements. In late 2014, the dam structure was repaired and the leakage was eliminated.

Existing permit requirements and effluent data for discharges from Outfall 001during the period of record are summarized in Table 4.

All Other Outfalls

The second effluent data group includes discharges from all other outfalls. Sediment ponds associated with these outfalls receive either storm water runoff only, or storm water runoff commingled with mine drainage. During the period of record, one "planned" discharge (dry weather pumping) occurred at Outfall 015, lasting 22 hours with an average flow rate of 600 gpm. In May 2012, ponded water was sampled at the outlet of Dam 5 (Outfall 002); additionally, four wet-weather discharges occurred during the period of record as the result of precipitation or snowmelt at Outfalls 008, 012, and 016. The average measured flow rate for these wet weather discharges was 30.1 gpm; all measurements of effluent quality for the wet weather discharges met permit requirements.

Existing permit requirements and effluent data for discharges from all other outfalls during the period of record are summarized in Table 4.

Table 4. Effluent Characteristics for the Period of Record

Parameter	Units	Previous Permit Limits (1)	Minimum Value	Maximum Value	Average Value	Number of Samples
Outfall 001						
Maximum daily flow rate	gpm	Report only	0	340.0	15.5	303
Average monthly flow rate	gpm	Report only	0	66.7	12.1	20
pH (laboratory)	s.u.	Between 6.0 and 9.0	7.7	8.3	8.1	18
pH (field)	s.u	Between 6.0 and 9.0	7.3	8.3	8.0	13
Total dissolved solids	mg/L	Report only	325	2350	1510	21
Total suspended solids	mg/L	35/70	<10	24.9	6.5	22
Settleable solids	ml/L	0.5	<0.5	<0.2	n/a	6
Oil and grease	mg/L	10/15	<6.7	6.2	4.3	22
Iron, total	mg/L	3.5/7.0	<0.1	1.7	0.2	22
All Other Outfalls						
Maximum daily flow rate	gpm	Report only	0	9.9	2.9	10
Average monthly flow rate	gpm	Report only	2.5	4.3	3.4	2
pH (laboratory)	s.u.	Between 6.0 and 9.0	7.9	8.2	8.1	3

Parameter	Units	Previous Permit Limits [1]	Minimum Value	Maximum Value	Average Value	Number of Samples
pH (field)	s.u	Between 6.0 and 9.0	6.4	8.1	7.3	5
Total dissolved solids	mg/L	Report only	259	1050	247	6
Total suspended solids	mg/L	35/70 [2]	3.5	235 [4]	56	6
Settleable solids	ml/L	0.5 [3]	<0.2	<0.2	n/a	4
Oil and grease	mg/L	10/15	<1.0	<5.3	n/a	6
Iron, total	mg/L	3.5/7.0 [2]	0.26	13.8 [4]	4.0	6

Footnotes:
< = Nondetect value
(1) Permit limits: 30-day average/ instantaneous maximum
(2) Applicable to discharges not caused by precipitation events
(3) Applicable to discharges caused by precipitation events less than or equal to the 10-yr, 24-hr size.
(4) Permit limit not applicable; precipitation-driven discharge.

2. Compliance Summary

The following four compliance inspections were conducted by the Montana Department of Environmental Quality (DEQ) during the term of the previous permit:

- June 6, 2002: The permittee was found to be in compliance with MPDES permit requirements.
- September 3, 2009: Several areas of significant non-compliance were identified relating to improper operation and maintenance of monitoring equipment, failure to have operable flow measurement devices, and failure to maintain records. A violation letter was issued to the permittee on January 21, 2010, requiring a return to compliance by February 28, 2010. The permittee responded to the violation in a February 19, 2010, letter but did not take the necessary actions to address the violations.
- April 10-11, 2012: In addition to previously unaddressed violations, the permittee was also found to be in violation of their permit for failing to collect representative samples or measurements when discharging from Outfalls 001 and 002. A violation letter issued on May 17, 2012, required a return to compliance by June 28, 2012. The permittee responded to the violations in a June 26, 2012, letter. In an April 5, 2013, letter, DEQ determined the violations to be addressed.
- February 19, 2014: Multiple violations were documented during the inspection, including failure to conduct an analysis of total settleable solids for storm event discharges, failure to collect a valid/representative flow measurement, failure to collect a flow rate at the required daily frequency, and failure to collect representative storm water samples from sampling bottles. A letter of violation was sent by DEQ on March 18, 2014. The facility responded to the violations in an April 15, 2014, letter. In an April 21, 2014, letter, DEQ determined the violations to be addressed.

In addition to the items listed above, the permittee reported the following noncompliance to DEQ via twenty-four hour oral report and five-day written report:

- June, 1, 2013: Outfall 012 was observed to have discharged when no employees were present and a sample was not collected. In a June 26, 2013, letter, DEQ ordered the permittee to return to compliance by installing automatic sampling systems at all outfalls. On August 1, 2013, the permittee submitted a corrective action plan that included installation of crest gauges and passive flow samplers at all outfalls. These improvements have been installed and are now operational.

3. Planned Changes

During the term of this permit, the permittee will continue to expand mining to a coal reserve area south of current operations to the Crow Indian Reservation Boundary (the Tract III South Extension Revision). The expansion will require the addition of Outfalls 021, 023, 024, and 026, which are regulated under this permit. The Absaloka Mine has also filed an application with the Industrial Energy and Minerals Bureau Coal Program to amend Surface Mine Permit C1985005 to expand mining into an area referred to as Tract III West (Amendment Application AM4/00186). Any additional MPDES outfalls added by this, or other, expansions must be added to this permit as a modification pursuant to ARM 17.30.1361.

Upon completion of reclamation, the permittee will remove Outfall 027. Outfalls 012 and 027 are both associated with drainage 28B, which was divided into two sub-drainages during active mining for water management purposes. Pond 28 (Outfall 012) and Pond 32 (Outfall 027) are currently in place to capture runoff from the regraded drainages. Future plans involve removal of the drainage divide, reclamation of Pond 32, and soiling and seeding of the entire drainage. Pond 28 will remain as a permanent post-mine feature. At that point, Outfall 012 will be the sole outlet for drainage 28B.

II. RATIONALE FOR PERMIT CONDITIONS

A. Rationale for Effluent Limitations

The federal Clean Water Act (CWA) and the Montana Water Quality Act (MWQA) require point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants discharged into waters of the United States and waters of the State. The control of pollutants discharged is established through effluent limitations and other requirements in MPDES permits. There are two principal bases for effluent limitations: technology-based effluent limitations (TBELs) that attain technology-based standards and limitations specified in the regulations and water quality-based effluent limitations (WQBELs) that attain and maintain Montana's applicable numeric and narrative water quality standards (WQS). TBELs are based on implementing available technologies to reduce or treat pollutants while WQBELs are designed to protect beneficial uses of the receiving water. Federal regulation at 40 CFR 122.44(a)(1) [incorporated into ARM 17.30.1344(2)(b) by reference] requires that MPDES permits include conditions that meet all applicable technology-based standards and limitations, at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards.

1. Technology-based Effluent Limitations (TBELs)

TBELs are based on federal or State technology-based standards and reflect a minimum level of treatment or control for point source discharges. These standards are developed based on the performance of currently available treatment and control technologies for the industry.

a. Scope and Authority

CWA section 301 and USEPA regulations at 40 CFR 122.44(a) require that permits include effluent limitations based on applicable technology-based standards. These requirements are incorporated into State regulations at ARM 17.30.1344(2)(e) and ARM 17.30.1207.

MPDES permits for industrial and commercial facilities must include TBELs that implement any applicable Effluent Limitations Guidelines and Standards (ELGs) promulgated by USEPA.

b. Effluent Guidelines

The CWA requires that TBELs for industrial and commercial facilities that are non-publicly owned treatment works (POTWs) be based on several levels of control:

1. Best practicable control technology currently available (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

2. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

3. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering "cost reasonableness" by balancing the cost of attaining a reduction in effluent discharge and the benefits that would result, against the cost effectiveness of additional industrial treatment beyond BPT.

4. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA also requires the development of ELGs representing application of BPT, BAT, BCT, and NSPS. ELGs are promulgated by USEPA under the authority of Sections 301, 304, 306, 307, 308, 402, and 501 of the CWA (33 U.S.C. 1311, 1314, 1316, 1318, 1342, and 1361).

USEPA has established ELGs for the coal mining industry at 40 CFR Part 434, *Effluent Limitations Guidelines for the Coal Mining Point Source Category*. Subparts B - Coal Preparation Plants and Coal Preparation Plant Associated Areas; D – Alkaline Mine Drainage; F – Miscellaneous Provisions; and H – Western Alkaline Coal Mining are applicable to discharges from the facility, and have been used to determine TBELs in this permit. In accordance with 40 CFR 434.61, for commingled waste streams, the most stringent TBELs for a pollutant apply.

Outfalls 016-026 have been determined to discharge effluent from a new source coal mine as defined at 40 CFR 434.11(j). These outfalls are associated with significant new surface disturbance in new drainages to Middle Fork Sarpy Creek. These drainages extend south onto the Crow Indian Reservation, and area previously unaffected by mining. Additionally, the USEPA determined that the expansion of coal mining onto the Crow Indian Reservation is a major alteration because of extensive new surface disruption as a result of the mining operation, and because there will be discharge into an area that was not previously affected by wastewater from the Crow Indian Reservation mine. Therefore, the NSPS requirements of the ELGs apply to Outfalls 016-026.

Discharges from the remaining outfalls at the facility are not associated with a new source coal mine area, and therefore BPT, BAT, and BCT requirements of the ELGs apply.

c. Applicable Technology-based Limitations

ARM 17.30.1345(6)(a) requires that for continuous discharges all permit effluent limitation, standards, and prohibitions be stated, unless impracticable, as maximum daily and average monthly discharge limitations for al discharges other than publicly owned treatment works (POTWs). ELGs with numeric limitations area generally stated as both average monthly and maximum daily limitations. For these reasons, both average monthly and maximum daily effluent limitations are required for most parameters in MPDES permits for non-POTWs.

i. *Coal Preparation Plants and Coal Preparation Plant Associated Areas, Outfall 001.*
The provisions described in 40 CFR 434, Subpart B are applicable to discharges from coal preparation plants and associated areas. These include discharges that are pumped, siphoned, or drained from preparation plant water circuits, coal storage, refuse storage, and ancillary areas related to the cleaning or beneficiation of any rank of coal, including, but not limited to, lignite, bituminous, and anthracite. When discharges from these areas normally exhibit a pH equal to or greater than 6.0 prior to treatment, the TBELs in Table 5 apply.

Table 5. TBELs – Outfall 001

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation	Category
Iron, Total	mg/L	7.0	3.5	BPT, BAT
Total Suspended Solids	mg/L	70	35	BPT
pH	Standard units	6.0 – 9.0 at all times		BPT

ii. *Alkaline Mine Drainage*
The provisions described in 40 CFR 434, Subpart D are applicable to alkaline mine drainage. Alkaline mine drainage is water, drainage, or discharges that normally exhibit a pH equal to or greater than 6.0.

1) <u>Existing Sources, Outfalls 001, 002, 013, and 015.</u>
Pursuant to 40 CFR 434.40, TBELs for alkaline mine drainage for existing sources are applicable to drainage from an active mining area of coal of any rank. The TBELs in Table 6 are applicable to discharges at Outfalls 002, 013, and 015.

Table 6. TBELs - Outfalls 001, 002, 013, and 015

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation	Category
Iron, Total	mg/L	7.0	3.5	BPT, BAT
Total Suspended Solids	mg/L	70	35	BPT
pH	Standard units	6.0 – 9.0 at all times		BPT

2) <u>New Sources, Outfalls 016, 017, 018, 023, 024, 026</u>
Pursuant to 40 CFR 434.45, TBELs for new sources, as defined in 40 CFR 434.11, are applicable to alkaline mine drainage from an active mining area of coal of any rank. For the reasons stated above in Section II.A.1.b, discharges of alkaline mine drainage from Outfalls 016, 017, 018, 023, 024, and 026 are subject to the new source performance standards contained in Table 7.

Table 7. TBELs – Outfalls 016, 017, 018, 023, 024, and 026

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation	Category
Iron, Total	mg/L	6.0	3.0	NSPS
Total Suspended Solids	mg/L	70	35	NSPS
pH	Standard units	6.0 – 9.0 at all times		NSPS

iii. *Precipitation Events, All Outfalls*
For discharges driven by precipitation events, alternate effluent limitations may be applied instead of otherwise applicable TBELs (40 CFR 434.63). These alternate limitations are only applicable to discharges that are the result of pond overflows due to a precipitation event.

1) Storm Events Less than or Equal to the 10-year, 24-hour Event.
Precipitation-driven discharges are subject to the ELGs at 40 CFR 463.63 (a)(2), for any discharge or increase in the volume of discharge caused by precipitation within any 24-hour period less than or equal to the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume). The NOAA Atlas 2, Volume 1 defines the 10-year, 24-hour precipitation as 2.4 inches. Applicable TBELs are presented in Table 8.

Table 8. TBELs - Precipitation Events Less Than or Equal to the 10-yr, 24-hr Event

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation
Settleable Solids	mg/L	0.5	---
pH	Standard units	Between 6.0 and 9.0 at all times	

2) Storm Events Greater than the 10-yr, 24-hr Precipitation Event.
Precipitation driven discharges or increase in the volume of discharges caused by precipitation within any 24 hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume), which is 2.4 inches (NOAA Atlas 2, Vol. 1) are subject to the following ELGs, pursuant to 40 CFR 434.63(d)(2). Applicable TBELs are presented in Table 9.

Table 9. TBELs - Precipitation Events Greater Than the 10-yr, 24-hr Event

Parameter	Units	Daily Maximum Limitation	30-day Average Limitation
pH	Standard units	Between 6.0 and 9.0 at all times	

iv. *Western Alkaline Standards: Outfalls 006, 007, 008, 009, 011, 012, 020, 021, and 027*
Outfalls 006, 007, 008, 009, 011, 012, 020, 021, and 027 meet the definition of 40 CFR 434 Subpart H- Western Alkaline Coal Mining (Western Alkaline Standards), which applies to "alkaline mine drainage at western coal mining operations from reclamation areas, brushing and grubbing areas, topsoil stockpiling areas, and regraded areas" (40 CFR part 434.81). The following criteria apply to Western Alkaline Standard outfalls:

- The permittee must submit a site-specific Sediment Control Plan (SCP) that is designed to prevent an increase in the average annual sediment yield from pre-mined, undisturbed conditions. The SCP must be approved by DEQ and be incorporated into the permit as an effluent limitation. The SCP must identify best management practices (BMPs) and also must describe design specifications, construction specifications, maintenance schedules, criteria for inspection, and expected performance and longevity of the BMPs.
- Using watershed models, the permittee must demonstrate that implementation of the SCP will result in average annual sediment yields that will not be greater than the sediment yield levels from pre-mined, undisturbed conditions. The operator must use the same watershed model that was, or will be, used to acquire the surface mine permit.
- The operator must design, implement, and maintain BMPs in the manner specified in the SCP.

In accordance with the requirements established by Western Alkaline Standards, the permittee submitted SCP information to DEQ on December 19, 2007, with supplemental information provided September 11, 2009. In a March 14, 2011, letter, DEQ requested additional information to complete the SCP; this information was submitted to DEQ in a letter and attachments on April 20, 2011. Additional materials were submitted on March 13, 2012, and December 3, 2014, to include additional outfalls. These materials are part of the Administrative Record for the proposed permit and are available for public review (WRI 2012a, WRI 2012b, WRI 2013a).

The SCP includes a watershed model demonstrating that implementation of BMPs will result in acceptable annual average sediment yields. Also included in the SCP is a description of BMPs implemented by the permittee to control sediment and erosion and minimize disturbance to the prevailing hydrologic balance. The SCP also summarizes design and construction specifications, inspection criteria, and maintenance schedules.

SCP Model
The sediment yield demonstration included in the SCP was conducted using the SEDCAD 4 (SEDCAD) computer models, an updated version of the same watershed model that was used to obtain the mine's surface mining permit. The SEDCAD hydrology and sedimentology model was developed to design storm water, erosion, and sediment control systems and is widely used in coal mining by both industry and regulatory agencies.

Hydrology and sedimentology analyses for drainages eligible for Western Alkaline Standards were conducted for baseline conditions prior to mining and during the reclamation (post-mining) phase. SEDCAD was used to model site hydrology, calculate runoff volume and sediment yield from the 10-year, 24-hour storm event, and determine the average annual sediment yield for baseline and reclaimed conditions.

Pre-mining Model. Pre-mining conditions were modeled by analyzing existing soil, vegetation, and land characteristics and were used as the basis of comparison for reclamation conditions. Soils data were obtained from the following sources: Westmoreland Resources Inc. Absaloka Mine – Soils Map by Westech Environmental, Inc., and Natural Resource and Conservation Service (NRCS) Web Soil Surveys. Vegetation data were obtained from the following sources: Westmoreland Resources Inc. Absaloka Mine – Pre-mine Vegetation Physiognomic Types by Westech Environmental, Inc., and aerial photos.

Post-mining Model. Operational drainage control is established prior to mining and remains in place until final grading is complete and post-mining topography is established. During this period, sediment ponds are established to detain runoff and sediment from each watershed. Some sediment ponds will be retained after is reclamation is complete; others are to be removed when the contributing watershed is stable and vegetated based on the modeled results.

Models of post-mine reclaimed areas incorporated the following scenarios:

- Initial reclamation: The watershed has been graded, soiled, and seeded and modeled as bare soil.
- Growing season 1: Vegetative cover is poor (less than 50%).
- Growing season 2: Vegetative cover is fair (between 50 and 75 or 80%).
- Growing season 3+: Vegetative cover is good (>75 or 80%).

During the reclamation phase, operational sediment control ponds will be retained until stable conditions similar to baseline are re-established and BMPs are no longer required. At this time, sediment ponds that are not approved for permanent retention will be removed and reclaimed. Table 10 summarizes, per watershed, the minimum vegetative cover required to allow for removal of the operational sediment control pond.

The SCP model demonstrates that average annual sediment yields for post-mining, or reclaimed conditions are less than or equal to average annual sediment yields for the pre-mining, or undisturbed conditions. Modeling was completed for outfalls that currently meet the criteria for Western Alkaline Standards (Outfalls 006, 007, 008, 009, 011, 012, 020, 021, and 027). Modeling was also submitted in advance for multiple outfalls that are still associated with active mining areas and not yet eligible for Western Alkaline Standards (Outfalls 016, 017, 018, 024, and 026).

Detailed results of the modeling demonstrations are provided in the SCPs (WRI 2012a, WRI 2012b, WRI 2013a). Average annual sediment yields are summarized in Table 10.

Table 10. Summary of SCP Modeling Results

Outfall Number	Watershed number	Watershed Area (acres)		Average Annual Sediment Yield (tons/ac/yr)			"Fully Reclaimed" Model Requirements	
		Pre-mine	Post-mine	Pre-mine	Post-mine	Fully Reclaimed	Minimum Vegetative Cover (%)	Operational Structure Status
Outfalls Currently Eligible for Western Alkaline Standards								
006	19	125.5	205.2	0.28	(1)	0.003	75	Permanent Pond 19
	20	618.4	698.7	0.16	(1)	0.001	75	Permanent Pond 20
	21	338.4	221.6	0.09	(1)	0.026	75	Dam 21 removed
007	22	203.1	226.5	0.3	0.003(2)	0.059	75	Dam 22 removed
008	23	218.8	238.2	0.12	0.00(2)	0.06	75	Dam 23 removed
009	24	177.6	244.5	0.18	0.00(2)	0.02	50	Dam 24 removed
011	27	1036	1294	0.08	(1)	0.04	0	Permanent Pond 27 + upgradient wetland
020	Stockpile only	20.6	15.2	1.7	1.4 (3)	n/a(3)	n/a(3)	Sediment trap and ditches removed
012, 027	28	530.9	590.12	0.04	(1)	0.00	75	Permanent Pond 28
Outfalls Not Currently Eligible for Western Alkaline Standards(5)								
016	16A	657.9	657.9	1.1	0.0 (2)	0.3	80	Sump 1E removed
	16B	177.1	177.1	1.3	0.0 (2)	0.3	80	Sump 1E removed
	16C	277.6	277.6	1.0	0.0 (2)	0.3	80	Sump 1E removed
017	17D	326.3	292.9	0.4	0.0 (2)	0.1	80	Sump 2W removed
	17E	195.8	207	1.4	0.0 (2)	0.1	80	Sump 1W removed
018	F	271.4	191.1	0.6	0.0 (2)	0.1	80	Trap removed
023	23	16.7	5.6	0.6	0.3	n/a(4)	n/a(4)	n/a(4)
024	24	49	29.9	0.4	0.4	n/a(4)	n/a(4)	n/a(4)
026	26	20.6	26.4	0.3	0.1	n/a(4)	n/a(4)	n/a(4)

Footnotes:
(1) Not applicable; watershed currently meets "fully reclaimed" model requirements.
(2) Post-mine models include retention of the operational structure (pond, sump, or dam).
(3) This outfall is solely associated with a small soil stockpile area; it is eligible for Western Alkaline Standards during active mining operations.
(4) Modeling results for fully reclaimed conditions were not provided.
(5) Outfalls currently associated with active mine areas. Sediment Control Plan requirements will apply to these outfalls once the contributing watershed meets the criteria of: "reclamation areas, brushing and grubbing areas, topsoil stockpiling areas, and regraded areas" per 40 CFR part 434.81.

Best Management Practices (BMPs)
Surface coal mining operations in Montana are regulated by the DEQ Industrial and Energy Minerals Bureau (IEMB) under the Montana Strip and Underground Mine Reclamation Act (MSUMRA). The Montana regulatory program, which consists of MSUMRA and implementing rules ARM 17 Chapter 24, is approved by the Office of Surface Mining (OSM) under the requirements of the federal Surface Mining Control and Reclamation Act (SMCRA).

Under SMCRA, coal mine operators must reclaim lands disturbed by mining and implement measures to protect the hydrologic balance during and after mining as an integral part of mining and reclamation plans incorporated into approved surface mining permits. Sediment control measures and the following best management practices (BMPs) are integral to protection of the hydrologic balance.

Roadway Conveyances. Conveyance structures (ditches) are constructed to route the 10-year, 24-hour storm event to sediment traps and along roads during mining. Ditch transitions and intersections are constructed to minimize erosion and sedimentation. Where conveyance crosses a road, culverts are sized to convey a 10-year, 24-hour storm event.

Maintenance of Conveyance Structures. Ditches and culverts are inspected periodically for blockages and erosion. Erosion and/or sedimentation that compromise the ability of the ditch to convey its design flow are addressed by reconstructing the ditch to its design geometry. Where ditch erosion occurs, more frequent trap maintenance to maintain design capacity may be required. Sediment accumulations in culverts will be removed as necessary to maintain design flow capacities.

Sediment Capture. Sediment traps are employed in low spots along the undisturbed topsoil edge to confine sediment to the disturbed area to the extent practicable. Sediment traps are not designed if the ultimate point of control is a designed sediment trap or sediment pond downstream.

Sediment Ponds. Sediment ponds or traps located at final discharge points are designed to detain runoff from a 10-year 24-hour event during active mining operations. Ponds or traps may be reduced in size to 2-year, 24-hour capacity during the reclamation phase, or they may be eliminated, with IEMB approval, when the contributing watershed is fully reclaimed and revegetated. Sediment traps may be reclaimed as small depressions for topographic, vegetative and wildlife habitat diversity per plans approved by IEMB. Sediment accumulations in sediment traps and ponds will be cleaned when sediment accumulation may interfere with detention of the 2-year or 10-year, 24-hour event, as appropriate.

Small Depressions. During reclamation, sediment traps and ponds may be converted to small depressions designed for vegetation diversity and wildlife habitat enhancement in addition to short-term sediment capture. Small depressions may also be established on an opportunistic basis within the reclaimed area for vegetation diversity and wildlife habitat enhancement in addition to short-term sediment control. Small depressions will meet the following criteria:

- Each depression on the interior of the reclaimed area will be one acre-foot or less in capacity;
- Each depression at the margin of the reclaimed area will be two acre feet or less in capacity;
- No depression will be deeper than three feet;
- Depressions will be soiled and revegetated; and
- Maximum slopes will be 5:1 on the uphill (inflow) side and 3:1 on the lateral and downhill (outflow) sides.

Recontouring. After mining, overburden spoil piles are regraded to a topography meeting the SMCRA requirement of approximate original contour to facilitate erosion control, revegetation and the post-mining land use.

Soil Redistribution. Soil salvaged prior to mining disturbance is redistributed on recontoured spoils to re-establish infiltration and runoff characteristics, and to promote revegetation establishment, similar to the pre-mining conditions, consequently promoting erosion and sediment control similar to pre-mining conditions.

Minimizing Potential for Erosion During Reclamation. Slope lengths are minimized by constructing complex topography. With the exception of agricultural areas, regraded landscapes are left in a roughened condition to minimize compaction. Coarse-textured substrates, including soils with high coarse-fragment content are used, particularly on sites with increased erosion potential, or where establishment of woody species is desired.

Soil Preparation on the Contour. Spoil scarification, soil placement, soil preparation and seeding are done on the contour provided the safety of equipment operators is not compromised.

Establishment of Vegetation. Seedbed preparation techniques that create a roughened surface to retard surface runoff and increase infiltration are used. Reclaimed vegetative cover must be similar to pre-mining vegetative cover. Permanent vegetation cover appropriate for the site typically is established by the end of the third growing season following initial seeding, although the reclaimed plant community will continue to develop. From a hydrologic perspective the objective is 75 percent cover, including litter, which defines "good" hydrologic condition for runoff and sediment modeling purposes.

Reclamation of Rills and Gullies. Rills and gullies developed post-reclamation are remediated on a site-specific basis if they adversely impact the establishment of vegetation, disrupt post-mine land use and/or cause or contribute to a violation of a water quality standard. Unless otherwise approved, any rill of gully greater than 30 inches in depth will be considered disruptive and will be remediated.

Establishment of Sediment Control Measures for Site-Specific Control. Sediment control measures such as contour scarification, straw dikes, rip-rap, check dams and erosion control products will be used when necessary to minimize erosion and sediment transport in areas requiring site-specific erosion control.

Summary and Conclusion
Modeling results indicate that the average annual sediment yields from the post-mining watersheds above outfalls covered by the SCP are less than or equal to the average annual sediment yield from their respective pre-mining watersheds. Sediment yield data demonstrate that the BMPs utilized by the permittee are successful at minimizing erosion and consequent sediment loads from the reclaimed mine-lands. Furthermore, the results demonstrate that upon completion of the reclamation activities and successful establishment of the revegetation community, sediment ponds are no longer the best practicable control technology available for minimizing sediment loads, and the sediment ponds should be removed and reclaimed if not approved as a permanent feature.

DEQ has concluded that the SCP has been submitted in accordance with the requirements of 40 CFR Part 434, and that the SCP meets all minimum requirements to demonstrate that average annual sediment yields will not be greater than sediment yield levels from pre-mined, undisturbed conditions. Therefore, DEQ approves the SCP consistent with Western Alkaline Standards requirements. Additionally, in accordance with Western Alkaline Standards, the permit requires that the approved SCP be incorporated into the permit as an effluent limit, and requires that the permittee design, implement, and maintain the BMPs in the manner specified in the SCP.

As outfalls defined in this permit are reclaimed, the approved SCP may be updated to incorporate the newly reclaimed outfalls. A revised SCP and revised watershed model must be submitted to and approved by DEQ before it becomes effective. Revisions to the SCP must meet all requirements contained at 40 CFR Part 434.82, and 100% of the drainage area to an outfall must meet the definition of "western alkaline reclamation, brushing and grubbing, topsoil stockpiling, and regraded areas" (as defined at 40 CFR 434.80) to be considered for coverage. DEQ's approval of an updated SCP and reclassification of an existing outfall to a Western Alkaline area will be considered a minor modification to the permit in accordance with ARM 17.30.1362(1)(f).

2. **Water Quality-based Effluent Limitations (WQBELs)**
Section 301(b) of the CWA and 40 CFR 122.44(d), which is incorporated into ARM 17.30.1344(2)(b) by reference, require that permits include limitations more stringent than limitations based on applicable technology-based standard where more stringent limitations are necessary to achieve applicable State WQS.

   a. **Scope and Authority**
   Section 303(c) of the CWA requires every state to develop WQS applicable to all water bodies or segments of water bodies within the state. Title 75, chapter 5, part 3

of the MWQA specifically requires the Board of Environmental Review to establish the classification of all state waters in accordance with their present and future most beneficial uses; to formulate and adopt standards of water quality, giving consideration to the economics of waste treatment and prevention; adopt rules implementing the State's nondegradation policy; and adopt rules governing mixing zones. Montana WQS include beneficial use classifications, numeric and narrative water quality standards, and a nondegradation policy and implementing regulations. The use classification system designates the beneficial uses that each water body within the State is expected to achieve; and the numeric and narrative water quality standards are the criteria deemed necessary by the State to support the beneficial use designation. The State's nondegradation policy ensures that existing beneficial uses are maintained and provides protection of high quality and outstanding resource waters. These components match the basic components of WQS—designated uses, water quality criteria, and an antidegradation policy—required by federal regulations at 40 CFR 131. The WQS applicable to the receiving waters for the discharges regulated by this permit establish a basis for WQBELs in the permit.

b. Applicable Beneficial Uses and Numeric and Narrative Standards

WQBELs are evaluated for all parameters of concern based on the WQS applicable to the receiving water at the point of discharge. All outfalls discharge into tributaries of Sarpy Creek, Middle Fork Sarpy Creek, and East Fork Sarpy Creek. At the point of discharge the hydrologic condition of the receiving water is ephemeral as that term is defined at ARM 17.30.602(10). Specific standards applicable to hydrologically ephemeral streams are detailed in item **i**, below.

Because of the short length of the ephemeral drainages, some discharges from outfalls may travel out of the ephemeral tributaries and into Sarpy Creek, Middle Fork Sarpy Creek and East Fork Sarpy Creek. These creeks are located within the Middle Yellowstone watershed, which belongs to the Lower Yellowstone-Sunday hydrologic unit (HUC 10100001) and falls under the C-3 Water-Use Classification for the Yellowstone River drainage from the Billings water supply intake to the North Dakota state line [ARM 17.30.611(1)(c)]. Beneficial uses of C-3 receiving waters include: bathing, swimming, and recreation; and growth and propagation of non-salmonid fishes and associated aquatic life, waterfowl, and furbearers. The quality of water is naturally marginally suitable for drinking, culinary and food processing purposes, agriculture, and industrial water supply. Specific standards applicable to C-3 waters are detailed in items **ii-iv**, below, and apply when discharges to hydrologically ephemeral receiving waters have the potential to reach intermittent reaches.

i. <u>Water Use Classification and Standards – All Outfalls</u>

All outfalls discharge into hydrologically ephemeral tributaries of Sarpy Creek, Middle Fork Sarpy Creek, and East Fork Sarpy Creek. ARM 17.30.637(4) is specific to ephemeral streams of all classes and prescribes the standards applicable to protect the uses of hydrologically ephemeral streams. Pursuant to ARM 17.30.637(4), the applicable water quality standards for hydrologically ephemeral streams include the minimum treatment requirements in ARM 17.30.1203; and the operation standards, sampling and analytical methods, and general prohibitions in

ARM 17.30.635 through 17.30.637, 17.30.640, 17.30.641, 17.30.645, and 17.30.646. The specific water quality standards for C-3 waters found in ARM 17.30.629(2) do not apply to ephemeral streams pursuant to ARM 17.30.637(4).

The general provisions of ARM 17.30.637(1) apply to all categories of state surface water. These provisions require that state waters must be free from substances which will: (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines; (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials; (c) produce odors, colors or other conditions as to which create a nuisance or render undesirable tastes to fish flesh or make fish inedible; (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; and (e) create conditions which produce undesirable aquatic life.

ii. **Water Use Classification and Standards – Sarpy Creek**

The Montana DEQ stream assessment record for Sarpy Creek indicates it is hydrologically intermittent (DEQ, 2014). The intermittent condition of Sarpy Creek is further supported by local monitoring data. The permittee maintains surface water monitoring stations both within and outside the mine permit boundary in support of surface mine permit No.C1985005. Results of monitoring activities are reported via Annual Hydrology Reports submitted to the DEQ IEMB. Continuous flow data collected at Sarpy Creek monitoring stations G-1 and G-12 and reported in the period of record generally indicate daily flow occurring during all but the driest late summer and fall months.

Due to an intermittent condition, the specific water quality standards identified in ARM 17.24.629(2) are applicable to Sarpy Creek. While there are no outfalls discharging directly to Sarpy Creek, discharges into tributaries of Sarpy Creek must be evaluated against applicable WQS if potential exists for discharges from the mine to reach Sarpy Creek.

iii. **Water Use Classification and Standards – Middle Fork Sarpy Creek**

Middle Fork Sarpy Creek is predominantly ephemeral; it flows only in response to precipitation or snowmelt events. While there is no Montana DEQ assessment record for this stream, continuous flow data collected at Middle Fork Sarpy Creek monitoring station G-10 during the period of record generally indicate a dry channel year-round with ephemeral flows occurring rarely and only after significant precipitation or snow melt. The majority of years reviewed record zero flow year-round.

However, just within the mine permit boundary in the SE ¼ of Section 5 and SW ¼ of Section 4 exists two short segments of Middle Fork Sarpy Creek that are wet for much of the year due to groundwater expression, meeting the definition of intermittent stream at ARM 17.30.602(13)(see Appendix III). Therefore, despite the overall ephemeral hydrologic condition of the stream, specific WQS identified in ARM 17.24.629(2) must be applied to protect these intermittent segments of Middle Fork Sarpy Creek. While there are no outfalls discharging directly into the aforementioned intermittent segments, discharges into upstream tributaries must be evaluated against applicable WQS if potential exists for discharges from the mine to reach intermittent stream segments.

iv. <u>Water Use Classification and Standards – East Fork Sarpy Creek</u>

There are no direct discharges to East Fork Sarpy Creek; all outfalls discharge into tributaries. At the point of discharge the hydrologic condition of the receiving waters is ephemeral.

The Montana DEQ stream assessment record for East Fork Sarpy Creek indicates a mixed hydrologic condition, with ephemeral upper and lower reaches and an intermittent middle reach occurring within the assessment unit (DEQ, 2014b). Flow data collected from the middle intermittent segment of East Fork Sarpy Creek at monitoring station G-8 during the period of record generally indicate daily flow occurring during all but the driest late summer and fall months.

East Coulee is a tributary to East Fork Sarpy Creek that is intermittent for much of its reach. Flow data collected at East Coulee monitoring station G-6 generally indicate daily flow occurring during all but the driest late summer and fall months.

As East Coulee and East Fork Sarpy Creek are hydrologically intermittent, the specific WQS identified in ARM 17.24.629(2) are applicable. Discharges into tributaries of East Coulee and East Fork Sarpy Creek must be evaluated against applicable water quality standards if potential exists for discharges from the mine to reach these streams.

c. Receiving Water Characteristics

Each water body classification in the Montana Surface Water Quality Standards and Procedures has associated numeric and narrative water quality standards designed to ensure that the beneficial uses associated with the classification are protected. Some numeric standards are dependent on characteristics of the receiving water such as pH, temperature, hardness, or presence of certain fish species or early life stages of fish.

Annual Hydrology Report data from the period of record were selected from the following stations to characterize recent receiving water upstream of mining activity.

- <u>Sarpy Creek</u>: Surface water monitoring station G-12 is equipped with a pressure transducer, which continuously records water levels. Flows are calculated with equations developed using stream cross sections at individual locations. Routine grab samples are collected if water is present.
- <u>East Fork Sarpy Creek</u>: Surface water monitoring station G-8 is equipped with a pressure transducer, which continuously records water levels. Flows are calculated with equations developed using stream cross sections at individual locations. Routine grab samples are collected if water is present.
- <u>Middle Fork Sarpy Creek</u>: Surface water monitoring station G-15 is equipped with a crest gauge, which records peak flow. Flows are calculated with equations developed using stream cross sections at individual locations. Routine grab samples are collected if water is present.

Spring 289 is located adjacent to Middle Fork Sarpy Creek and is likely the water source for much of the intermittent reach. Spring 289 is monitored periodically in support of the surface mining permit, with water quality samples collected and flow measured when water is available. The only recent monitoring occurred in 2013; therefore, Annual Hydrology Report monitoring data from 2004 and 2005 were included to create a data set characterizing water within Middle Fork Sarpy Creek wet reaches.

The characteristics of the Sarpy Creek, East Fork Sarpy Creek, and Middle Fork Sarpy Creek drainages used in determining specific numeric standards are shown in Table 11. A more complete summary of receiving water data is located in Appendix IV.

Table 11. Receiving Water Characteristics

Sarpy Creek	
Class of Receiving Water	C-3
Lower Bound Receiving Water Hardness Value (mg/L as CaCO3) (minimum and/or default is 25 mg/L, and maximum is 400 mg/L)	400
Lower Bound Receiving Water pH Value (default is 6.5 s.u.)	7.2
Upper Bound Receiving Water pH Value (default is 9.0 s.u.)	7.7
Upper Bound Receiving Water Temperature (°F) (default is 86°F)	78.8
East Fork Sarpy Creek	
Class of Receiving Water	C-3
Lower Bound Receiving Water Hardness Value (mg/L as CaCO3) (minimum and/or default is 25 mg/L, and maximum is 400 mg/L)	400
Lower Bound Receiving Water pH Value (default is 6.5 s.u.)	8.2
Upper Bound Receiving Water pH Value (default is 9.0 s.u.)	8.4
Upper Bound Receiving Water Temperature (°F) (default is 86°F)	73.4
Middle Fork Sarpy Creek	
Class of Receiving Water	C-3
Lower Bound Receiving Water Hardness Value (mg/L as CaCO3) (minimum and/or default is 25 mg/L, and maximum is 400 mg/L)	400
Lower Bound Receiving Water pH Value (default is 6.5 s.u.)	7.6
Upper Bound Receiving Water pH Value (default is 9.0 s.u.)	8.1
Upper Bound Receiving Water Temperature (°F) (default is 86°F)	85.5
Middle Fork Sarpy Creek (Wet Reach)	
Class of Receiving Water	C-3
Lower Bound Receiving Water Hardness Value (mg/L as CaCO3) (minimum and/or default is 25 mg/L, and maximum is 400 mg/L)	400
Lower Bound Receiving Water pH Value (default is 6.5 s.u.)	7.6
Upper Bound Receiving Water pH Value (default is 9.0 s.u.)	7.6
Upper Bound Receiving Water Temperature (°F) (default is 86°F)	81

i. **Impaired Waters**

The MWQA at 75-5-702, MCA, requires that DEQ monitor state waters and assess the quality of those waters to identify surface water bodies or segments of water bodies whose designated uses are threatened or impaired. Section 75-5-703, MCA requires that DEQ complete a total maximum daily load (TMDL) for those water bodies that are identified as threatened or impaired. These requirements satisfy sections 303(d) and 305(b) of the CWA.

The direct receiving waters for discharges from the facility (ephemeral tributary to Sarpy Creek, ephemeral tributaries to East Fork Sarpy Creek, and ephemeral tributaries to Middle Fork Sarpy Creek) are not listed as impaired waters on the State of Montana 2014 Integrated 303(d) List and 305(b) Water Quality Report.

The State of Montana 2014 Integrated 303(d) List and 305(b) Water Quality Report lists the segment of Sarpy Creek from the Crow Reservation boundary to the mouth at the Yellowstone River as a Category 5 stream, indicating that one or more beneficial uses has been assessed as being impaired or threatened. This segment of Sarpy Creek is listed as not supportive of aquatic life and warm water fisheries, and a TMDL is required to address the factors causing the impairment or threat. The probable cause of impairment is nutrients (nitrite plus nitrate as N, nitrogen, and phosphorous). Probable sources of impairment are grazing in riparian or shoreline zones and non-irrigated crop production. The mine is not a significant source of nutrients; if a TMDL is adopted and approved for nutrients, this permit may be re-opened to include effluent limitations based any appropriate wasteload allocations (WLAs) for nutrients.

The State of Montana 2014 Integrated 303(d) List and 305(b) Water Quality Report lists East Fork Sarpy Creek as a Category 1 stream, indicating that beneficial uses have been assessed and determined to be fully supported. Middle Fork Sarpy Creek is not included in the 2014 or prior Integrated 303(d) List and 305(b) Water Quality Report.

d. **Pollutants and Parameters of Concern**

WQBELs are only assessed to control pollutants or parameters of concern (POC) that may cause or have reasonable potential to cause exceedances of WQS based on the effluent characteristics and the water quality objectives for the affected receiving water(s). POC for the facility include total iron, total suspended solids, settleable solids, and pH. These pollutants and parameters are identified as POC because they are regulated under the applicable ELGs for coal mines found at 40 CFR Part 434. Thus, the MPDES permit for the facility must include TBELs for these pollutants and parameters and they should be evaluated to determine the need for WQBELs. In addition, POC include total dissolved solids (TDS) and nutrients (nitrogen, phosphorus, and nitrate + nitrite as nitrogen). TDS is included as a POC because high solute concentrations can affect beneficial uses of the receiving water. Nutrients are included as they are identified as potential sources of impairment of Sarpy Creek. Lastly chloride, aluminum, arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, and zinc are added as POC because these pollutants have numeric water quality criteria in Circular DEQ-7, are commonly associated with mining activity, and non-effluent data provided with the application indicate these pollutants may be present in discharges at the mine.

e. Nondegradation

The MWQA includes a nondegradation policy at 75-5-303, MCA which protects existing water quality from undue degradation. This policy applies to any new or increased activity which results in a change in existing water quality. The MWQA states that it is unlawful to cause degradation of state waters unless authorized by DEQ pursuant to ARM 17.30.706-708. The regulations at ARM 17.30.701-718 implement the state's nondegradation policy.

i. Determination – New or Increased Source

Discharges at Outfalls 013 through 027 have not been previously permitted and are therefore determined to constitute new or increased sources for the purpose of nondegradation review as defined at ARM 17.30.702(18). Though the terms are similar, designation of a new or increased source is unrelated to the "new source coal mine" determination made for the purpose of ELG selection (see Section II.A.1.b, page 10). DEQ has therefore included discharges from Outfalls 013 through 027 in its nondegradation review. Discharges from Outfalls 001 through 012 are existing discharges and not new or increased sources as defined at ARM 17.30.702(18), and are not subject to the nondegradation review.

ii. Protection of Existing Uses (Tier 1)

ARM 17.30.705(2)(a) requires that, for all state waters, existing and anticipated uses and the water quality necessary to protect those uses must be maintained. In practice, application of this regulation means that the effluent limitations in an MPDES permit for a new or expanding discharge, just as the permit for any new point source discharge, must be derived from and comply with all numeric and narrative standards associated with the existing and anticipated beneficial uses of the receiving water. The effluent limitations applied to new or expanding discharges in this permit (i.e., Outfalls 013 through 027) are derived from and comply with the State's WQS and, therefore, ensure the level of water quality necessary to attain and maintain existing and anticipated uses.

iii. Protection of High Quality Waters (Tier 2)

High quality waters, as defined in 75-5-103(10) and ARM 17.30.702(8) includes all state surface waters, excluding parameters that exceed standards and surface waters that have zero flow or surface expression for more than 270 days during most years.

The receiving waters for the discharges from all outfalls are ephemeral tributaries, which are not high quality waters as defined at MCA 75-5-103. Though Middle Fork Sarpy Creek contains two short wet segments, the stream assessment unit is predominantly ephemeral and does not flow as a unit for more than 270 days during most years. Therefore, the criteria of ARM 17.30.715 do not apply.

iv. Protection of Outstanding Resource Waters (Tier 3)

ARM 17.30.705(2)(c) requires that, for outstanding resource waters, no degradation and no permanent change in the quality of outstanding resources waters resulting from a new or increased point source discharge are allowed. Receiving waters for the discharges from the facility have not been designated as outstanding resources waters and therefore this regulation is not applicable.

f. Mixing Zones

75-5-301(4) MCA required DEQ to adopt rules governing the granting of mixing zones. DEQ adopted such regulations and codified them at ARM 17.30, Subchapter 5.

A mixing zone is defined by the regulations as a limited area of a water body where initial dilution of a discharge takes place, where water quality changes may occur, and where certain numeric water quality standards may be exceeded [ARM 17.30.502(6)]. Acute numeric WQS may <u>not</u> be exceeded, even within 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)].

Mixing zones are granted by DEQ only where they are *needed* (where the discharger cannot meet the applicable numeric WQS at the point of discharge) and where they are *appropriate* (based on the criteria specified in the regulations).

The permittee did not submit a request for an acute, chronic, or human health mixing zone with its MPDES permit renewal application. Furthermore, the critical low flows for the receiving waters are zero and would provide no water for a mixing zone and dilution for the permittee's discharges. Therefore, no mixing zones are authorized by the permit.

g. Determining the Need for WQBELs

EPA regulations at 40 CFR 122.44(d), which are incorporated into ARM 17.30.1344 by reference, require that all discharges be assessed by DEQ to determine the need for WQBELs in the permit. Specifically, 40 CFR 122.44(d)(1)(i) states, "Limitations must be established in permits to control all pollutants or pollutant parameters that are or may be discharged at a level that will cause, have the *reasonable potential* to cause, or contribute to an excursion above any state water quality standard (emphasis added by DEQ)." Often, this regulation is referred to as the "reasonable potential" regulation and the process that DEQ uses to determine whether a WQBEL is required is called a "reasonable potential analysis" (RPA). Thus, an RPA may be used to determine whether a discharge, alone or in combination with other sources of pollutants to a water body and under some set of conditions arrived at by making a series of reasonable assumptions, could lead to an excursion above an applicable water quality standard or applicable level of nondegradation policy protection.

Outfalls 001, 002, and 023-026

Outfalls 001, 002, and 023-026 discharge to receiving waters that hydrologically meet the definition of ephemeral [ARM 17.30.602(10)]; discharges from these outfalls are unlikely to encounter any intermittent or perennial downstream waters. Sarpy Creek is located approximately 2.4 river miles downstream of Outfall 001. At this distance, it is unlikely that periodic discharges from Outfall 001 to an ephemeral tributary will be of sufficient volume to reach Sarpy Creek. Outfalls 002, 023, 024, and 026 discharge to ephemeral tributaries that join Middle Fork Sarpy Creek downstream of any intermittent segments.

ARM 17.30.637(4) is specific to ephemeral streams of all classes and prescribes the standards applicable to protect the uses of hydrologically ephemeral streams. Pursuant to ARM 17.30.637(4), the applicable water quality standards for hydrologically ephemeral streams include the prohibitions and treatment requirements in ARM 17.30.637. The specific water quality standards for C-3 waters found in ARM 17.30.629 do not apply to ephemeral streams pursuant to ARM 17.30.637(4). Therefore, evaluation of reasonable potential to exceed numeric standards in Circulars DEQ-7 and DEQ-12A, as adopted by ARM 17.30.629, is unnecessary.

Outfalls 006-012, 020, 021, and 027
Outfalls 006-012, 020, 021, and 027 are associated with reclaimed post-mining drainages or soil stockpile areas; therefore, Western Alkaline Standards at 40 CFR 434.81 are applicable. Western Alkaline Standards require implementation of an approved Sediment Control Plan (SCP) designed to limit sediment discharge during various stages of reclamation, including the ultimate removal and reclamation of the treatment structure (See section II.A.1.c.iv at page 12). Sediment is the primary pollutant of concern for reclaimed drainages. The permittee must implement and maintain best management practices (BMPs) sufficient to limit sediment discharges at or below pre-mine levels (40 CFR 434.82). Therefore, evaluation of reasonable potential to exceed numeric standards in Circulars DEQ-7 and DEQ-12A, as adopted by ARM 17.30.629, is unnecessary for Western Alkaline outfalls.

Outfalls 013-018
Outfalls 013 through 018 discharge directly to ephemeral tributaries to Middle Fork Sarpy Creek and are located upstream of identified intermittent segments. The specific WQS for C-3 waters found in ARM 17.30.629(2) do not apply to ephemeral streams pursuant to ARM 17.30.637(4). However, effluent discharged from outfalls located upstream of the Middle Fork Sarpy Creek intermittent segments has potential to reach these segments. Therefore, DEQ concludes that the specific WQS of ARM 17.30.629(2) apply to discharges from Outfalls 013 through 018. An RPA will be conducted to determine whether discharges from these outfalls have reasonable potential to exceed numeric standards in Circulars DEQ-7 and DEQ-12A, as adopted by ARM 17.30.629.

Reasonable Potential Analysis
Effluent monitoring data, summarized by the permittee in Annual Hydrology Reports, were used in the RPA. Effluent monitoring data collected from discharges during the period of January 2010 through September 2014 were used to evaluate reasonable potential for discharges to cause or contribute to an excursion above water quality standards. The most recent five years of data were selected as they are most representative of current conditions at the facility. Discharge effluent data for all outfalls (excluding Outfall 001) were combined, using data from all outfalls where discharges occurred. This is based on an assumption that the effluent quality of these

discharges is representative of effluent quality of Outfalls 013 through 021 as described above in Section I.B.1 (page 5). RPA methods are detailed in Appendix V.

Table 12 presents a summary of the RPA. The only pollutant of concern with numeric water quality criteria and recent effluent data is total iron. Reasonable potential to exceed numeric water quality criteria was determined for total iron. Therefore, a WQBEL will be calculated for iron and compared to previous permit limits and/or TBELs with the most stringent limitations retained. For those pollutants without recent effluent data, additional monitoring will be required at a resolution capable of determining reasonable potential for future permit renewal.

Table 12. RPA Summary: Outfalls 013-021

Parameter	Units	Lowest Applicable Numeric Standard (C)	Projected Maximum Effluent Concentration (C_d)	Projected Receiving Water Concentration(1) (C_r)	RPA Result – Need Limit?	Reason
Iron, total	mg/L	1	52.4(2)	52.4	Yes	C_r>C

Footnotes:
(1) Because receiving water is an intermittent segment, critical low flow is zero and there is no available dilution (D=0). Therefore $C_r = C_d$.
(2) The maximum concentration of iron measured in effluent data is 13.8 mg/L. With six total samples and a coefficient of variation of 0.6, the corresponding multiplier is 3.8.

Whole Effluent Toxicity

DEQ interprets the prohibition against discharges that will create concentrations or combinations of materials which are toxic or harmful to human, animal, plant, or aquatic life in terms of acute and chronic whole effluent toxicity (WET) as follows:

- Acute toxicity occurs when, during an acute toxicity test, 50 percent mortality is observed for any tested species at any effluent concentration (i.e., LC50 < 100% effluent)
- Chronic toxicity occurs when, during a chronic toxicity test, the 25% inhibition concentration (IC25) for any tested species is less than or equal to the percent effluent represented by the effluent concentration in the receiving water after accounting for any allowable mixing zone.

DEQ determines the need for WET limitations by directly comparing WET testing data submitted in a permit application or as a result of monitoring requirements in the previous permit) to these definitions of acute and chronic effluent toxicity.

The existing permit contains no requirement for WET testing; therefore, no acute WET tests have been conducted by the permittee to facilitate a reasonable potential analysis. WET testing is required by this permit.

h. WQBEL Calculations

Reasonable potential to exceed numeric WQS was recognized for total iron. As the critical low flow condition for the receiving waters is 0 cfs, instream dilution of pollutant concentrations is not available and no mixing zone is allowed. Therefore, the WQBEL for total iron has been set as an "end of pipe" limit based on numeric WQS contained in Circular DEQ-7. For iron, a chronic WQS of 1.0 mg/L is applicable; this translates into an average monthly effluent limitation (AML) of 1.0 mg/L. Circular DEQ-7 does not contain an acute WQS for total iron; therefore, there is no corresponding maximum daily effluent limitation (MDL).

i. Final WQBELs

WQBELs were determined for total iron, a pollutant that demonstrated reasonable potential to exceed numeric WQS. WQBEL calculation generated an AML of 1.0 mg/L based on applicable chronic WQS; this is more protective than the corresponding TBEL of 3.0 mg/L and therefore will be incorporated as a permit limit for applicable outfalls. Because there is no acute WQBEL for iron from which to assign a MDL, the corresponding TBEL of 6.0 mg/L is retained.

Final WQBELs are assigned only to outfalls discharging upstream of identified intermittent segments of Middle Fork Sarpy Creek (Outfalls 013 through 018). Outfalls discharging into ephemeral receiving waters are not subject to WQBELs [ARM 17.30.637(4)].

Effluent limitations for oil and grease are made more stringent than limitations contained in the previous permit and are based on ARM 17.30.637(1)(b). Narrative WQBELs are retained from the previous permit.

3. Final Effluent Limitations

Section 402(o) of the CWA and section 122.44(l) require that effluent limitations or conditions in reissued permits be at least as stringent as those in the existing permit, with certain exceptions.

a. Satisfaction of Anti-backsliding Analysis

All effluent limitations in this permit are at least as stringent as the effluent limitations in the previous permit.

b. Stringency of Requirements for Individual Pollutants

This permit contains both TBELs and WQBELs for individual pollutants. TBELs consist of restrictions on iron, total suspended solids, settleable solids, and pH, and are discussed in section II.A.1 of this fact sheet. This permit's technology-based pollutant restrictions implement the minimum applicable federal technology-based requirements.

In addition, this permit contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. WQBELs are established in the permit for total iron and are applicable only to Outfalls 013 through 018. The calculated WQBEL for total iron (an AML of 1.0 mg/L) is more stringent than the TBELs for total iron (an AML of 3.0 mg/L) for new sources and is therefore established in the permit as a final effluent limitation for total iron.

WQBELs for oil and grease are made more stringent than those contained in the previous permit, and are based on ARM 17.30.637(1)(b). Narrative WQBELs are retained from the previous permit. Final effluent limitations for discharges at all outfalls are summarized in Tables 13 through 16.

Table 13. Summary of Final Effluent Limitations – Outfalls 001 and 002

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Total Suspended Solids (TSS)	mg/L	35	70	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434
Iron, Total	mg/L	3.5	7.0	40 CFR 434
Oil and Grease	mg/L	--	10	ARM 17.30.637(1)(b)

Table 14. Summary of Final Effluent Limitations – Outfalls 023, 024, and 026

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Total Suspended Solids (TSS)	mg/L	35	70	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434
Iron, Total	mg/L	3.0	6.0	40 CFR 434
Oil and Grease	mg/L	--	10	ARM 17.30.637(1)(b)

Table 15. Summary of Final Effluent Limitations – Outfalls 013, 015, 016, 017, and 018

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Total Suspended Solids (TSS)	mg/L	35	70	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434
Iron, Total	mg/L	1.0	6.0	Nondegradation
Oil and Grease	mg/L	--	10	ARM 17.30.637(1)(b)

Table 16. Summary of Final Effluent Limitations – Outfalls 006, 007, 008, 009, 011, 012, 020, 021, and 027

Parameter	Units	Effluent Limitations	Basis
Average Annual Sediment Yield	Tons/acre/year	Implementation of Approved Sediment Control Plan	40 CFR 434

Narrative Effluent Limitations (All Outfalls):

i. There shall be no discharge from any outfall that reacts or settles to form an objectionable sludge deposit or emulsion beneath the surface of the receiving water or upon adjoining shorelines.
ii. There shall be no discharge from any outfall of floating solids or visible foam in other than trace amounts.
iii. There shall be no discharge from any outfall that causes visible oil sheen in the receiving stream.
iv. There shall be no discharge from any outfall that creates conditions that produce undesirable aquatic life; and
v. There shall be no discharge from any outfall that creates concentrations or combinations of materials which are toxic or harmful to human, animal, plant, or aquatic life.

Alternate, final effluent limitations applicable to precipitation-driven discharge events which are due to a pond overflow are summarized in Tables 17 and 18, and may be applied instead of otherwise applicable effluent limitations. The permittee has the burden of proof that the discharge was a result of a precipitation-driven pond overflow, and that the alternate limitations presented here are applicable. Only maximum daily (and not average monthly) WQBELs are applicable to discharges due to precipitation events because these discharges are likely intermittent and infrequent in nature. Alternate effluent limitations are not applicable to Western Alkaline Standards outfalls.

Table 17. Summary of Alternate Final Effluent Limitations for Precipitation Events – Outfalls 001, 002, 023, 024, and 026

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Settleable Solids[(1)]	ml/L	--	0.5	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434
Oil and Grease	mg/L	--	10	ARM 17.30.637(1)(b)

Footnotes:
(1) Effluent limitations apply to discharges or increases in the volume of discharges caused by precipitation within any 24 hour period less than or equal to the 10-yr, 24-hr precipitation event (or snowmelt of equivalent volume).

Table 18. Summary of Alternate Final Effluent Limitations for Precipitation Events – Outfalls 013, 015, 016, 017, and 018

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Settleable Solids[(1)]	ml/L	--	0.5	40 CFR 434
pH	s.u.	Between 6.0 and 9.0 at all times		40 CFR 434
Iron, Total	mg/L	--	6.0	Nondegradation

Parameter	Units	Effluent Limitations		Basis
		Average Monthly	Maximum Daily	
Oil and Grease	mg/L	--	10	ARM 17.30.637(1)(b)

Footnotes:
(1) Effluent limitations apply to discharges or increases in the volume of discharges caused by precipitation within any 24 hour period less than or equal to the 10-yr, 24-hr precipitation event (or snowmelt of equivalent volume).

B. Rationale for Monitoring and Reporting 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. Section I.C of the permit, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements for this facility.

1. Monitoring Locations and Frequency

All monitoring shall be conducted at the overflow structure where effluent discharges as overflow from the sediment control structure, or at the end of the discharge pipe when pumped or drained, and prior to contact with the receiving water. Monitoring requirements for discharges not caused by precipitation events are summarized in Table 19.

Table 19. Summary of Monitoring Requirements – Non-precipitation Driven Discharges

Parameter	Units	Monitoring Frequency	Basis
Flow	gpm	1/Day	Previous permit
Total Volume Discharged	Acre feet	1/Discharge	Effluent characterization
Total Suspended Solids (TSS)	mg/L	1/Month	Effluent limitations compliance
Total Dissolved Solids (TDS)	mg/L	1/Month	Effluent limitations compliance
pH	s.u.	1/Month	Effluent limitations compliance
Oil and Grease	mg/L	1/Month	Effluent limitations compliance
Aluminum, dissolved	µg/L	1/Month	Effluent characterization
Arsenic, total	µg/L	1/Month	Effluent characterization
Cadmium, total	µg/L	1/Month	Effluent characterization
Chloride	mg/L	1/Month	Effluent characterization
Chromium, total	µg/L	1/Month	Effluent characterization
Copper, total	µg/L	1/Month	Effluent characterization
Iron, total	mg/L	1/Month	Effluent limitations compliance
Lead, total	µg/L	1/Month	Effluent characterization
Nickel, total	µg/L	1/Month	Effluent characterization
Nitrate + Nitrite (as N)	mg/L	1/Month	Effluent characterization
Nitrogen, total	mg/L	1/Month	Effluent characterization
Phosphorus, total	mg/L	1/Month	Effluent characterization
Selenium, total	µg/L	1/Month	Effluent characterization
Zinc, total	µg/L	1/Month	Effluent characterization

Parameter	Units	Monitoring Frequency	Basis
Whole Effluent Toxicity, Acute[1]	% Effluent	1/Year	Effluent characterization

Footnotes:
1. Applicable only to outfalls associated with coal preparation plants and coal preparation plant associated areas (Outfall 001). Upon the detection of acute toxicity in the effluent at one of the routine monitor locations where accelerated monitoring is triggered, monitoring for acute toxicity at all outfalls at their respective monitoring locations shall occur for 12 months.

a. Effluent monitoring requirements for flow, pH, TSS, settleable solids, total iron, oil and grease, and TDS are retained from the previous permit. A monitoring requirement for total volume of effluent discharged has been added and is applicable to non-precipitation driven (pumped) discharges only. This addition is necessary to better estimate the daily discharge (volume) as defined in ARM 17.30.1304(18). Monitoring requirements are added for identified pollutants of concern for which reasonable potential could not be analyzed due to lack of effluent data. These pollutants include nitrogen, phosphorus, nitrate + nitrite as nitrogen, chloride, aluminum, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc. Pollutants will be monitored at a rate of once per month to better characterize effluent quality.

   Annual monitoring requirements for acute whole effluent toxicity (WET) are added by this permit. WET monitoring is required only at those outfalls receiving runoff from areas categorized as "coal preparation plants and coal preparation plant associated areas" as defined by 40 CFR 424.11. Acute WET testing is necessary for characterization of the effluent and for future RPA [ARM 17.30.637(1)(d)]. Monitoring for chronic toxicity is not required because the discharges from the facility are intermittent and sporadic and are unlikely to result on chronic impacts on the beneficial uses of the receiving waters. If acute toxicity is detected during routine monitoring at one of these monitoring locations, accelerated monitoring is triggered.

b. Alternate monitoring requirements for discharges caused by precipitation events are summarized in Table 20. The permittee is required to monitor precipitation in the Sarpy Creek, Middle Fork Sarpy Creek, and East Fork Sarpy Creek drainage basins, as described below, to generate evidence for proof that any discharge was a result of a precipitation event, and that these alternate monitoring requirements are applicable. A monitoring requirement for total settleable solids replaces total suspended solids; otherwise, the parameter set is identical to Table 19. The monitoring frequency for precipitation-driven discharges is once per discharge for all parameters except whole effluent toxicity, which is monitored annually.

Table 20. Summary of Monitoring Requirements –Precipitation Driven Discharges

Parameter	Units	Monitoring Frequency	Basis
Flow	gpm	1/Discharge	Previous permit
Total Settleable Solids (SS)[1]	mg/L	1/Discharge	Effluent limitations compliance
Total Dissolved Solids (TDS)	mg/L	1/Discharge	Effluent limitations compliance
pH	s.u.	1/Discharge	Effluent limitations compliance

Parameter	Units	Monitoring Frequency	Basis
Oil and Grease	mg/L	1/Discharge	Effluent limitations compliance
Aluminum, dissolved	μg/L	1/Discharge	Effluent characterization
Arsenic, total	μg/L	1/Discharge	Effluent characterization
Cadmium, total	μg/L	1/Discharge	Effluent characterization
Chloride	mg/L	1/Discharge	Effluent characterization
Chromium, total	μg/L	1/Discharge	Effluent characterization
Copper, total	μg/L	1/Discharge	Effluent characterization
Iron, total	mg/L	1/Discharge	Effluent limitations compliance and Effluent characterization
Lead, total	μg/L	1/Discharge	Effluent characterization
Nickel, total	μg/L	1/Discharge	Effluent characterization
Nitrate + Nitrite (as N)	mg/L	1/Discharge	Effluent characterization
Nitrogen, total	mg/L	1/Discharge	Effluent characterization
Phosphorus, total	mg/L	1/Discharge	Effluent characterization
Selenium, total	μg/L	1/Discharge	Effluent characterization
Zinc, total	μg/L	1/Discharge	Effluent characterization
Whole Effluent Toxicity, Acute(2)	% Effluent	1/Year	Effluent characterization

Footnotes:

(1) Monitoring requirement apples to discharges or increases in the volume of discharges caused by precipitation within any 24 hour period less than or equal to the 10-yr, 24-hr precipitation event (or snowmelt of equivalent volume).

(2) Applicable only to outfalls associated with coal preparation plants and coal preparation plant associated areas (Outfall 001). Upon the detection of acute toxicity in the effluent at one of the routine monitor locations where accelerated monitoring is triggered, monitoring for acute toxicity at all outfalls at their respective monitoring locations shall occur for 12 months.

2. Other Monitoring Requirements

a. Whole Effluent Toxicity Testing. Whole effluent toxicity testing as specified in the permit is required to assess any negative effects caused by aggregate toxic effects of pollutants in the discharge. Frequency of monitoring for acute toxicity is once per year at outfalls associated with coal preparation plants or coal preparation plant associated areas (Outfall 001). Testing for acute toxicity must use two test species. If acute toxicity is detected, the permittee is required to conduct accelerated testing until further notified by DEQ. If acute toxicity is detected, the permit may be re-opened to include an effluent limitation for acute toxicity. Monitoring for chronic toxicity is not required because the discharges are intermittent, infrequent, and not continuous. Therefore, chronic effects from the discharges are not anticipated. If discharges become continuous in the future, the permit may be reopened to include chronic toxicity monitoring requirements.

b. Precipitation Monitoring. The permittee is required to monitor and report precipitation in the Sarpy Creek, Middle Fork Sarpy Creek, and East Fork Sarpy Creek drainage basins, using a precipitation gauge that meets the standards provided in National Weather Service's Instructional Bulletin 10-1302 (October 4, 2005), *Instrument Requirements and Standards for the NWS Surface Observing Programs (Land)*, which are provided in Table 21. Precipitation monitoring is required to provide evidence that a precipitation event resulted in a discharge, and that alternate limitations and monitoring requirements apply.

Table 21. Precipitation Gauge Performance Standards

Parameter	Accuracy	Range	Resolution
Liquid Precipitation Accumulated Amount	±0.02 inches or 4 percent of hourly amount (whichever is greater)	0-10"/Hour	0.01 inches
Snow Depth	0 to 5 inches: ±0.5 inches, >5 to 99 inches: ±1.0 inch	0 to 99 inches (auto)	1 inch
Freezing Precipitation	Detection occurs whenever 0.01 inch accumulates	0 to 40 inches	0.01 inches
Frozen precipitation (water equivalent)	±0.04 inches or 1 percent of total accumulation	0 to 40 inches	0.01 inches

c. Flow Measurement and Sampling Units. The permit requires the permittee to install and use automated flow measurement and sample collection equipment at each outfall. This requirement is necessary because precipitation events are often localized, high intensity, short duration thunderstorms, and watersheds often cover large, isolated areas. Likewise, weather conditions may prevent access to outfalls for monitoring whether an overflow discharge occurred or for discharge sampling.

In response to a June 23, 2013, violation, the permittee submitted a plan for installation of automated equipment. Flow monitoring is conducted utilizing a USGS style of crest gage. The gage is installed in the selected section of the channel. The USGS crest gage uses fine cork to mark a reference staff located inside the gage. During a flow event the cork floats inside the unit on the water surface and becomes entrained on the reference staff. The distance between the reference level and the highest cork entrainment represents the highest level of water passing the gage. The discharge channel has been surveyed and a ratings curve developed to establish a peak flow volume passing the crest gage. The gage will be checked at the frequency required in the permit with the depth of discharge noted. Conversion of depth of flow into volume of flow will be completed using the established ratings curve.

To ensure collection of effluent discharge from the impoundments, a passive crest sampler is installed in the constructed channel floor. Passive crest samplers are housed below grade in the overflow channels to intercept the first flows discharged from the impoundments. A mounting container is used to prevent floating of the samplers and provide protection from excessive flow events. The passive samplers are configured with an inlet check valve so when the container is full the container is sealed to prevent additional inflow. Sample volumes can be one to two liters depending on sample analysis needs. Multiple samplers and/or oversized bottles may be needed if an expanded parameter list or WET testing is required.

Procedurally, the day after a storm event, or when the site is accessible, personnel will retrieve the crest sampler and prepare aliquots for analysis. The initial aliquot will be used to measure pH of the sample. Subsequent aliquots will be collected and preserved based on the parameter in question. To validate the appropriateness of analysis of pH from the passive sampler, a verification pH sample will also be measured in the impoundment from which water overflowed.

2. **Reporting Requirements**
The permittee must comply with reporting requirements as specified in ARM 17.30.1342. If multiple monitoring periods occur during the reporting period the permittee must report the highest calculated or measured value that conforms to the numeric effluent in the permit, except for parameters reported as minimum values. For parameters specified as minimum on the Discharge Monitoring Report, the permittee must report the lowest calculated or measured value.

C. Rationale for Special Conditions

1. **Additional Monitoring and Special Studies**
TIE/TRE. A Toxicity Identification Evaluation/Toxicity Reduction Evaluation (TIE/TRE) is required by the permit upon detection of acute or chronic toxicity during any accelerated testing. This provision is required to establish the cause of continued toxicity in the effluent and subsequently develop control or treatment for the toxicity.

2. **Best Management Practices and Pollution Prevention**
Best management practices will be implemented as described in the approved Sediment Control Plan.

3. **Reopener Provisions**
These provisions are based on 40 CFR Part 123 and the previous permit. DEQ may reopen the permit to modify permit conditions and requirements. Causes for modifications include the promulgation of new federal regulations, modification in toxicity requirements, adoption of a TMDL, or adoption of new regulations by DEQ.

4. **Storm Water Management**
See Sediment Control Plan discussion in Section II.A.1.C.iv (page 12), above.

D. Rationale for Standard Conditions

Standard Conditions, which apply to all MPDES permits in accordance with ARM 17.30.1342 and additional conditions applicable to specified categories of permits in accordance with ARM 17.30.1343, are included in Section III of this permit. The permittee must comply with all standard conditions under ARM 17.30.1342 and the additional conditions that are applicable to the permittee under ARM 17.30.1343.

40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this permit omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the

enforcement authority under the ARM is more stringent. In lieu of these conditions, this permit incorporates by reference 75-5-633, MCA.

E. Nonsignificant Determination

DEQ has determined that Outfalls 013 through 027 constitute new or increased sources; accordingly, the discharge is subject to Montana Nondegradation Policy (75-5-303, MCA; ARM 17.30.705). Effluent limitations prescribed by the permit and discussed in the fact sheet are intended to ensure that water quality standards are met at the point of discharge and that mine effluent will not impair receiving waters. These effluent limitations ensure the level of water quality necessary to attain and maintain existing and anticipated uses.

III. REFERENCES

Administrative Rules of Montana Title 17 Chapter 30 - Water Quality
- Subchapter 2 – Permit Application, Degradation Authorization, and Annual Fees.
- Subchapter 5 – Mixing Zones in Surface and Ground Water.
- Subchapter 6 – Surface Water Quality Standards and Procedures.
- Subchapter 7 – Nondegradation of Water Quality.
- Subchapter 12 – MPDES-Effluent Limitations and Standards, Standards of Performance, and Treatment Requirements.
- Subchapter 13 – MPDES Permits

Montana Code Annotated (MCA), Title 75-5-101, et seq., "Montana Water Quality Act".

Montana Department of Environmental Quality (DEQ), 2012. *Circular DEQ-7, Montana Numeric Water Quality Standards.* Prepared By: Water Quality Planning Bureau, Water Quality Standards Section. October 2012.

Montana Department of Environmental Quality (DEQ), 2014a. *Montana 2014 Final Water Quality Integrated Report.* May 2014.

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Montana Department of Environmental Quality (DEQ), 2014c. *Water Quality Standards Attainment Record, Assessment Record: MT42K002_100* (East Fork Sarpy Creek). 2014 Reporting Cycle.

Montana Department of Environmental Quality (DEQ), 2014d. *Department Circular DEQ-12A, Montana Base Numeric Nutrient Standards.* July 2014 Edition.

United States Code of Federal Regulations, 40 CFR Parts 122-125, 130-133, 136, and 434.

United States Environmental Protection Agency (US EPA), 1991. *US EPA Technical Support Document for Water Quality-Based Toxics Control*, EPA/505/2-30-001, March 1991.

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Westmoreland Resources, Inc. (WRI). 2005. *Westmoreland Resources, Inc. Absaloka Mine Surface and Groundwater Monitoring Annual Report 2004-2005 Monitoring Year.* Prepared by: Hydrometrics, Inc. (Billings, MT). Submitted December 15, 2005. Available at the Montana DEQ Industrial Energy and Minerals Bureau, Helena, Montana.

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Hydrometrics, Inc. (Billings, MT). Submitted December 15, 2011. Available at the Montana DEQ Industrial Energy and Minerals Bureau, Helena, Montana.

Westmoreland Resources, Inc. (WRI). 2012a. *Drainage Control Hydrology and Sedimentology Report Proposed West Side Revision Absaloka Mine South Extension – Final. February 2012.* Prepared by Hydrometrics, Inc. (Bozeman, MT). Available at the Montana DEQ Water Protection Bureau, Helena, Montana.

Westmoreland Resources, Inc. (WRI). 2012b. *Westmoreland Absaloka Mine Sediment Control Plan for Reclaimed Watersheds Draining to the East Fork of Sarpy Creek. March 2012.* Prepared by Hydrometrics, Inc. (Bozeman, MT). Available at the Montana DEQ Water Protection Bureau, Helena, Montana.

Westmoreland Resources, Inc. (WRI). 2012c. *Westmoreland Resources, Inc. Absaloka Mine Surface and Groundwater Monitoring Annual Report 2011-2012 Monitoring Year.* Prepared by: Hydrometrics, Inc. (Billings, MT). Submitted December 14, 2012. Available at the Montana DEQ Industrial Energy and Minerals Bureau, Helena, Montana.

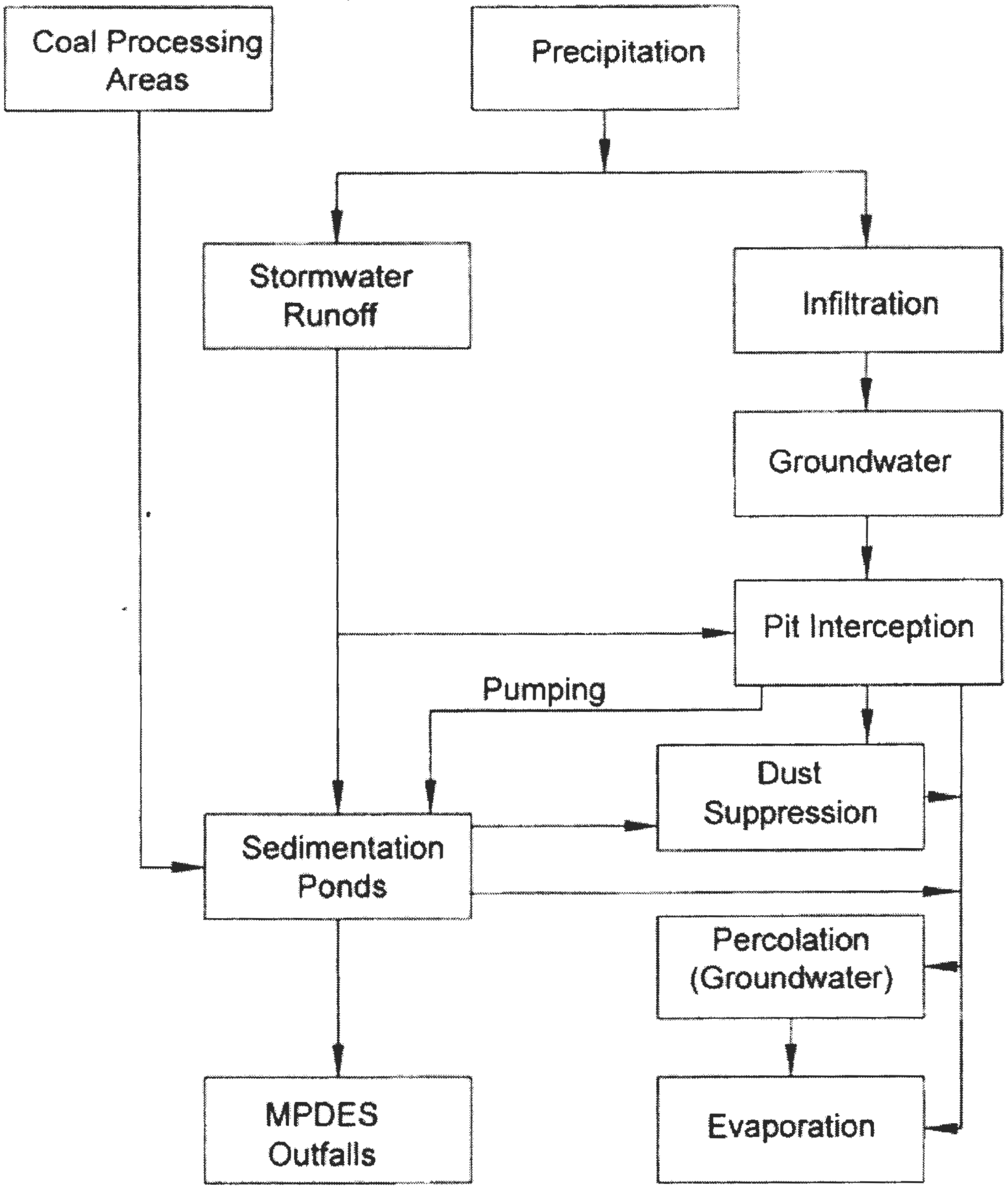
Westmoreland Resources, Inc. (WRI). 2013a. *Drainage Control Hydrology and Sedimentology Report East Side Absaloka Mine South Extension – Final. November 2013.* Prepared by Hydrometrics, Inc. (Bozeman, MT). Available at the Montana DEQ Water Protection Bureau, Helena, Montana.

Westmoreland Resources, Inc. (WRI). 2013b. *Absaloka Mine Permit # C1985005/0007G 2013 Annual Hydrology Report (Oct. 2012 – Sept. 2013).* Prepared by: Hydrometrics, Inc. (Billings, MT). Submitted December 31, 2013. Available at the Montana DEQ Industrial Energy and Minerals Bureau, Helena, Montana.

Westmoreland Resources, Inc. (WRI). 2014. *Absaloka Mine Permit # C1985005/MT-0007G/MT-0021B 2013/2014 Annual Hydrology Report (Oct. 2013 – Sept. 2014).* Prepared by: Hydrometrics, Inc. (Billings, MT). Submitted December 31, 2014. Available at the Montana DEQ Industrial Energy and Minerals Bureau, Helena, Montana.

Prepared by: Melissa Sjolund
Date: May 2015

Appendix I – Flow Diagram



Appendix II – Facility Map

Appendix III – Middle Fork Sarpy Creek Intermittent Segments

Ovals denote approximate intermittent segment locations.

Appendix IV. Receiving Water Data

Data Summary for Surface Water Monitoring Station G-12 (Sarpy Creek)

Parameter	Unit	Number of Samples(1)	Minimum Value	Maximum value	Mean(2)	Number of Nondetects
Acidity as $CaCO_3$	mg/L	3	5	20.7	10.2	0
Alkalinity as $CaCO_3$	mg/L	3	640	771	708	0
Aluminum, dissolved	mg/L	3	<0.009	<0.03	0.02	3
Aluminum, total	mg/L	3	0.009	11.1	3.73	0
Arsenic, dissolved	mg/L	3	<0.001	0.006	0.003	1
Arsenic, total	mg/L	3	0.001	0.018	0.007	0
Bicarbonate as HCO_3	mg/L	3	781	940	864	0
Boron, dissolved	mg/L	3	0.46	0.546	0.49	0
Boron, total	mg/L	3	0.45	0.571	0.51	0
Cadmium, dissolved	mg/L	3	<0.00003	0.00019	0.0001	2
Cadmium, total	mg/L	3	<0.00003	0.00118	0.0004	2
Calcium, dissolved	mg/L	3	114	153	128	0
Carbonate as CO_3	mg/L	3	<5	<4	4	3
Chloride	mg/L	3	4	17	9	0
Copper, dissolved	mg/L	3	<0.001	0.003	0.002	2
Copper, total	mg/L	3	0.003	0.025	0.01	0
Flow, instantaneous	gpm	3	immeasurable flow			
Fluoride	mg/L	3	0.22	0.3	0.3	0
Iron, dissolved	mg/L	3	0.03	0.119	0.07	0
Iron, total	mg/L	3	0.08	25.4	8.61	0
Lead, dissolved	mg/L	3	<0.0005	<0.0003	0.0004	3
Lead, total	mg/L	3	<0.0003	0.0119	0.004	2
Magnesium, dissolved	mg/L	3	211	289	244	0
Manganese, dissolved	mg/L	3	0.018	0.496	0.198	0
Manganese, total	mg/L	3	0.02	1.58	0.56	0
Nickel, dissolved	mg/L	3	<0.002	<0.01	0.01	3
Nickel, total	mg/L	3	<0.01	0.023	0.01	1
Nitrate + Nitrite, as Nitrogen	mg/L	3	<0.01	0.033	0.02	2
Nitrogen, Ammonia as N	mg/L	3	<0.007	0.233	0.082	2
Nitrogen, total	mg/L	3	0.8	1.42	1	0
Oil and Grease	mg/L	3	<1	3	2	1
pH, field	s.u.	3	6.61	7.75	7.35	0
pH, lab	s.u.	3	8.1	8.2	8.2	0
Phosphorus, total	mg/L	3	0.062	1.13	0.42	0
Potassium, dissolved	mg/L	3	4	19	9	0
Specific Conductivity, field	umhos/cm	3	2080	2680	2310	0

Parameter	Unit	Number of Samples(1)	Minimum Value	Maximum value	Mean(2)	Number of Nondetects
Specific Conductivity, lab	umhos/cm	3	2130	2830	2430	0
Selenium, dissolved	mg/L	3	<0.001	<0.001	0.001	3
Selenium, total	mg/L	3	<0.001	<0.001	0.001	3
Sodium, dissolved	mg/L	3	121	174	141	0
Sodium adsorption ratio	unitless	3	1.55	1.91	1.68	0
Sulfate	mg/L	3	672	1100	830	0
Temperature, field	°C	3	7.5	28.6	17.7	0
Total Anions	meq/L	1	27.9	27.9	27.9	0
Total Cations	meq/L	1	30.5	30.5	30.5	0
Total Dissolved Solids (TDS)	mg/L	3	1590	2270	1900	0
Total Hardness as $CaCO_3$	mg/L	3	1160	1570	1320	0
Total Kjeldahl Nitrogen as N	mg/L	1	0.8	0.8	0.8	0
Total Suspended Solids (TSS)	mg/L	3	12	1020	352	0
Vanadium, dissolved	mg/L	3	<0.01	<0.01	0.01	3
Vanadium, total	mg/L	3	<0.01	0.026	0.015	2
Zinc, dissolved	mg/L	3	<0.008	<0.01	0.01	3
Zinc, total	mg/L	3	<0.008	0.072	0.03	2

Footnotes:
(1) Number of samples includes both quantified and non-quantified (nondetect) values.
(2) For values below the detection limit, the detection limit was substituted for the purpose of mean calculation.

Data Summary for Surface Water Monitoring Station G-8 (East Fork Sarpy Creek).

Parameter	Unit	Number of Samples(1)	Minimum Value	Maximum value	Mean(2)	Number of Nondetects
Acidity as $CaCO_3$	mg/L	6	<4	<5	4	6
Alkalinity as $CaCO_3$	mg/L	9	645	840	701	0
Aluminum, dissolved	mg/L	4	<0.0001	0.045	0.019	3
Aluminum, total	mg/L	4	<0.03	0.391	0.13	2
Arsenic, dissolved	mg/L	4	0.003	0.004	0.003	0
Arsenic, total	mg/L	4	<0.003	0.005	0.004	1
Bicarbonate as HCO_3	mg/L	9	743	1020	839	0
Boron, dissolved	mg/L	9	0.4	0.6	0.5	0
Boron, total	mg/L	5	0.4	0.6	0.5	0
Cadmium, dissolved	mg/L	4	<0.00003	<0.00008	0.00007	4
Cadmium, total	mg/L	4	<0.00003	<0.00008	0.00007	4
Calcium, dissolved	mg/L	4	163	175	170	0
Carbonate as CO_3	mg/L	9	<4	25	9	4

Parameter	Unit	Number of Samples[(1)]	Minimum Value	Maximum value	Mean[(2)]	Number of Nondetects
Chloride	mg/L	9	3	18.1	8.7	0
Copper, dissolved	mg/L	4	<0.001	0.004	0.003	2
Copper, total	mg/L	4	<0.001	0.005	0.003	1
Flow, instantaneous	gpm	3	53.96	179.5	111.5	0
Fluoride	mg/L	9	0.4	<0.6	0.3	1
Iron, dissolved	mg/L	3	<0.03	0.173	0.07	3
Iron, total	mg/L	9	0.09	1.3	0.6	0
Lead, dissolved	mg/L	4	<0.0005	<0.0003	0.0005	4
Lead, total	mg/L	4	<0.0005	0.0005	0.0005	3
Magnesium, dissolved	mg/L	9	9	274	342	0
Manganese, dissolved	mg/L	9	0.02	0.52	0.13	0
Manganese, total	mg/L	9	0.02	0.491	0.17	0
Nickel, dissolved	mg/L	4	<0.002	<0.01	0.01	4
Nickel, total	mg/L	4	0.003	<0.01	0.01	3
Nitrate + Nitrite, as Nitrogen	mg/L	9	<0.01	0.25	0.04	3
Nitrogen, Ammonia as N	mg/L	4	<0.05	<0.05	0.05	4
Nitrogen, total	mg/L	4	0.732	1.1	0.94	0
Oil and Grease	mg/L	9	<1	<5	1	9
pH, field	s.u.	6	7.73	8.46	8.25	0
pH, lab	s.u.	4	8.2	8.3	8.3	0
Phosphorus, total	mg/L	4	0.106	0.184	0.136	0
Potassium, dissolved	mg/L	9	7.36	24	14	0
Specific Conductivity, field	umhos/cm	9	2953	6520	4026	0
Specific Conductivity, lab	umhos/cm	4	3390	3660	3530	0
Selenium, dissolved	mg/L	4	<0.001	0.001	0.001	3
Selenium, total	mg/L	4	<0.001	0.001	0.001	3
Sodium, dissolved	mg/L	9	339	841	456	0
Sodium adsorption ratio	unitless	4	3.75	4.15	3.93	0
Sulfate	mg/L	9	1520	4170	2180	0
Temperature, field	°C	9	13	24	19	0
Total Anions	meq/L	2	48.1	49.8	49	0
Total Cations	meq/L	2	45.8	48.8	47.3	0
Total Dissolved Solids (TDS)	mg/L	9	2830	7030	3700	0
Total Hardness as $CaCO_3$	mg/L	4	1540	1700	1617	0
Total Kjeldahl Nitrogen as N	mg/L	1	1.1	1.1	1.1	0
Total Suspended Solids (TSS)	mg/L	9	<10	58	21	3
Turbidity	NTU	7	3	19	9	0
Vanadium, dissolved	mg/L	4	<0.01	<0.01	0.01	4
Vanadium, total	mg/L	4	<0.01	0.01	0.01	3
Zinc, dissolved	mg/L	4	<0.008	<0.01	0.01	4

Parameter	Unit	Number of Samples[1]	Minimum Value	Maximum value	Mean[2]	Number of Nondetects
Zinc, total	mg/L	4	<0.008	<0.01	0.01	4

Footnotes:
(1) Number of samples includes both quantified and non-quantified (nondetect) values.
(2) For values below the detection limit, the detection limit was substituted for the purpose of mean calculation.

Data Summary for Surface Water Monitoring Station G-15 (Middle Fork Sarpy Creek).

Parameter	Unit	Number of Samples[1]	Minimum Value	Maximum value	Mean[2]	Number of Nondetects
Acidity as $CaCO_3$	mg/L	3	<4	26.3	22	1
Alkalinity as $CaCO_3$	mg/L	3	510	690	597	0
Aluminum, dissolved	mg/L	2	<0.009	0.03	0.02	1
Aluminum, total	mg/L	2	<0.0003	2.48	1.24	1
Arsenic, dissolved	mg/L	3	<0.001	0.009	0.005	1
Arsenic, total	mg/L	3	0.003	0.008	0.006	0
Bicarbonate as HCO_3	mg/L	3	622	842	709	0
Boron, dissolved	mg/L	3	0.504	0.64	0.58	0
Boron, total	mg/L	3	0.453	0.64	0.58	0
Cadmium, dissolved	mg/L	3	0.00003	<0.00008	0.00006	2
Cadmium, total	mg/L	3	<0.00008	0.00017	0.00009	1
Calcium, dissolved	mg/L	3	126	204	170	0
Carbonate as CO_3	mg/L	3	<4	28	12	2
Chloride	mg/L	3	9.59	12	11	0
Copper, dissolved	mg/L	3	<0.001	0.002	0.001	2
Copper, total	mg/L	3	0.003	0.009	0.006	0
Flow, instantaneous	gpm	3	immeasurable flow			
Fluoride	mg/L	3	0.1	0.2	0.2	0
Iron, dissolved	mg/L	3	0.03	0.077	0.06	0
Iron, total	mg/L	3	0.15	6.82	3.99	0
Lead, dissolved	mg/L	3	<0.0003	<0.0005	0.0004	3
Lead, total	mg/L	3	<0.0005	0.002	0.002	1
Magnesium, dissolved	mg/L	3	263	306	291	0
Manganese, dissolved	mg/L	3	0.09	0.678	0.48	0
Manganese, total	mg/L	3	0.246	0.728	0.475	0
Nickel, dissolved	mg/L	3	<0.002	<0.01	0.007	3
Nickel, total	mg/L	3	0.007	<0.01	0.009	2
Nitrate + Nitrite, as Nitrogen	mg/L	3	<0.01	0.02	0.01	2
Nitrogen, Ammonia as N	mg/L	3	<0.05	0.117	0.08	1
Nitrogen, total	mg/L	3	1.27	2.4	1.7	0
Oil and Grease	mg/L	3	<1	4	2	1

Parameter	Unit	Number of Samples(1)	Minimum Value	Maximum value	Mean(2)	Number of Nondetects
pH, field	s.u.	4	6.73	8.18	7.73	0
pH, lab	s.u.	3	7.5	8.4	7.9	0
Phosphorus, total	mg/L	3	0.192	0.454	0.301	0
Potassium, dissolved	mg/L	3	6.47	12	9.82	0
Specific Conductivity, field	umhos/cm	3	2663	3240	2910	0
Specific Conductivity, lab	umhos/cm	3	2360	3190	2730	0
Selenium, dissolved	mg/L	3	<0.001	<0.001	0.001	3
Selenium, total	mg/L	3	<0.001	<0.001	0.001	3
Sodium, dissolved	mg/L	3	109	136	126	0
Sodium adsorption ratio	unitless	3	1.21	1.38	1.36	0
Sulfate	mg/L	3	1130	1500	1290	0
Temperature, field	°C	4	12.2	31	22	0
Total Anions	meq/L	1	34	34	34	0
Total Cations	meq/L	1	35.6	35.6	35.6	0
Total Dissolved Solids (TDS)	mg/L	3	2130	2670	2350	0
Total Hardness as $CaCO_3$	mg/L	3	1540	1760	1620	0
Total Kjeldahl Nitrogen as N	mg/L	1	2.4	2.4	2.4	0
Total Suspended Solids (TSS)	mg/L	3	26	522	192	0
Vanadium, dissolved	mg/L	3	<0.01	<0.01	0.01	3
Vanadium, total	mg/L	3	<0.01	0.01	0.01	1
Zinc, dissolved	mg/L	3	<0.008	<0.01	0.009	3
Zinc, total	mg/L		<0.01	0.047	0.02	1

Footnotes:
(1) Number of samples includes both quantified and non-quantified (nondetect) values.
(2) For values below the detection limit, the detection limit was substituted for the purpose of mean calculation.

Data Summary for Spring Monitoring Station 289 (Middle Fork Sarpy Creek Wet Reach)

Parameter	Unit	No. of Samples (1)	Minimum Value	Maximum value	Mean(2)	Number of Nondetects
Acidity as $CaCO_3$	mg/L	1	<5	<5	<5	1
Alkalinity as $CaCO_3$	mg/L	4	464	680	595	0
Aluminum, dissolved	mg/L	1	0.0061	0.0061	0.0061	0
Arsenic, dissolved	mg/L	1	0.012	0.012	0.012	0
Bicarbonate as HCO_3	mg/L	4	567	759	689	0
Boron, dissolved	mg/L	4	0.8	1.7	1.4	0
Cadmium, dissolved	mg/L	1	<0.00008	<0.00008	<0.00008	1
Calcium, dissolved	mg/L	4	157	214	191	0
Carbonate as CO_3	mg/L	1	<5	<5	<5	1

Parameter	Unit	No. of Samples (1)	Minimum Value	Maximum value	Mean(2)	Number of Nondetects
Chloride	mg/L	4	8.77	22	16	0
Copper, dissolved	mg/L	1	0.00051	0.00051	0.00051	0
Flow, instantaneous	gpm	5	See footnote (3)			
Fluoride	mg/L	4	<0.1	0.5	0.2	2
Iron, dissolved	mg/L	4	0.05	1.58	0.6	0
Lead, dissolved	mg/L	1	<0.0001	<0.0001	<0.0001	1
Magnesium, dissolved	mg/L	4	184	375	277	0
Manganese, dissolved	mg/L	4	0.24	1.18	0.6	0
Nickel, dissolved	mg/L	1	0.0024	0.0024	0.0024	0
Nitrate + Nitrite, as N	mg/L	4	<0.05	<0.05	0.04	3
Nitrogen, Ammonia as N	mg/L	1	0.34	0.34	0.34	0
pH, field	s.u.	1	7.62	7.62	7.62	0
pH, lab	s.u.	4	7.4	7.9	7.7	0
Potassium, dissolved	mg/L	4	6.68	13	11	0
Specific Conductivity, field	umhos/cm	1	2463	2463	2463	0
Specific Conductivity, lab	umhos/cm	4	2220	3090	2600	0
Selenium, dissolved	mg/L	1	<0.0005	<0.0005	<0.0005	1
Sodium, dissolved	mg/L	4	124	266	211	0
Sulfate	mg/L	4	961	1860	1493	0
Temperature, field	°C	2	27.2	27.2	27.2	0
Total Anions	meq/L	2	29.75	52.6	41.2	0
Total Cations	meq/L	2	28.71	50.8	39.8	0
Total Dissolved Solids (TDS)	mg/L	4	1730	3090	2595	0
Total Hardness as $CaCO_3$	mg/L	1	2080	2080	2080	0
Vanadium, dissolved	mg/L	1	0.0014	0.0014	0.0014	1
Zinc, dissolved	mg/L	4	0.0055	0.01	0.009	2

Footnotes:

(1) Number of samples includes both quantified and non-quantified (nondetect) values.

(2) For values below the detection limit, the detection limit was substituted for the purpose of mean calculation.

(3) Flow was assessed during five visits with the following conditions noted:
5/23/04 and 9/23/04: ponded, no flow
5/24/05: measurable flow of 0.25 gpm
9/26/2005: Wet soil, no water available (no sample collected)
6/25/13: Flowing, immeasurable

Appendix V – RPA Procedure

The RPA was performed for the pollutants for which data were available using DEQ procedures for determining critical effluent and receiving water pollutant concentrations. The critical effluent concentration is a projected 95th percentile concentration. The method for projecting the 95th percentile concentration varies depending on the number of effluent pollutant concentration data points available and whether the data are quantified, non-quantified, or a mixture of the two. The critical effluent and receiving water pollutant concentrations were used in the following equation, which is based on a mass-balance equation, to calculate a projected receiving water concentration:

$$C_r = \frac{C_d + DC_s}{(1 + D)}$$

where: C_r = projected receiving water concentration
C_d = maximum projected effluent concentration
C_s = critical receiving water (background) pollutant concentration
D = dilution factor for the appropriate effluent flow (maximum daily and maximum monthly average for non-POTWs) and mixing zone.

Critical Background Receiving Water Pollutant Concentration (C_s)

To determine the value of C_s, the Department:

1. determines whether there are 10 or more data points available
2. determines the lower bound of the interquartile range (if $\geq$ 10 data points)
3. determines the upper bound of the interquartile range (if $\geq$ 10 data points)
4. determines the 95% confidence interval of the mean (if $\geq$ 30 data points)

Where there are less than 10 data points are available, C_s is undetermined ("U"). Where dilution is considered, additional data are needed to determine a value of C_s in order to determine reasonable potential and calculate WQBELs.

Where there are more than 10 data points, for pollutants with water quality standards expressed as an *absolute value*:

1. If the upper bound of the interquartile range or of the 95% confidence interval of the mean is a quantified value, the Department will use one of these values as the value of C_s
2. If the upper bound of the interquartile range or of the 95% confidence interval of the mean is a non-quantified value and if the water quality standard is less than the required reporting value (RRV), the Department will set C_s = ½ WQS
3. If the upper bound of the interquartile range or of the 95% confidence interval of the mean is a non-quantified value and if RRV < water quality standard, the Department will set C_s = ½ RRV.

Critical Effluent Pollutant Concentration (C_d)

Effluent concentration is used to determine if a WQBEL is necessary based on the reasonable potential analysis using the steady state model. Reasonable potential may also be assessed using non-quantitative methods. Critical effluent concentration is not used to determine the value of a WQBEL. Due to the low frequency of sampling (small sample size) and the non-normal distribution of most effluents, the Department estimates the critical effluent concentration based on the 95th percentile of the expected effluent concentration using the methods below (*Technical Support Document for Water Quality Based Toxic Control*, EPA/505/2-90-001, March 1991).

Where the projected receiving water concentration (C_r) exceeds the lowest applicable numeric standard (C) for the parameter of concern, there is reasonable potential and WQBELs must be calculated. For some parameters, C_r cannot be calculated due to insufficient receiving water data (C_s = U). In these cases, reasonable potential is determined to be absent when the projected maximum effluent concentration (C_d) is below the lowest applicable numeric standard (C). If C_d is equal to or greater than C, additional monitoring will be required at a resolution capable to determine adherence to standards.

Determining C_d when all measurements are reported as quantified values

If the total number of measurements in the selected data set is $\geq$ 10

Calculate $C_{(d)}$ as: $C_d = C_{95} = EXP(\ln(x)_{avg} + 1.645 \times S_{\ln(x)})$

$\ln(x)_{avg}$ = arithmetic mean of log-transformations of observed concentrations
$S_{\ln(x)}$ = standard deviation of the log-transformations of observed concentrations

If the total number of measurements in the selected data set is < 10

Estimate $C_{(d)}$ as:

$$C_d = C_{95(est)} = C_{95\text{-}TSD} = C_{e(max)} \cdot \frac{EXP[z_{0.95} \cdot (\ln(1+CV^2))^{0.5} - 0.5 \cdot \ln(1+CV^2)]}{EXP[z_{(1-0.95)^{(1/n)}} \cdot (\ln(1+CV^2))^{0.5} - 0.5 \cdot \ln(1+CV^2)]}$$

$C_{e(max)}$ = maximum measured and quantified effluent pollutant concentration
CV = coefficient of variation (assumed to be 0.6)
n = number of effluent pollutant concentration measurements in the data set
z_x = the z-statistic for the *x* percentile

Determining C_d with a mixture of quantified and non-quantified measurements

If the total number of measurements in the selected data set is $\geq$ 10 and
- ***the number of quantified measurements is $\geq$ 2 and***
- ***the number of quantified measurements is > 5% of the total number of measurements***

Calculate C_d as: $C_d = C_{95}$ = the maximum of:
1) the highest reporting limit or
2) $EXP(\ln(x)_{avg} + z^* \times s_{\ln(x)})$

$\ln(x)_{avg}$ = arithmetic mean of log-transformations of the quantified measurements
$s_{\ln(x)}$ = standard deviation of log-transformations of the quantified measurements
z^* = the z-statistic for [0.95-δ)/(1-δ)]
δ = proportion of measurements that are non-quantified

If the total number of measurements in the selected data set is $\geq$ 10 and
- ***the number of quantified measurements is < 2 or***
- ***the number of quantified measurements is $\leq$ 5% of the total number of measurements.***

Estimate C_d as: $C_d = C_{95(est)}$ = highest reporting limit

If the total number of measurements in the selected data set is < 10

Estimate $C_{(d)}$ as:

$$C_{95(est)} = C_{95\text{-}TSD} = C_{e(max)} \cdot \frac{EXP[z_{0.95} \cdot (\ln(1+CV^2))^{0.5} - 0.5 \cdot \ln(1+CV^2)]}{EXP[z_{(1-0.95)^{(1/n)}} \cdot (\ln(1+CV^2))^{0.5} - 0.5 \cdot \ln(1+CV^2)]}$$

$C_{e(max)}$	=	maximum measured and quantified effluent pollutant concentration
CV	=	coefficient of variation (assumed to be 0.6)
n	=	number of effluent pollutant concentration measurements in the data set
z_x	=	the z-statistic for the *x* percentile

Determining C_d when no measurement is reported as a quantified value

If the total number of measurements in the selected data set is $\geq$ 30

Calculate C_d as: $C_d = C_{95}$ = "< the highest reporting limit achieved for the data set"

If the total number of measurements in the selected data set < 30

Estimate C_d as: $C_d = C_{95(est)}$ * = "< the highest reporting limit achieved for the data set"

*Additional monitoring is required because C_d is estimated from a small data set

DEPARTMENT OF ENVIRONMENTAL QUALITY
Environmental Assessment

Permitting and Compliance Division
Water Protection Bureau

Name of Project: Westmoreland Resources, Inc. Absaloka Mine

Type of Project: Surface Open Pit Strip Mining for Coal

Outfall Locations:

Outfall	Latitude	Longitude
001	45.8109	-107.0884
002	45.7872	-107.0760
006	45.8232	-107.0426
007	45.8257	-107.0366
008	45.8263	-107.0261
009	45.8209	-107.0128
011	45.8018	-107.0196
012	45.8060	-107.0155
013	45.7729	-107.0536
015	45.7751	-107.0570
016	45.7685	-107.0480
017	45.7712	-107.0538
018	45.7723	-107.0585
020	45.7734	-107.0587
021	45.7731	-107.0632
023	45.7728	-107.0671
024	45.7723	-107.0700
026	45.7718	-107.0785
027	45.8072	-107.0155

Location of Project: Portions of
T1N, R37E Sections: 23, 24, 25, 26, 35, and 36
T1N, R38E Sections: 19, 20, 21, 29, 30, 31, and 32
T1S, R38E Sections: 3, 4, 5, 8, 9 and 10

City/Town: Hardin, MT **County**: Big Horn

Description of Project:
The proposed action is to renew Montana Pollutant Discharge Elimination System (MPDES) permit No. MT0021229. The permit limits, to the extent required by statute and rule, any detrimental effects to the receiving waters from discharges from the facilities. Receiving waters include an ephemeral tributary to Sarpy Creek, ephemeral tributaries to Middle Fork Sarpy Creek, and ephemeral tributaries to East Fork Sarpy Creek.

Agency Action and Applicable Regulations: The proposed action is to renew MPDES permit MT0021229 to Westmoreland Resources, Inc. for the discharge of treated wastewaters from the

Absaloka Mine. The permit specifies both effluent limitations and monitoring requirements. DEQ is issuing these permits under the authority of the Montana Water Quality Act (75-5-101 *et seq.,* MCA), and the Montana Pollutant Discharge Elimination System rules (ARM 17.30.1201 *et seq.* and ARM 17.30.1301 *et seq*).

DEQ has conducted additional analysis of the project and has issued air quality permit #1418-06 under the Clean Air Act of Montana pursuant to sections 75-2-204 and 211, MCA and a surface mining permit No. C1985005 under the Montana Strip and Underground Mine Reclamation Act, (82-4-201 *et seq.,* MCA).

Summary of Issues: DEQ proposes to issue an MPDES permit to limit the discharge of pollutants from wastewater from Westmoreland Resource Inc.'s Absaloka Mine. Issues of concern include: impacts to air quality, cultural resources, ground and surface water quality and quantity, threatened and endangered wildlife and vascular species, and impacts to the human environment.

Affected Environment & Impacts of the Proposed Project:

Y = Impacts may occur (explain under Potential Impacts).
N = Not present or No Impact will likely occur.

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE: Are soils present which are fragile, erosive, susceptible to compaction, or unstable? Are there unusual or unstable geologic features? Are there special reclamation considerations?	[Y] While regulated discharges are not expected to impact soils and geology, the construction and maintenance of settling ponds associated with permitted outfalls may impact soils and geology within the areas of disturbance. Comprehensive reclamation and mitigation measures are required by the surface mining permit to protect soils, geology, and associated land uses.
2. WATER QUALITY, QUANTITY AND DISTRIBUTION: Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?	[N] The MPDES permit incorporates the most recent Water Quality Standards approved by DEQ. With the use of these standards, all beneficial uses for the receiving water will be protected. The resulting effluent limitations ae either equal to or more stringent than those in the previous permit. Self-monitoring requirements have been increased substantially to assure compliance with permit conditions and to track levels of pollutants of concern. DEQ's IEMB coal program requires additional surface and ground water monitoring as part of the surface mining permit. The coal program evaluates cumulative hydrologic impacts as part of ongoing amendments and modification to the surface mining permit.
3. AIR QUALITY: Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	[N] DEQ has issued air quality permit #1418-06 to limit any detrimental effect to air quality. No additional air quality impacts will be realized with reissuing the MPDES permits.
4. VEGETATION COVER, QUANTITY AND QUALITY: Will vegetative communities be significantly impacted? Are any rare plants or cover types present?	[N] Reclamation activities are regulated under the surface mining permit which includes post mining land use. Reissuing the MPDES permit will allow closer coordination and control of restoring final land use and hydrologic function in disturbed areas. No threatened plant or vascular species of concern are known to inhabit permitted mine area.

IMPACTS ON THE PHYSICAL ENVIRONMENT	
5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS: Is there substantial use of the area by important wildlife, birds or fish?	[N] Areas within the permitted boundaries have been inventoried and evaluated for critical habitat for wildlife. Restoration of habitat is a land use requirement in the reclamation plan. No additional impacts to wildlife habitat will be realized by reissuing the MPDES permits.
6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES: Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?	[N] All known wetlands have been identified for the mine's surface mine permit. The surface mine permit contains a threatened or endangered species review. Bald eagle, black-tailed prairie dog, and black-footed ferret are listed for Big Horn County. No communal or critical bald eagle roosts are present, and no colonies or complexes of black-tailed prairie dog or black-footed ferret have been observed. No impacts are anticipated from modification of the MPDES permit.
7. HISTORICAL AND ARCHAEOLOGICAL SITES: Are any historical, archaeological or paleontological resources present?	[N] Cultural resource inventories have been conducted within permit boundaries for the surface mine permit. The surface mine permit addresses impacts to both known and discoverable cultural resources. There are no anticipated impacts to cultural resources resulting from reissuance of the MPDES permit.
8. AESTHETICS: Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	[N] There are no populated areas other than rural residences in the vicinity. No prominent topographic features are present. No impacts are anticipated from reissuance of the MPDES permit.
9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY: Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project? Will new or upgraded powerline or other energy source be needed)	[N] Reissuance of the MPDES permit will not result in additional demands on land, water, air, or energy.
10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES: Are there other activities nearby that will affect the project?	[N] There are no nearby activities affecting reissuance of the MPDES permit.

IMPACTS ON THE HUMAN ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
11. HUMAN HEALTH AND SAFETY: Will this project add to health and safety risks in the area?	[N] This action does not preclude state and federal safety regulations that prohibit unsafe working conditions.
12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION: Will the project add to or alter these activities?	[N] The post mining plan for reclamation of disturbed areas requires reestablishment of land use, whether agricultural cropland, livestock or wildlife. In reissuing the MPDES permits no additional impacts will be realized.
13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT: Will the project create, move or eliminate jobs? If so, estimated number.	[N] Reissuing the MPDES permits will have no effect on current employment levels, but will provide further security to jobs presently in place.
14. LOCAL AND STATE TAX BASE AND TAX REVENUES: Will the project create or eliminate tax revenue?	[N] Reissuing the MPDES permits will allow continued mining of coal, without changing the extraction tax or property taxes in the area.
15. DEMAND FOR GOVERNMENT SERVICES: Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc.) be needed?	[N] With reissuing the MPDES permits, no additional demands will be placed on local or state services. Traffic density is not expected to increase from this action.

IMPACTS ON THE HUMAN ENVIRONMENT	
RESOURCE	[Y/N] POTENTIAL IMPACTS AND MITIGATION MEASURES
16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS: Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	[N] No changes are expected in this category due to this action.
17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES: Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	[N] There are no wilderness areas in or accessed via permitted areas. No impacts are anticipated from reissuance of the MPDES permit.
18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING: Will the project add to the population and require additional housing?	[N] Reissuing the MPDES permits will not impact this category. No change to population density or distribution is expected.
19. SOCIAL STRUCTURES AND MORES: Is some disruption of native or traditional lifestyles or communities possible?	[N] This action is not expected to influence social structure or mores in the area.
20. CULTURAL UNIQUENESS AND DIVERSITY: Will the action cause a shift in some unique quality of the area?	[N] No change is expected in this category. As the facilities have been part of the local environ for over forty years, continuing the operations will have no net affect.
21. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:	[N]
22(a). PRIVATE PROPERTY IMPACTS: Are we regulating the use of private property under a regulatory statute adopted pursuant to the police power of the state? (Property management, grants of financial assistance, and the exercise of the power of eminent domain are not within this category.) If not, no further analysis is required.	[N] Through this action the state is regulating the discharge of wastewater to waters of the state. MPDES permits limit the type and amount of pollutants that could cause deteriorative effects to beneficial uses of state waters. The reissuance of the MPDES permits will not regulate private property, just the discharge of wastewater from the properties.
22(b). PRIVATE PROPERTY IMPACTS: Is the agency proposing to deny the application or condition the approval in a way that restricts the use of the regulated person's private property? If not, no further analysis is required.	[N]
22(c). PRIVATE PROPERTY IMPACTS: If the answer to 21(b) is affirmative, does the agency have legal discretion to impose or not impose the proposed restriction or discretion as to how the restriction will be imposed? If not, no further analysis is required. If so, the agency must determine if there are alternatives that would reduce, minimize or eliminate the restriction on the use of private property, and analyze such alternatives. The agency must disclose the potential costs of identified restrictions.	[n/a]

23. Description of and Impacts of other Alternatives Considered: None

24. Summary of Magnitude and Significance of Potential Impacts: Issuance of the permit ensures that standards for water quality will be met. Standards are protective of beneficial uses. Therefore impacts are minor and non-significant.

25. Cumulative Effects: Cumulative Impacts have been analyzed as part of this EA. Based on the ambient conditions during the time of the analysis no cumulative impacts have been identified.

26. Preferred Action Alternative and Rationale: DEQ recommends approving the permit issuance with the proposed effluent limitations. This action is preferred because the permit program provides a regulatory mechanism for protecting water quality by applying permit limitations on the point source discharges.

Recommendation for Further Environmental Analysis:

[ ] EIS [ ] More Detailed EA [X] No Further Analysis

Rationale for Recommendation:
No unresolved, significant impacts to the physical environment or to the human population were identified.

27. Public Involvement: This draft EA and draft MPDES permit action will be opened for public comment during a 30-day public comment period.

28. Persons and agencies consulted in the preparation of this analysis:
DEQ-Industrial Mineral and Energy Bureau, Coal program

EA Checklist Prepared By: Melissa Sjolund **Date:** March 12, 2015

Approved By:

Jon Kenning, Chief
Water Protection Bureau

August 31, 2015
Date

August 31, 2015

Kurt Lightle
President
Westmoreland Resources, Inc.
PO Box 449
Hardin, MT 59034

Re: Notice of Final Decision, Montana Pollutant Discharge Elimination System (MPDES) Permit Number MT0021229

Dear Mr. Lightle:

In accordance with the Administrative Rules of Montana (ARM) 17.30.1377, enclosed is the Response to Comments document and a copy of the proposed permit for the Absaloka Mine issued to Westmoreland Resources, Inc. This permit is issued by the Montana Department of Environmental Quality (DEQ) under the authority of 75-5-402, Montana Code Annotated (MCA) and Sections 402 and 303 of the federal Clean Water Act.

The public notice for this permit renewal (MT-15-31) closed on July 22, 2015. DEQ's Response to Comments document addresses the issues that were identified during the public comment period. The following changes were made in the proposed permit based on the comments received during the public comment period:

1. Section I.A (page 3) was modified to account for variation in pond volumes.
2. Section I.B.2.a (page 12) was modified to account for potential variations in small depression design.
3. Section I.B.2.b (page 13) was modified to update the sediment control plan inspection "trigger value" to 1.4 inches of precipitation in 24 hours.
4. Section I.B.3.a (page 15) was modified to remove the requirement for precipitation monitoring in the East Fork Sarpy Creek drainage.
5. Section I.C.5 (page 17) was revised to remove an outdated submittal requirement.
6. Section IV (pages 28-31) was revised to correct a typographical error in the header.

In accordance with ARM 17.30.1378, DEQ'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, MCA and 75-5-611, MCA. The Regional Administrator may object to or make recommendations to the proposed permit (40 CFR 123.44).

A copy of the permit should be made available to the person(s) in charge of the operation of the wastewater treatment facilities so that they are aware of the requirements in the permit. Please take note of any revised effluent limits, monitoring requirements, and reporting requirements as specified in Part I of the permit.

Finally, please see the enclosed pamphlet outlining the electronic submission method for Discharge Monitoring Reports (DMRs), called NetDMR. DEQ encourages the electronic submission of DMRs; NetDMR will be a mandatory reporting requirement soon.

If you have any questions, please contact the permit writer, Melissa Sjolund, at 406-444-2885.

Sincerely,

Jon Kenning, Chief
Water Protection Bureau
Permitting and Compliance Division

Enclosures: MPDES Permit Number MT0021229
Response to Comments
NetDMR Pamphlet

CC (with Enclosures): Lisa Kusnierz, EPA

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM

EXECUTIVE SUMMARY FOR ACTION ON RULE INITIATION

Agenda # **III.B.1.**

Agenda Item Summary: The department requests that the board initiate rulemaking to repeal air quality rules in ARM Title 17, chapter 8, subchapters 3 and 7, pertaining to Aluminum Plants, and Mercury Allowance Allocations under Cap and Trade Budget, respectively. The department is requesting the repeal of rules which are no longer used, or for which affected sources no longer exist, or for which corresponding federal requirements have been invalidated.

List of Affected Rules: This rulemaking would repeal ARM 17.8.334, 335, and 772.

Affected Parties Summary: This rulemaking will not affect any regulated sources. The rules proposed for repeal are either not currently enforced by the department or apply to facilities that no longer operate in Montana.

Scope of Proposed Proceeding: The department requests that the board initiate rulemaking without a public hearing to consider the proposed repeal of the above-stated rules.

Background:

Proposed repeal of ARM 17.8.334. Montana adopted this rule effective February 26, 1982, to establish emission standards for existing aluminum reduction plants. The Columbia Falls Aluminum Company (CFAC) plant was the only existing aluminum reduction plant in Montana, and discontinued operations in 2009, negating the need for these emissions standards. The rule should therefore be repealed. In addition, the federal Environmental Protection Agency (EPA) promulgated a State Implementation Plan (SIP) Call, on May 22, 2015, addressing the automatic exemption from applicable emission limitations during start-up, shutdown, and/or malfunction (SSM) events in ARM 17.8.334.

The SIP Call requires Montana to correct or remove the specific provision from the SIP within 18 months of the SIP Call, or November 22, 2016. If the board repeals this rule, the department would then propose to address the SIP Call by submitting a proposal to the EPA for withdrawal of the rule from the SIP.

Proposed repeal of ARM 17.8.335. The board adopted ARM 17.8.335, effective August 16, 2002. This rule, which applied to existing aluminum reduction plants only, allowed exceedances of emission limits during necessary scheduled maintenance of air pollution control equipment. CFAC was the only existing plant when this rule was adopted, and ceased operations in 2009. As a result, this rule is no longer necessary or appropriate, and should be repealed.

Proposed repeal of ARM 17.8.772. The board adopted ARM 17.8.772, effective October 27, 2006, in response to the federal Clean Air Mercury Rule (CAMR). CAMR established a federal mercury emissions trading budget and allowed states to adopt cap-and-trade rules modeled after EPA regulations. In response, Montana adopted ARM 17.8.772. Due to litigation related to CAMR that began before adoption of the rule, ARM 17.8.772(4) states, "The department is not required to submit mercury allowance allocations if the federal Clean Air Mercury Rule (CAMR) ... is invalidated by a court of competent jurisdiction." The federal D.C. Circuit Court of Appeals vacated CAMR on February 8, 2008. Because CAMR was invalidated, Montana is not required to submit mercury allowance allocations. Because there is no federal trading budget and no state allocations, the Department has not been using or submitting such allocations, and it will not do so in the future. As a result, it is requesting that the board repeal the rule. The Department will continue to regulate emissions from mercury-emitting electrical generating units under ARM 17.8.771.

Hearing Information: The department recommends that the board propose to repeal the rules without a public hearing.

Board Options: The board may:

1. Initiate rulemaking and issue the attached Notice of Proposed Repeal (No Public Hearing Contemplated);
2. Modify the Notice and initiate rulemaking; or
3. Determine that the repeal of the rules is not appropriate and deny the department's request to initiate rulemaking.

DEQ Recommendation: The department recommends that the board initiate rulemaking as described in the draft Notice of Proposed Repeal (No Public Hearing Contemplated).

Enclosures:

1. Draft Notice of Proposed Repeal (No Public Hearing Contemplated)

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the repeal of ARM 17.8.334, 17.8.335, and 17.8.772 pertaining to emission standards for existing aluminum plants--startup and shutdown, maintenance of air pollution control equipment for existing aluminum plants, and mercury allowance allocations under cap and trade budget)	NOTICE OF PROPOSED REPEAL (AIR QUALITY) NO PUBLIC HEARING CONTEMPLATED

TO: All Concerned Persons

1. On ______________, 2015, the Board of Environmental Review proposes to repeal the above-stated rules.

2. The board will make reasonable accommodations for persons with disabilities who wish to participate in this rulemaking process or need an alternative accessible format of this notice. If you require an accommodation, contact Elois Johnson, Paralegal, no later than 5:00 p.m., ______________, 2015, to advise us of the nature of the accommodation that you need. Please contact Elois Johnson at Department of Environmental Quality, P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2630; fax (406) 444-4386; or e-mail ejohnson@mt.gov.

3. The rules proposed for repeal are as follows:

17.8.334 EMISSION STANDARDS FOR EXISTING ALUMINUM PLANTS--STARTUP AND SHUTDOWN (AUTH: 75-2-111, 75-2-203, MCA; IMP: 75-2-203, MCA), located at page 17-334, Administrative Rules of Montana.

17.8.335 MAINTENANCE OF AIR POLLUTION CONTROL EQUIPMENT FOR EXISTING ALUMINUM PLANTS (AUTH: 75-2-111, MCA; IMP: 75-2-203, MCA), located at pages 17-335 through 17-337, Administrative Rules of Montana.

17.8.772 MERCURY ALLOWANCE ALLOCATIONS UNDER CAP AND TRADE BUDGET (AUTH: 75-2-203, 75-2-204, 75-2-211, MCA; IMP: 75-2-211, MCA), located at pages 17-469 and 17-470, Administrative Rules of Montana.

REASON: ARM 17.8.334, adopted by the board on February 26, 1982, established emission standards during startup and shutdown for existing aluminum reduction plants. Any plant not yet constructed and operating on that date is not "existing" and is not subject to this rule. The Columbia Falls Aluminum Company (CFAC) plant in Columbia Falls was the only existing aluminum reduction plant in Montana; it discontinued operations in 2009. Because there are now no existing aluminum reduction plants in Montana, no source is now or ever will be subject to ARM 17.8.334. Because there are no longer any existing aluminum reduction plants in Montana, and no new plant will be subject to this rule, this rule is no longer necessary and should be repealed. If a new aluminum reduction plant is constructed in Montana, it will be subject to regulation under the federal new source performance standards in 40 CFR Part 60, subpart S, which is incorporated by reference in ARM 17.8.302(1)(a) and Montana's air quality permitting programs.

In addition, the federal Environmental Protection Agency (EPA) has determined that the provisions contained in this rule are impermissible because they interfere with enforcement of the federal Clean Air Act by providing an automatic exemption from applicable emission limitations during start-up, shutdown, and/or malfunction (SSM) events. To address this issue, on May, 22, 2015, the EPA promulgated a State Implementation Plan (SIP) Call, finding that this rule makes Montana's SIP substantially inadequate to protect the National Ambient Air Quality Standards at all times, including during SSM events. The SIP Call requires Montana to correct or remove the specific provision from the SIP within 18 months after the SIP Call, which is by November 22, 2016. If the board repeals this rule, the Department of Environmental Quality (department) would then address the SIP Call by proposing to submit a proposal to the EPA to withdraw the rule from the SIP.

ARM 17.8.335, which also regulates existing primary aluminum reduction plants only, also applied only to the plant operated by CFAC, because it was the only existing such plant in Montana when the rule was adopted by the board on August 16, 2002. This rule allows exceedances of emission limits during necessary scheduled maintenance of air pollution control equipment at existing primary aluminum reduction plants. Before this rule was adopted, CFAC was required to apply to the board for a variance from rules governing emissions of air pollutants so the plant could continue to operate during maintenance of its control equipment. For the same reasons provided above for the repeal of ARM 17.8.334, this rule is no longer necessary or appropriate and should be repealed.

ARM 17.8.772 concerns the regulation of mercury-emitting electrical generating units through the creation and trading of mercury emissions allowances under a "cap-and-trade" program. The rule was adopted effective October 27, 2006, in response to the federal Clean Air Mercury Rule (CAMR). Promulgated in May 2005, CAMR established a federal mercury emissions trading budget and allowed states to adopt cap-and-trade rules modeled after EPA regulations. Montana's cap-and-trade allocations, described in ARM 17.8.772, anticipated legal challenges to CAMR. Due to litigation that began before adoption of the rule, ARM 17.8.772(4) states, "The department is not required to submit mercury allowance allocations if the federal Clean Air Mercury Rule (CAMR), adopted in 70 Fed. Reg. 28606 (May 18, 2005), is invalidated by a court of competent jurisdiction." Indeed, on February 8, 2008, the federal D.C. Circuit Court of Appeals vacated CAMR. As a result of that vacatur, there is no mercury trading budget in the federal regulations and no requirement for states to submit mercury allowance allocations under that budget. Under ARM 17.8.772(4), because the federal regulation was invalidated, Montana is not required to submit such allocations. Because there is no federal trading budget and there are no state allocations, the department has not been using or submitting such allocations and it will not do so in the future. As a result, the board is proposing to repeal the rule. The department will continue to regulate emissions from mercury-emitting electrical generating units under ARM 17.8.771.

4. Concerned persons may submit their data, views, or arguments concerning the proposed action in writing to Elois Johnson at Department of Environmental Quality, P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2630; fax (406) 444-4386; or e-mail ejohnson@mt.gov, no later than ________________, 2015. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

5. If persons who are directly affected by the proposed action wish to express their data, views, or arguments orally or in writing at a public hearing, they must make written request for a hearing and submit this request along with any written comments they have to Elois Johnson at Department of Environmental Quality, P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2630; fax (406) 444-4386; or e-mail ejohnson@mt.gov, no later than ________________, 2015.

6. If the board receives requests for a public hearing on the proposed action from either 10 percent or 25, whichever is less, of the persons who are directly affected by the proposed action; from the appropriate administrative rule review committee of the Legislature; from a governmental subdivision or agency; or from an association having not less than 25 members who will be directly affected, a hearing will be held at a later date. Notice of the hearing will be published in the Montana Administrative Register. Ten percent of those persons directly affected has been determined to be 1 based on no persons affected by this rulemaking.

7. 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, e-mail, 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 supply; 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. Notices will be sent by e-mail unless a mailing preference is noted in the request. Such written request may be mailed or delivered to Elois Johnson, Paralegal, Department of Environmental Quality, 1520 E. Sixth Ave., P.O. Box 200901, Helena, Montana 59620-0901, faxed to the office at (406) 444-4386, e-mailed to Elois Johnson at ejohnson@mt.gov, or may be made by completing a request form at any rules hearing held by the department.

8. The bill sponsor contact requirements of 2-4-302, MCA, do not apply.

9. With regard to the requirements of 2-4-111, MCA, the department has determined that the adoption of the above-referenced rules will not significantly and directly impact small businesses.

Reviewed by: DEPARTMENT OF ENVIRONMENTAL QUALITY

____________________________ BY: __________________________________

JOHN F. NORTH
Rule Reviewer

JOAN MILES, CHAIRMAN

Certified to the Secretary of State, __________________, 2015.

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM
EXECUTIVE SUMMARY FOR INITIATION OF RULEMAKING

Agenda # III.B.2.

Agenda Item Summary: The department requests that the board initiate rulemaking to amend and repeal rules implementing the Opencut Mining Act.

List of Affected Rules: This request to initiate rulemaking would amend ARM 17.24.201, 17.24.202, 17.24.203, 17.24.206, 17.24.207, 17.24.212, 17.24.213, 17.24.214, 17.24.216, 17.24.217, 17.24.218, 17.24.219, 17.24.220, 17.24.221, 17.24.222, 17.24.223, 17.24.224, and 17.24.226 and repeal ARM 17.24.216 and 17.24.217.

Affected Parties Summary: The proposed rule amendments would affect persons who apply for or hold an opencut mining permit and landowners, persons who own land upon which opencut operations are conducted, and persons who live near opencut operations

Scope of Proposed Proceeding: The Department requests that the Board initiate rulemaking and conduct a public hearing and take comment on the proposed rules amendments and repeals.

Background: The opencut mining rules were last generally amended in 2004. Since that time, the Opencut Mining Act has been amended in three legislative sessions. In addition, experience with administering the rules has demonstrated that the rules are in need of amendment for clarification, to eliminate unnecessary provisions, and add or modify other provisions to make substantive improvements by adding necessary requirements and deleting unnecessary ones. The proposed amendments accomplish these purposes. The attached notice provides further detail.

Hearing Information: The Department recommends the Board initiate rulemaking and appoint a hearing officer to conduct a public hearing to take comment on the proposed rule amendments and repeals.

Board Options: The Board may:

1. Initiate rulemaking and issue the attached draft Notice of Public Hearing on Proposed Adoption;
2. Modify the Notice and initiate rulemaking; or
3. Determine that the adoption of the rule is not appropriate and deny the Department's request to initiate rulemaking.

DEQ Recommendation: The Department recommends that the Board initiate rulemaking and appoint a hearing examiner to conduct a public hearing, as described in the attached Draft Notice of Public Hearing on Proposed Amendment and Repeal.

Enclosures:

1. Draft Notice of Public Hearing on Proposed Amendment and Repeal

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.24.201, 17.24.202, 17.24.203, 17.24.206, 17.24.207, 17.24.212, 17.24.213, 17.24.214, 17.24.216, 17.24.217, 17.24.218, 17.24.219, 17.24.220, 17.24.221, 17.24.222, 17.24.223, 17.24.224, and 17.24.225, and the repeal of ARM 17.24.216 and 17.24.217 pertaining to rules and regulations governing the Opencut Mining Act)	NOTICE OF PUBLIC HEARING ON PROPOSED AMENDMENT AND REPEAL (RECLAMATION)

TO: All Concerned Persons

1. On ____________, 2015, at __:__ __.m., the Board of Environmental Review will hold a public hearing [in/at address], Montana, to consider the proposed amendment and repeal 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 Elois Johnson, Paralegal, no later than 5:00 p.m., _____________, 2015, to advise us of the nature of the accommodation that you need. Please contact Elois Johnson at Department of Environmental Quality, P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2630; fax (406) 444-4386; or e-mail ejohnson@mt.gov.

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

17.24.201 APPLICABILITY (1) remains the same.

(2) An operator conducting ~~a sand, gravel, bentonite, clay, or scoria mining~~ opencut operations ~~pursuant to~~ must comply with the provisions of a ~~reclamation~~ contract or permit issued under the ~~Montana Opencut or Strip Mined Land Reclamation~~ Act and this subchapter ~~of 1971 is recognized as being in compliance with Montana law. However, should that operator begin a new opencut operation as defined in 82-4-431, MCA, or expand an opencut operation beyond the existing contract area, the operator shall be responsible for first obtaining a permit under the provisions of the Act as amended.~~ Except as provided in (5), a permit is required before an operator commences the following:

(a) an opencut operation that results in the removal of more than 10,000 cubic yards of materials and overburden;

(b) more than one opencut operation where each operation results in the removal of less than 10,000 cubic yards of materials and overburden, but the several operations result in the removal of a total of 10,000 cubic yards or more of materials and overburden; or

(c) an opencut operation where overburden and materials are removed from a previously mined site and the amount mined, combined with the amount of previously removed materials and overburden, exceeds 10,000 cubic yards.

(3) Contracts and permits in effect ~~on February 13, 2004~~ before [the effective date of this amendment], need not be amended to comply with rules and rule amendments adopted on ~~February 13, 2004~~ [the effective date of this amendment]. Applications for permits, permit amendments, and permit ~~transfers or~~ assignments that ~~were submitted~~ the department determined to be complete prior to ~~February 13, 2004~~ [the effective date of this amendment], remain subject to provisions of this subchapter relating to application requirements as they read on the date the ~~application was submitted~~ department determined the application to be complete.

(4) Except as provided in (5) and ARM 17.24.226, a permit amendment is required before taking an action that expands or changes a permitted opencut operation.

(5) Except as provided in ARM 17.24.226(5), an operator holding a permit issued under the Act may commence a limited opencut operation that meets the criteria in ARM 17.24.226 and 82-4-431, MCA, after the operator has submitted the limited opencut operation form to the department.

AUTH: 82-4-422, MCA
IMP: 82-4-431, MCA

REASON: The proposed amendments to ARM 17.24.201 would implement Sec. 5, Ch. 198, Laws of 2013. The proposed amendments to (2) would restate the statutory threshold for obtaining an operating permit and are appropriate for restatement in the rule to notify applicants and operators that that failure to obtain a permit before exceeding the 10,000 cubic-yard permit threshold is a violation of the Act.

The proposed amendments to (3) would notify permitted operators and applicants that the proposed amendments to the subchapter do not apply to permits and applications determined to be complete as of the effective date of these amendments.

New (4) would implement Sec. 5, Ch. 198, Laws of 2013 and would exclude limited opencut operations from the requirement to obtain a permit or an amended permit. In addition, new (4) would clarify that any action that expands or changes a permitted opencut operation requires an amended permit except when the action qualifies as a limited opencut operation.

New (5) would implement Sec. 5, Ch. 198, Laws of 2013 and would require an operator to submit the limited opencut information form to the department before commencing a limited opencut operation. Submittal of the information form to the department before commencing operations is necessary to afford the department the opportunity to notify the applicant soon after operations commence in the event that the operation does not meet the requirements for a limited opencut operation. New (5) would also notify operators that a limited opencut operation must meet the criteria set forth in ARM 17.24.226 and 82-4-431, MCA.

17.24.202 DEFINITIONS When used in this subchapter, unless a different meaning clearly appears from the context, the following definitions apply:

(1) "Access road" means an existing or proposed non-public road ~~used in connection with~~ that connects an opencut ~~operations~~ operation to a public road or highway. The term includes the roadbed, cut and fill slopes, ditches, and other structures and disturbances related to the construction, use, and reclamation of the access road ~~establishment, use, and reclamation~~.

(2) "Bonded area" means a portion of the permit area that is subject to a reclamation bond or other security approved by the department under this subchapter.

(3) "Clean fill" means soil, overburden, fines, dirt, sand, gravel, rocks, and rebar-free concrete that have not been made impure by contact, commingling, or consolidation with organic compounds such as petroleum hydrocarbons, inorganic metals, or contaminants that meet the definition of hazardous waste under ARM Title 17, chapter 53, or regulated PCB (polychlorinated biphenyls). "Rebar-free concrete" means pieces of concrete that may contain rebar, but from which no rebar protrudes beyond the concrete.

~~(2)~~ (4) "Department" means the Department of Environmental Quality provided for in ~~Title 2, chapter 15, part 35~~ 2-15-3501, MCA.

~~(3) "Facility-level area" means access roads and areas where parking, equipment and material storage, soil and overburden stockpiling, fuel storage, mine material processing and stockpiling, other product production and storage, and water system and control structures are situated.~~

~~(4) "Main permit area" means facility-level areas and mine-level areas, except access roads.~~

~~(5) "Mine-level area" means areas where excavating, grading, and excess overburden and fines disposal occur.~~

~~(6)~~ (5) "~~Mine material~~ Materials" ~~means sand, gravel, scoria, bentonite, clay, soil, and peat~~ has the meaning given in 82-4-403, MCA.

(6) "Non-bonded area" means the portion of a permit area that is not covered by a reclamation bond or other security approved by the department under this subchapter.

(7) "Opencut operation" ~~means the areas and activities related to opencut mine site preparation, access road use, mine material mining and processing, and reclamation~~ has the meaning given in 82-4-403, MCA.

(8) "Overburden" ~~means the material below the soil and above the mine material~~ has the meaning given in 82-4-403, MCA.

(9) "Pattern of violations" means three or more violations of the Act or this subchapter that harm or have the potential to harm human health or the environment. A violation does not contribute to a pattern of violations:

(a) until such time as the opportunity for administrative review, judicial review, or appeal have passed for the violation; or

(b) after the violator demonstrates compliance with all the terms of an administrative or judicial order in an action taken by the department under authority of the Act and this subchapter because of the violation.

(10) "Permit area" means the areas subject to a permit granted under this subchapter.

(11) "Removal" means excavation of soil, overburden, and material from its natural condition.

(12) "Slope" means the measure of an incline by means of a ratio of horizontal to vertical distance indicated by a pair of numbers separated by a colon, for example, 3:1 which means one foot of rise over three horizontal feet.

~~(9)~~ (13) "Soil" ~~means the dark or root-bearing surface material, which is typically the O, A, E, and B horizons in soil profile descriptions~~ has the meaning given in 82-4-403, MCA.

(14) "Tilling" means breaking up the substrate or soil before seeding to a depth of at least one foot to improve conditions for plant growth.

AUTH: 82-4-422, MCA
IMP: 82-4-403, 82-4-422, 82-4-431, 82-4-432, 82-4-434, MCA

REASON: The proposed amendments to ARM 17.24.202 are necessary to update definitions and bring them into compliance with changes to the Opencut Mining Act made by Sec. 2, Ch. 198, Laws of 2013.

The proposed amendments would revise the definition of "access road" in (1) because Sec. 2, Ch. 198, Laws of 2013 excludes "private roads" from the definition of "affected lands" that require reclamation. The amended definition is necessary to identify the elements of an access road that would be subject to reclamation at the request of the landowner. The other amendments are necessary to improve syntax and readability.

New (2), (6), and (10) are necessary to clarify the distinction within a "permit area" between a "bonded area" where opencut operations are allowed, because the area is covered by a reclamation bond, and a "non-bonded area" where opencut operations are prohibited, because the area is not covered by a reclamation bond. The proposed new terms codify the department's practice of allowing an operator to bond only a portion of the permit area thereby limiting the burden of bond costs.

The proposed deletion of (3), (4), and (5) would eliminate the definitions of "facility level area," "main permit area," and "mine level area" that are proposed to be deleted throughout the subchapter because they are regulatory concepts that operators have found confusing. Elimination of these terms would improve regulatory clarity.

The proposed amendment of existing (6), (8), and (9), and proposed new (14) would substitute the restatement of those definitions that are currently in the rule in favor of reference to the definitions set forth in the Act. The proposed amendments improve clarity and avoid confusion that results from restatement of terms that are defined in statute. The proposed amendment of existing (6) substitutes "materials" as set forth in the statute for "mine materials" in order to eliminate a distinction in terminology that is unnecessary.

New (9) implements considerations that the department would use to determine whether it could refuse to approve an application under 82-4-431(5), MCA, for an operator who has engaged in a "pattern of violations." It would establish three violations, the minimum number to establish a pattern, as the threshold for disqualification. New (9)(a) would maximize due process protections for alleged violators by excluding a violation that is the subject of pending administrative or judicial review from consideration from counting as a pattern violation. New (9)(b) is necessary to exclude from consideration, as a pattern of violations, a violation described in an administrative or judicial order for which the operator has demonstrated compliance. The board has determined that having three unabated violations that harm public health or the environment indicate a lack of diligence sufficient to withhold permit issuance.

New (11) would add a definition for "removal" to clarify when opencut activities, which are not subject to the permit exclusion for limited opencut operations, reach the 10,000-cubic-yard permit threshold. The new definition implements Sec. 5, Ch. 198, Laws of 2013, which amends 82-4-431(1)(c), MCA, to require a permit for an operator who "removes materials and overburden at a previously mined site where the removal, combined with the amount of previously mined materials and overburden, exceeds 10,000 cubic yards." (emphasis added). That provision, construed in conjunction with the definition of "opencut operation" to include "mining directly from natural deposits of materials" in 82-4-403(7)(c), MCA, demonstrates the intent of the Legislature that disturbance, rather than removal from the site, of soil, overburden, or materials, triggers the obligation to obtain a permit. The proposed definition would mean that volumes of soil and overburden that have been removed from their natural condition and stockpiled at the site will not be deducted from the volume of the excavation for the purposes of determining whether the 10,000-cubic-yard threshold in 82-4-431(1), MCA, has been exceeded. The new definition would recognize the remedial intent of the Opencut Mining Act to provide for reclamation of sites where opencut operations have occurred.

New (13) would codify terminology used on opencut forms for determining the steepness of a slope. The definition is necessary to avoid confusion when a slope is described by a simple ratio.

New (15) would clarify "tilling," a term used in ARM 17.24.219, and is necessary to establish a minimum depth for preparation of land prior to seeding. The one-foot tillage depth is generally considered to be the minimum necessary to achieve successful revegetation.

17.24.203 BOND OR OTHER SECURITY (1) An application for a permit by a non-government operator must be accompanied by a bond or other security acceptable to the department under 82-4-433, MCA, and this subchapter ~~of at least $200 for each acre of affected land as defined in 82-4-403, MCA. After department has evaluated the site it may require an increase in the amount of bond or other security in accordance with 82-4-433, MCA.~~

(2) The department may adjust the amount of the bond or other security levels:

(a) based on information available to the department; and

(b) yearly when necessary to secure the department's estimate of costs to reclaim the affected land. Should the department determine that additional bond or other security is required, the operator shall submit ~~it~~ a bond or security in the increased amount within 30 days of notification by the department.

(3) The operator shall immediately notify the department if the bond or other security is cancelled or becomes ineffective. If the bond or other security is canceled or ~~otherwise~~ becomes ineffective, the operator shall reinstate ~~it~~ or replace

the cancelled or ineffective bond or security with another bond or ~~other~~ security acceptable to the department under 82-4-433, MCA, and this subchapter, within 30 days of notification by the department ~~of the cancellation~~ that the cancelled or ineffective bond or other security must be replaced. ~~Upon failure of~~ In the event that the operator fails to reinstate or replace such bond or other security within ~~that time~~ the time provided in this rule, the department may suspend ~~the~~ any permit ~~permit(s)~~ secured by ~~such~~ the cancelled or ineffective bond or other security ~~until its reinstatement or replacement~~ in accordance with 82-4-442, MCA. The operator shall immediately cease opencut operations, except reclamation activities, on lands covered by a suspended permit.

(4) An operator may apply for release of the bond in phases as follows:

(a) upon completion of phase I reclamation, which includes completion of all the requirements in ARM 17.24.219(1), except the requirements of ARM 17.24.219(1)(h)(ii)(K), (L), and (M). Any phase I reclamation bond or security release must leave sufficient bond or security to secure the estimated cost of completion of phase II reclamation;

(b) upon completion of phase II reclamation, which includes completion of all the requirements of ARM 17.24.219(1).

~~(4)~~ (5) ~~Requests~~ An application for ~~full~~ phase I or ~~partial~~ phase II bond release ~~of bond~~ or release of other security must be submitted on forms provided by the department, and must include:

(a) a site map that shows:

(i) the existing permit area and release request area;

(ii) the landowner material stockpile area and remaining soil stockpile, if applicable;

(iii) roads; and

(iv) other pertinent mapping items as required by ARM 17.24.221(5);

(b) at least four photographs taken from the north, south, west, and east corners of the release request area; and

(c) for applications for release of bond amounts for phase II reclamation, at least three photographs taken at three different locations in the permit area showing typical vegetation within an area approximately five feet wide and including an object to define scale.

(6) The department may release a portion of the bond or security when the operator demonstrates completion of a reclamation phase, as defined in (4), for a discrete portion of the permit area if:

(a) the remaining reclamation can be accomplished without disturbance of completed reclamation; and

(b) the remaining amount of bond or security is sufficient to cover estimated cost to complete reclamation of the affected land.

(7) Release of a portion of the bond or security after completion of phase I reclamation does not relieve the operator from responsibility for any reclamation or any increased costs of reclamation necessary to comply with the Act, this subchapter, and the permit until phase II bond release.

(8) State and federal agencies and counties, cities, and towns are not required to post a bond or security. These government operators may request release from responsibility for reclamation in the same manner as non-governmental

operators request bond or security release in accordance with this rule, including release of a portion of the permitted area, except that government operators may not request release of responsibility for phase I reclamation.

AUTH: 82-4-422, MCA
IMP: 82-4-432, 82-4-433, MCA

REASON: The proposed amendments to ARM 17.24.203 would implement changes to the Act by Sec. 12, Ch. 385, Laws of 2007 for determination of the amount of a reclamation bond or other security. The proposed amendments to (1) would clarify that the requirement to post a reclamation bond or security only applies to non-government operators and deletes the provision for the $200 per acre minimum bond amount that was specifically repealed by Sec. 12, Ch. 385, Laws of 2007.

The proposed amendments to (2)(a) would provide notice to applicants, in the rule, of the authority of the department under 82-4-432(2)(a), MCA, to withhold issuance of a permit pending increase in the bond amount, if the department determines, based on available information, that the amount of the bond submitted with the permit application is inadequate. The amendments would ensure that the amount of the bond is adequate before opencut operations may begin, thereby reducing the risk that the state would need to rely on public funds to reclaim the site. The proposed amendments to (2)(b) are necessary to notify operators that exercise by the department of its authority to require an operator to provide additional bond would be based on the department's determination of estimated reclamation costs. Otherwise the amendments to (2)(b) are necessary to improve the syntax and readability of the rule.

The proposed amendments to (3) would improve the syntax and readability of the rule. In addition, the amendments would require the operator, as well as the insurer or other guarantor, to immediately notify the department in the event that a reclamation bond is cancelled or becomes ineffective. This would ensure that the department has the opportunity to immediately suspend the operation or take other action to make sure that there is coverage of a bond or other security sufficient for reclamation of all disturbances. Revised (3) would also reference the department's suspension authority under 82-4-442, MCA, to notify operators that suspension of a permit under the rule must follow the procedures set forth in the statute.

New (4) would codify the department's practice of allowing an applicant to apply for phased bond release. New (4) also accommodates proposed amendments to ARM 17.24.219 which would provide more flexibility for an operator applying for bond release. New (4) would follow ARM 17.24.219 by establishing two phases of bond release, phase I and phase II. New (4) would make an operator eligible for phase I bond release upon completion of all reclamation activities that would presumably be completed in the first season after opencut activities cease, i.e., all activities except demonstration of successful revegetation. New (4) would make demonstration of revegetative success during the second growing season the benchmark for phase II or full bond release. Providing for phased bond release is necessary to allow an operator to release a portion of the bond after backfilling, grading, and revegetation have been completed and avoid the costs of maintaining the full bond amount pending demonstration of revegetative success.

Revised (5), previously numbered (4), would codify the department's practice regarding the information required for an application for bond release. Revised (5) would allow an operator to request partial bond release when all reclamation is complete except demonstration of revegetative success. The submittal requirements set forth in (5)(a) and (b) are the minimum necessary to demonstrate reclamation in accordance with ARM 17.24.219. Revised (5)(b) and (c) would facilitate timely processing of bond release applications by requiring the operator to provide pictorial evidence of successful reclamation in advance of the site inspection, so that the department may address any problems in advance of the inspection.

New (6) would codify the considerations that the department uses to evaluate an application for partial bond release, meaning release of a reclamation bond for only a portion of the permit area. The considerations are necessary and practical in that they would ensure that full reclamation is possible without disturbing areas where the bond has been released and that the amount of the bond remaining after partial release is sufficient to cover the costs of reclamation of the unreclaimed portion of the site.

New (7) provides that partial release of a reclamation bond does not prohibit the department from increasing the amount of the remaining bond in the event that the department concludes that the amount of the remaining bond is insufficient to cover estimated reclamation costs. The provision will ensure that the amount of the remaining bond will be sufficient to cover the costs of reclamation, thereby reducing the risk that the department would resort to public funds to complete reclamation.

New (8) would allow government operators, who are exempt from the requirement to obtain a reclamation bond, to apply for a release of responsibility for reclamation in the same manner that a nongovernmental operator would apply for partial bond release. New (8) would deny government operators the opportunity to apply for phased bond release based on vegetative success in recognition of the limited financial incentive for a government operator to do so. Because phased bond release is intended to relieve operators from the holding costs for a reclamation bond or other security, phased bond release is not applicable to government operators, because they are not required to post reclamation security.

17.24.206 LANDOWNER ~~CONSENT~~ CONSULTATION ~~FOR RECLAMATION~~ (1) ~~An operator shall secure the consent of the owner of the land to be affected by opencut operations to allow the operator, the department, or agents or contractors of the department to enter and reclaim the affected land as provided in the plan of operation.~~ An application for a permit or for an amendment to add acreage, for an asphalt or concrete plant, to change post mining land use, or to extend the reclamation date must demonstrate that the applicant consulted with the ~~The~~ landowner ~~consent must be submitted on a~~ about the proposed opencut operations by supplying a form provided by the department. ~~No application for a permit or an amendment to add acreage or change the postmining land use, may be approved unless accompanied by a landowner consent form.~~

(2) The landowner consultation form must require the landowner to:

(a) acknowledge receipt of a copy of the application for a permit or amendment submitted to the department;

(b) affirm ownership of the property that is described in the application;

(c) affirm that the operator consulted with the landowner about the opencut operations described in the application;

(d) indicate whether access roads, haul roads, or other roads used in opencut operations are on affected land and are subject to the reclamation requirements of this subchapter;

(e) acknowledge the exclusive right of the operator, its agent, or assignee to conduct opencut operations on the property that is identified in the application; and

(f) acknowledge and consent to entry and enforcement of the Act and this subchapter by the department on all landowner property affected by opencut operations.

(3) The landowner consultation form also must require the operator and the landowner to consent to entry at reasonable times by the department and its employees, agents, or contractors to inspect the property and complete reclamation of all affected lands in accordance with the permit and the plan of operation in the event that the operator fails to do so.

AUTH: 82-4-422, MCA
IMP: 82-4-422, 82-4-423, 82-4-432, 82-4-434, MCA

REASON: The proposed amendments to ARM 17.24.206 would implement the changes to the Act enacted under Sec. 11, Ch. 385, Laws of 2007. The proposed amendment to (1) would specify when landowner consultation is required. The proposed amendment would recognize that every change to a permit is not worthy of revised landowner consultation. However, the proposed amendment would require an operator to consult with the landowner for permit amendments that would result in an increase in permitted acreage, a change to postmining land use, an extension of the deadline for reclamation, or to add an asphalt or a concrete plant, which are all changes considered to be material to the interest of the landowner.

New (2)(a) would specify the information that the department currently requires on the landowner consultation form. It has been the experience of the department that some landowners do not understand the implications of permitted opencut operations on their land. Accordingly, new (2)(a) would require the landowner to acknowledge receipt of a copy of the opencut permit application submitted to the department.

New (2)(b) and (c) would require the landowner to acknowledge: 1) ownership of the subject lands; and 2) that the applicant has consulted with the landowner. This is being proposed in order to ensure that the landowners consultation requirement has been met.

New (2)(d) would also notify the landowner of elections he or she must make with regard to reclamation of roads. The information required is necessary, as it is the minimum needed to inform the landowner of the implications of landowner consent.

New (2)(e) is proposed to notify the landowner of the operator's exclusive right to conduct opencut operations under the permit to avoid conflicts between the operator and the landowner about the use and control of the permitted area.

New (2)(f) also would require the landowner and the operator to consent to entry of department staff to inspect property where an opencut operation is located and to inspect or complete reclamation of the property as permitted by 82-4-442, 82-4-445, and 82-4-446, MCA. This would facilitate the department's performance of its regulatory functions without interference.

17.24.207 ADDITIONAL REQUIREMENTS FOR BENTONITE MINES (1) In addition to the requirements imposed by ARM 17.24.203, 17.24.206, and 17.24.21~~6~~8 through 17.24.222, the department may require the following information as part of the plan of operation for a bentonite mining operation:

(a) an analysis of the soil and each major stratum in the overburden~~,~~ ~~including~~ that includes determinations of:

(i) saturation percentage~~,~~;

(ii) pH~~,~~;

(iii) electrical conductivity~~,~~;

(iv) sodium adsorption ratio~~,~~;

(v) texture~~,~~; and

(vi) additional characteristics the department may require.

(2) A soil analysis required under (1)(a) must describe:

~~(i) In submitting this information, the operator shall also list:~~

~~(A)~~ (a) the identifying number and depth of each sample~~s~~ taken;

~~(B)~~ (b) the methods by which ~~they were~~ the samples were taken;

~~(C) the location and depths from which they were taken;~~

(D) remains the same, but is renumbered (c).

~~(E)~~ (d) the analytical methods ~~of analysis~~ used; and

~~(F)~~ (e) the names and addresses of the persons who analyzed the samples.

~~(ii)~~ (3) ~~The~~ A soil analysis required by (1)(a) must be accompanied by a map that describes ~~delineating~~:

~~(A)~~ (a) the soil types identified;

~~(B)~~ (b) the location and depth of each sample taken ~~site locations~~;

(C) and (D) remain the same, but are renumbered (c) and (d).

~~(b)~~ (4) The department may also require that the plan of operation contain a description of the location and method of disposal of bentonite cleanings, stray bentonite seams, and overburden that are unsuitable for plant growth. Such materials must be buried under at least three feet of material suitable for sustaining the postmining vegetation, but if suitable burial material is not available, then the material that is unsuitable for plant growth must be laid and graded to a condition that is as good or better than the pre-mine condition, minimizes adverse impacts to plant growth, and blends into the surrounding area.

AUTH: 82-4-422, MCA
IMP: 82-4-432, 82-4-434, MCA

REASONS: The amendments to ARM 17.24.207 are proposed to improve the syntax and readability of the rule. No substantive amendments are proposed except that the language to be added to (1)(d) would provide flexibility for operations where the pre-mine conditions do not permit burial of materials unsuitable for plant growth beneath three feet of suitable material.

17.24.212 ~~APPROVAL OR DISAPPROVAL~~ REVIEW OF AN APPLICATION-SITE INSPECTIONS ~~FOR A PERMIT~~ (1) Upon receipt of an ~~a permit~~ application to conduct opencut operations and within the time limits provided in 82-4-432~~(4)~~, MCA, the department shall ~~inspect the proposed site and~~ evaluate the application to determine if the requirements of the Act and this subchapter ~~will be~~ are satisfied. ~~If the department is unable to evaluate a permit application because weather or other field conditions prevent an adequate site inspection, then the application must be disapproved.~~

(2) Except as provided in 75-1-208(4)(b), MCA, within five working days of receipt of an application to conduct opencut operations, the department shall determine and notify the applicant whether the application is complete. A complete application must be submitted on forms provided by the department and must contain the materials and information required by 82-4-432(1) and (2), MCA, and the plan of operation required by ARM 17.24.218 through 17.24.223.

(3) If the department determines that an application is complete, the applicant shall comply with the public notice requirements required by 82-4-432, MCA, and the department shall review the application for acceptability.

~~(2)~~ (4) ~~The department shall approve a~~ A permit application is acceptable if ~~it determines that:~~ the materials and information provided to the department demonstrate that the proposed opencut operation complies with requirements of 82-4-432(1) and (2), MCA, and contains a plan of operation that meets the requirements of this subchapter.

~~(a) the application contains the following:~~

~~(i) $50 application fee, if required;~~

~~(ii) a completed copy of the permit application form provided by the department;~~

~~(iii) a plan of operation in accordance with 17.24.217, 218, 219, 221, 222 submitted on a form provided by the department;~~

~~(iv) bond or other security, if required;~~

~~(v) a completed copy of the landowner consent form; and~~

~~(vi) a completed copy of the zoning compliance form; and~~

~~(b) the application materials satisfy the requirements of the Act and this subchapter.~~

~~(3)~~ (5) Before ~~approving~~ determining that an ~~operator's permit~~ application for a permit is acceptable, the department shall submit a copy of the plan of operation, including site and area maps ~~map(s)~~, to the state historic preservation office for evaluation of possible cultural resources in the proposed permit area. ~~If the site is likely to contain significant cultural resources~~ Based on information provided by the state historic preservation office and as required by law, the department may require that the operator sponsor a cultural resources survey by ~~a competent~~ an archaeological professional ~~authority prior to approving the application~~ and provide a plan to protect archeological and historical values on affected lands. Unless prohibited by law, the department shall make available a response received from the state historic preservation office.

~~(4)~~ (6) A permit must provide that the operator shall comply with the requirements of the Act and this subchapter. Before determining that an application for a permit or amendment is acceptable, the department may condition a permit as necessary to accomplish the requirements of the Act and this subchapter including, but not limited to, requiring surface water and ground water quality and quantity monitoring before, during, and after opencut operations inside and outside the permit area.

~~(5)~~ (7) A permit ~~does not become operative until issued by the department, and an applicant may not begin opencut operations until a permit is issued~~ becomes effective when the department notifies the applicant in writing that the information and materials provided to the department meet all the requirements of the Act and this subchapter and that the permit is approved and issued by the department.

AUTH: 82-4-422, MCA
IMP: 82-4-402, 82-4-422, 82-4-423, 82-4-431, 82-4-432, 82-4-434, MCA

REASON: The proposed amendments to ARM 17.24.212 would implement the amendments enacted by Sec. 11, Ch. 385, Laws of 2007 and Sec. 7 Ch. 477, Laws of 2009. The proposed amendments to (1) are necessary to improve syntax and readability of the rule. The last sentence of (1) would be deleted in favor of proposed new (5).

New (2) and (3) would restate the requirements of 82-4-432, MCA, in order to consolidate all necessary information for applicants in one place in the rule. The proposed last sentence of (2) is necessary to notify applicants which rules are relevant to an application for a permit.

New (4) would restate current (2) and would substitute terms that follow the applicable statute, 82-4-432, MCA, for clarity. New (4) would also delete the provisions of (2)(a) and (b) because they have been invalidated by changes enacted by Sec. 11, Ch. 385, Laws of 2007, and otherwise merely paraphrase the statute.

The proposed amendments to (5), currently (3), would improve syntax and readability of the rule and articulate the department's understanding of the legal requirements arising from the Montana antiquities laws provided in 22-3-421, MCA, et seq. and 82-4-434(3)(h), MCA. The last sentence of (5) would respond to concerns of applicants that they are unable to review communications from the State Historic Preservation Office to the department.

The proposed amendment to (6), currently (4), would allow the department to condition a permit as necessary to accomplish the requirements of the Act or rules. This amendment would provide a process to ensure compliance that is less drastic, time-consuming, and costly than permit denial and reapplication. Revised (6) would add language that is proposed to be deleted from current ARM 17.24.218(1)(e) and (i). The language would be relocated to improve the logic and flow of the rule.

The proposed amendments to (7), currently (5), are proposed to improve the syntax and clarity of the rule. The proposed amendments would establish a clear time when opencut operations may commence after approval of a permit and prevent operations from commencing before the permit has been issued.

17.24.213 AMENDMENT OF PERMITS (1) An operator may apply for an amendment to its permit by submitting an ~~amendment~~ application ~~to~~ on a form provided by the department. Upon receipt of an amendment application and within the time limits provided in 82-4-432~~(4)~~, MCA, the department shall~~, if it determines that site inspection is necessary to adequately evaluate the application, inspect the proposed site and~~ evaluate the amendment application to determine if the requirements of the Act and this subchapter will be satisfied. ~~If the department determines that a site inspection is necessary and it is unable to evaluate an application because weather or other field conditions prevent an adequate site inspection, the department shall disapprove the application.~~

(2) ~~The department shall approve an amendment application if it determines that~~ An application to amend a permit is acceptable if it meets the requirements of ARM 17.24.212 and includes the following:

(a) ~~the application contains a completed copy of the amendment application form provided by the department,~~ a new or additional bond ~~if necessary,~~ or other security sufficient to cover additional estimated costs of reclamation required by ARM 17.24.203 and 17.24.220;

(b) a new landowner ~~consent~~ consultation form if required under ARM 17.24.206~~(1),~~;

(c) a new zoning compliance form if required under ARM 17.24.223~~,~~; and

(d) a revised plan of operation ~~revisions, if necessary; and~~.

~~(b) the application and plan of operation revisions satisfy the requirements of the Act and this subchapter.~~

(3) For an amendment application solely to extend the reclamation date for a period of no more than five years that is submitted no later than five years after the first approval date of the permit, the applicant shall apply to extend the reclamation date on a form provided by the department and provide an updated landowner consultation form.

~~(3)~~ (4) An amendment ~~does not become operative until approved~~ becomes effective when the department notifies the applicant in writing that the information and materials provided to the department meet all the requirements of the Act and this subchapter and that the amendment is approved and issued by the department. Once approved, an amendment becomes part of the original permit.

~~(4) An amendment application does not require the payment of an additional fee.~~

AUTH: 82-4-422, MCA
IMP: 82-4-432, 82-4-433, 82-4-434, 82-4-436, MCA

REASON: The proposed amendments to ARM 17.24.213 would implement the changes to the Act enacted by Sec. 11, Ch. 385, Laws of 2007 and Sec. 7, Ch. 477, Laws of 2009. The proposed strikeouts in (1) delete provisions for mandatory inspections in accordance with the amendments enacted by Sec. 7, Ch. 477, Laws of 2009.

The proposed amendments to (2) would recognize that the procedures for amendment of a permit generally follow the procedures for application for an original permit set forth in ARM 17.24.212. See 82-4-432(12), MCA. Accordingly, descriptions of procedures are stricken in favor of reference to the applicable rule.

Current (2)(b) would be deleted for regulatory clarity because it generally repeats language set forth in (1). The proposed amendments to (2) would improve syntax and readability of the rule and conform the rule to language proposed elsewhere in the subchapter.

New (3) would provide an expedited procedure in the event that a operator only desires to extend the reclamation date within five years of having obtained the original permit. The expedited procedure is justified because the information provided in the original application is unlikely to have materially changed within the five-year period.

The proposed amendments to (4), currently (3), are necessary to inform the applicant that a permit amendment does not become effective until the department notifies the applicant in writing that the amendment application is approved and the amendment is issued. The proposed amendments are necessary to establish a clear time when opencut operations may commence pursuant to amendments to a permit and prevent the operator from commencing operations under the amended permit until it is issued. The new language in (4) is proposed so that the rule more closely follows proposed ARM 17.24.212(7). The language proposed in ARM 17.24.212(7) would be restated in (4) to notify operators that expanded operations under an amended permit may only commence after the department provides written notice of approval.

17.24.214 ANNUAL ~~PROGRESS~~ PRODUCTION REPORT

(1) An operator ~~who possesses one or more permits~~ shall submit one annual ~~progress~~ production report ~~for~~ that addresses all opencut operations during the previous calendar year to the department on or before March 1 of each year.

(2) The annual ~~progress~~ production report must be submitted on a form provided by the department. ~~In addition to the requirements in 82-4-403, MCA,~~ The ~~the~~ report must list all ~~of the operator's permitted sites and provide the information required by the department for each of those~~ sites where the operator engaged in permitted, unpermitted, or limited opencut operations and describe the amount of materials removed for each site.

(3) The annual production report must be accompanied by payment of the annual fee, in accordance with 82-4-437, MCA, for the sites listed according to (2).

(4) The department may require an operator to provide documentation of materials removed for the purpose of verifying the amounts reported under this rule.

AUTH: 82-4-422, MCA
IMP: 82-4-402, 82-4-434, MCA

REASON: The proposed amendments to ARM 17.24.214 would implement changes to annual reporting requirements enacted by Sec. 9, Ch. 477, Laws of 2009 and Sec. 8, Ch. 198, Laws of 2013. The proposed revision of the title of the rule provides regulatory clarity because "production" more accurately describes the subject matter of the report. The proposed amendments to (1) would implement Sec. 8, Ch. 198, Laws of 2013, to expand the applicability of the annual report requirement to unpermitted as well as permitted operators.

The proposed amendments to (2) would also implement Sec. 8, Ch. 198, Laws of 2013, to expand the applicability of the annual report requirement to unpermitted as well as permitted operators. The proposed strikeout of the reference to 82-4-403, MCA, is necessary because the reference was made obsolete by enactment of 82-4-437, MCA, in 2007. In addition, the proposed amendments to (2) clarify that the annual report must include production from limited opencut operations.

New (3) would implement Sec. 9, Ch. 477, Laws of 2009, which enacted the $0.025 per cubic yard production fee and to inform operators that the fee, if applicable, must be submitted along with the annual report.

New (4) would provide a means of verifying the accuracy of annual production reports submitted to the department.

<u>17.24.218 PLAN OF OPERATION-SITE CHARACTERIZATION, SITE PREPARATION, SOIL AND OVERBURDEN HANDLING, MINING, AND PROCESSING PLANS-AND PERFORMANCE STANDARDS</u>

(1) The plan of operation must include the following ~~site preparation, mining, and processing plan commitments and information~~:

(a) ~~an access road and main permit area boundary~~ <u>a</u> markers section~~,~~ ~~including~~ <u>that includes</u> a statement that the operator ~~has~~ clearly marked on the ground <u>all required boundaries and</u> ~~the~~ <u>permitted</u> access ~~road segments~~ <u>roads</u> to be improved or constructed ~~and the main permit area boundary segments that require marking~~ and will maintain the markings as required by this rule. <u>Boundary and</u> ~~R~~<u>r</u>oad <u>markers</u> ~~segments to be improved or constructed~~ must be ~~marked~~ <u>placed</u> ~~at every corner and along each segment~~ so that ~~the~~ <u>no less than two consecutive</u> markers are ~~easily~~ <u>readily</u> visible ~~with the naked eye from~~ <u>in any direction from any point on a line</u> ~~one to the next~~ ~~and no more than approximately 300 feet apart~~. <u>The following requirements apply to marking boundaries and permitted access roads to be improved or constructed:</u>

<u>(i) markers must be in place prior to submitting an application for a permit or an amendment;</u>

<u>(ii) markers should be durable stout steel, wood, or similar quality posts and painted or flagged to be readily visible, except that a prominent, permanent feature such as a pole, tree, or large rock, flagged or painted, may serve as a marker;</u>

<u>(iii) road markers may be removed as the road is constructed, but each boundary marker must be maintained in place and readily visible until the adjacent permit area is reclaimed and released;</u>

<u>(iv) the following areas and features must be marked according to this rule:</u>

<u>(A) proposed permit or proposed amended permit boundaries;</u>

<u>(B) non-bonded areas;</u>

<u>(C) proposed permitted access roads to be improved or constructed;</u>

<u>(D) phase 1 release areas previously approved by the department; and</u>

<u>(E) prior to submission of an application for bond release, areas that are the subject of an application for phase I or phase II bond release;</u>

<u>(v)</u> ~~Those portions of the boundary defined by definite topographic changes, natural barriers, or man-made structures, or located in~~ <u>the requirements of (1)(a) do</u>

not apply to active hayland, ~~or~~ cropland, ~~need not be marked~~ or existing roads to be permited. ~~Other Boundary segments must be marked at every corner and along each segment so that the markers are easily visible with the naked eye from one to the next and no more than approximately 300 feet apart. Acceptable road and boundary markers include brightly colored, brightly painted, or brightly marked fenceposts, rocks, trees, and other durable objects. A boundary marker must remain functional until the beginning of final reclamation of the area next to that marker~~;

(b) an access road ~~establishment~~ construction~~,~~ and use~~, and reclamation~~ section that is consistent~~, including~~ with the landowner's acknowledgements contained in the landowner consultation form required by ARM 17.24.206~~:~~; and

~~(i) a statement that the operator will appropriately establish, use, and reclaim access roads, and downsize to the premine condition or totally reclaim these roads by retrieving and properly handling surfacing materials; backfilling and grading road locations in a manner that leaves stable surfaces blended into the surrounding topography and drainageways; and ripping, resoiling, reconditioning, and seeding or planting the locations with the approved vegetative species, unless the landowner requests in writing that specific roads or portions thereof remain open and the department approves the request; and~~

~~(ii) a description of the access roads or portions thereof to be improved or constructed, including their locations, lengths, widths, drainageway crossings, and surfacing; and of the roads or portions thereof proposed to remain open, per landowner request, at the conclusion of opencut operations, including their locations, intended uses, and final widths. Some or all of this information may be presented on the site or area map. Improvements include, but are not limited to, blading, widening, and surfacing. A road or portion thereof may remain open for a reasonable postmining use and must be left in a condition suitable for that use;~~

(c) a soil and overburden characterization section that includes the average soil and overburden thicknesses in the permit area determined on the basis of no less than three test holes spaced representatively to describe proposed permit areas of less than nine acres and one test hole per each three-acre area for proposed permit areas of nine acres or more, with a maximum of 20 representatively spaced test holes for proposed permit areas that exceed 60 acres, or as otherwise approved by the department in the permit;

(i) for the purposes of this subsection:

(A) test holes must be of sufficient depth to measure the thicknesses of soil and overburden;

(B) representative test holes must be located in both bonded and non-bonded areas;

(C) exposures of the soil and overburden profile, such as a roadcut, may be used in lieu of a test hole; and

(D) clear labeled photos showing the top three feet of the soil profile with a visible scale must be taken and provided to the department for each test hole;

(d) a soil and overburden handling section that includes a statement that the operator shall:

(i) upon commencing opencut operations, strip and stockpile overlying soil to the depth specified in the permit before excavating overburden and materials;

(ii) before mining, remove and stockpile overburden separately from soil and designate soil and overburden stockpiles with signage that is legible, readily visible, and placed so that equipment operators and inspectors may readily identify the type of stockpile for the life of the stockpile;

(iii) never stockpile overburden or soil on slopes greater than 3:1 or in drainages or in a manner that will cause pollution to state waters;

(iv) remove all soil and overburden from a minimum ten-foot wide strip along the crest of a highwall;

(v) haul soil and overburden directly to areas prepared for backfill and grading or resoiling or to separate stockpiles;

(vi) never stockpile overburden on areas where soil has not been stripped to the depth required by the permit; and

(vii) use best management practices to prevent erosion, comingling, contamination, compaction, and unnecessary disturbance of soil and overburden stockpiles including, but not limited to, at the first seasonal opportunity, shape and seed, with approved perennial species, the soil and overburden stockpiles that remain in place for more than two years and maintain the accessibility of all overburden and soil stockpiles in the permit area prior to reclamation in accordance with the plan of operation;

~~(c)~~ (e) a construction, mining, processing, and hauling section~~, including~~ that includes:

(i) a description of the materials to be sold or used by the operation;

(ii) a construction project plan that describes the locations and construction schedules for all areas to be disturbed and location of all facilities including offices, parking, vehicle staging areas, roads designated by the landowner as affected land, and processing plants;

(iii) a description of the methods and equipment to be used to mine, haul, and process ~~mine~~ material~~, and to haul it and the products made from it. The department may require~~;

(iv) a description of the anticipated general mining progression, including ~~where~~ the location of the first stripping and excavation ~~will occur~~, the direction of mining ~~will~~ progress, ~~and other relevant information. The anticipated location~~ and timing for the ~~installation~~ mobilization and setup of processing facilities such as a screen, crusher, asphalt plant, wash plant, batch plant, pug mill, and other facilities ~~may also be required~~; and

(v) other information necessary to fully describe the nature and progress of opencut operations;

~~(d)~~ (f) a section describing the ~~an~~ hours of operation ~~section, including a description of the proposed hours of operation~~ of the proposed opencut operation. The department may reasonably limit hours to reduce adverse impacts on residential areas. ~~A~~ The department may require an operator to keep and maintain a complete and accurate ~~log that lists general on-site activities and the dates and times they occurred must be maintained for an opencut operation subject to restricted hours. Log information must be presented to the department upon request~~ record of the hours operated. The operator shall submit the record to the department within two work days after receipt of a request from the department;

(g) a water resources section that includes:

(i) the depths, water levels, and uses of water wells in and within 1,000 feet of the permit area;

(ii) identification of the sources of the information reported, such as landowners, field observations, and water well logs;

(iii) copies of all available well logs;

(iv) the estimated seasonal high and seasonal low water table levels in the permit area and the information sources used, such as landowners, field observations, and water well logs; and

(v) in the event that the proposed opencut operation involves or may result in the diversion, capture, or use of water, acknowledgement that the operator consulted with the regional office of the Department of Natural Resources and Conservation, Water Resources Division, concerning the requirements to obtain water rights and possible adverse impacts to existing water rights;

~~(e)~~ (h) a water quality protection and management section~~, including~~ that includes:

(i) ~~a statement that the operator will take appropriate measures to protect on- and off-site surface water and ground water from deterioration of water quality and quantity that could be caused by opencut operations; take appropriate measures to prevent, minimize, or mitigate adverse impacts to on- and off-site surface water and ground water systems and structures that could be caused by opencut operations~~ a description of the source, quantity, storage, use, and discharge of water to be used for opencut operations;

(ii) an explanation of measures to prevent pollution of state waters or impairment of a water right including, but not limited to:

(A) an explanation of water management and erosion control plans for stormwater, ground water, and surface disturbances that discharge offsite or intercept any waterway with a defined channel; and

(B) an explanation of proposed measures to protect the water rights of other parties or to replace an adversely affected water source that has a beneficial use;

(iii) a statement that the operator will keep non-mobile equipment above the ~~ordinary~~ seasonal high water level of surface water and ground water~~; appropriately establish, use, and reclaim opencut-operation-related hydrologic systems and structures~~; and

(i) a spill prevention and management section that includes a statement that the operator will:

(i) install or construct fuel storage containment structures in accordance with the current codes adopted by the state fire marshal for each single-wall, non-mobile, fuel storage tank placed and used in and within ~~500 feet of access roads and 1,000~~ 300 feet of the ~~main~~ permit area; and

(ii) routinely inspect and maintain these tanks to prevent leaks and spills~~;~~, retrieve and discard spilled fuel and contaminated materials in a lawful manner~~;~~, and report to the department a fuel spill that reaches state waters, as defined in 75-5-103, MCA, or is greater than 25 gallons. ~~The department may require on- and off-site surface water and ground water quality and quantity monitoring before, during, and after opencut operations. When opencut operations will cause the diversion, capture, or use of water, the operator shall consult with the regional office of the department of natural resources and conservation, water resources division,~~

~~concerning water rights and submit a summary of that consultation with the plan of operation; and~~

~~(ii) a description of the source, quantity, storage, use, and discharge of water to be used for opencut operations; special measures to be used to protect on- and off-site surface water and ground water from deterioration of water quality and quantity; special measures to be used to prevent, minimize, or mitigate on- and off-site impacts on surface water and ground water systems and structures; water management and erosion control plans for surface disturbances that will intercept a drainageway, significant runoff, or ground water; measures to be used to protect the water rights of other parties or to replace an adversely affected water source that had a beneficial use; and fuel storage containment structures to be installed or constructed;~~

~~(f) a mine material handling section, including:~~

~~(i) a statement that the operator will keep mine material stockpiles out of drainage bottoms and off of slopes greater than 3:1, and a statement that, at the conclusion of opencut operations, the operator will, except as provided in (ii) below, remove from the permit area or bury all excavated or processed mine material, unless the landowner requests on the landowner consent form that specific types, grades, and quantities of mine material remain stockpiled; consolidate mine materials to remain stockpiled into piles of similar type and grade; and leave the quantity of soil that was stripped from the unreclaimed area under and around a mine material stockpile in a shaped and seeded pile within 100 feet of that stockpile. The operator remains liable for the unreclaimed area under and around a mine material stockpile until the mine material is removed and the site reclaimed, or ownership of the stockpile or possession of the permit is transferred to the landowner or another party; and~~

~~(ii) a description of the types, grades, and quantities of mine material proposed to remain stockpiled, per landowner request, at the conclusion of opencut operations, and justifications for the quantities based on current and expected demand for the materials. The department shall reject a landowner's request that certain mine materials remain stockpiled if adequate justification is not provided;~~

(g) ~~a mined-area backfill section, including:~~

~~(i) a statement that the operator will use only clean fill from any source, on-site-generated asphaltic pavement as mined-area backfill; dispose of other wastes in compliance with applicable state laws and rules; bury on-site-generated asphaltic pavement, coarse clean fill, and other clean fill unsuitable for plant growth under at least three feet of material suitable for sustaining the postmining vegetation; and, at the conclusion of opencut operations, remove stockpiled asphaltic pavement, concrete with protruding metal, and clean fill from the permit area. Clean fill consists of dirt, sand, fines, gravel, oversize rock, and concrete with no protruding metal. On-site generated asphaltic pavement must be disposed of at least 25 feet above the ordinary high water table. The operator may propose that excess on-site-generated overburden and fines be disposed of at a site outside of the mined area but within the permit area. Fines consist of natural or crushed rock that is 1/4 inch or smaller; and~~

~~(ii) a description of the material types, estimated quantities, and fill designs for mined-area backfill, and of the plan for stockpiling and recycling imported~~

~~asphaltic pavement and concrete~~;

(j) a statement by the operator that:

(i) opencut operations may not occur within a prohibited area described in the permit for purposes that include, but are not limited to, reclamation of a highwall or protection of an easement, a right of way, a drainage, or a waterway area;

(ii) no opencut operations will occur within an easement unless written permission to do so is obtained from the holder of the dominant estate; and

(iii) before commencing opencut operations, the operator, on a form provided by the department, notified the weed board in the county or counties in which the proposed operation is located. A copy of the form that the applicant submitted to the weed board must be attached to the application;

~~(h)~~ (k) an additional impacts section~~, including~~ that includes:

(i) a description of the methods and materials to be used to minimize impacts, as necessary, on the residential areas and structures identified under ARM ~~17.24.217(1)(e)~~ 17.24.221(4)(h);

(ii) repair or replacement of man-made structures affected by opencut operations within the permit area; and

(iii) ~~address~~ identification of other opencut operation impacts not addressed in other sections of the plan of operation; and

~~(i)~~ (l) an additional commitments section~~, including~~ that includes a statement that the operator will:

(i) inform key personnel and subcontractors involved in opencut operations of the requirements of the plan of operation;

(ii) take proper precautions to prevent wildfires;

(iii) provide appropriate protection for cultural resources that could be affected by opencut operations; and

(iv) promptly notify the state historic preservation office should such resources be found~~; and submit an annual progress report to the department~~.

(2) Approval of an application does not relieve the operator from the requirements of any applicable federal, state, county, or local statute, regulation, rule, or ordinance including requirements to obtain any other permit, license, approval, or permission necessary for the actions described in or required by the application and the permit.

(2) remains the same, but is renumbered (3).

AUTH: 82-4-422, MCA
IMP: 82-4-402, 82-4-422, 82-4-423, 82-4-431, 82-4-432, 82-4-434, MCA;

REASON: The proposed amendments to ARM 17.24.218 implement changes enacted by Sec. 13, Ch. 385, Laws of 2007. The proposed amendments would also restate language proposed for deletion in ARM 17.24.217 to include all requirements relevant to mining operations in one rule. Similarly, language in ARM 17.24.218 that would be more appropriately included in ARM 17.24.219, which provides for the reclamation portion of the plan of operations, has been deleted and added to the latter rule in order to improve regulatory clarity and the logic and flow of the rules.

The proposed deletion of language in (1) is necessary for regulatory clarity because it partially restates the requirements for a mining plan that are serially set forth in the rule. Otherwise, the proposed amendments to (1)(a) would improve syntax and readability of the rule.

More specifically, the proposed amendments to (1)(a) would implement the deregulation of access and other roads enacted by Sec. 2, Ch. 198, Laws of 2013, by deleting the requirement that an applicant or operator mark the location of proposed access roads outside the permit boundary. The new language proposed at (1)(a) and (1)(a)(i) would require placement of markers so that boundaries may be readily located during site inspections and during operations. The new language proposed at (1)(a)(ii) would ensure that the materials used for boundary markers are durable and readily visible in the field. The new language proposed at (1)(a)(iii) relieves operators from the obligation to maintain road markers after the road is constructed. The new language proposed at (1)(a)(iv) restates each requirement for marking boundaries in separate statements to improve the syntax of the rule. New (1)(a)(iv) also proposes marker requirements for phased bond release in order to minimize the time required to perform site inspections for bond release. The proposed amendments at new (1)(a)(v) delete language that has been revised and restated elsewhere in the rule, as explained, above.

The proposed amendments to (1)(b) would implement the deregulation of access and other roads enacted by Sec. 2, Ch. 198, Laws of 2013, by deleting the requirement that a plan of operation explain construction, use, and reclamation of access roads except as necessary to achieve the expectations of the landowner about the reclamation of roads constructed on affected land.

New (1)(c) would combine and restate requirements for characterization of soil and overburden currently set forth in ARM 17.24.217(1)(d) and 17.24.219(1)(b) in one place in the rule. The proposed amendments to (1)(c) are necessary to improve the logic and flow of the rule by combining all requirements relevant site characterization and mining operations into the provisions for the plan of operation. The proposed provision for test holes generally restates the current provisions of ARM 17.24.217(1)(d) and would notify applicants of the department's practice regarding the number of test holes that are necessary to represent the depths of soil and overburden. New (1)(c)(i)(D) would require an applicant to provide labeled photos showing the top three feet of the soil profile which is necessary to reduce the time required for preapproval site visits by allowing the department to identify in advance specific test holes that should be inspected.

New (1)(d) would restate requirements for explaining how soil and overburden will be handled during mining that are currently set forth in (1)(f)(i) and the requirements for the reclamation plan in ARM 17.24.219(1)(b). The proposed amendment is necessary to improve the logic and flow of the rule relating to soil and overburden handling because it gathers all related provisions at one place in the rule. Also, soil and overburden handling has a stronger nexus to operations as opposed to reclamation and logically should be addressed as part of the plan of operation. The restated requirements for soil and overburden handling would generally follow the current requirements of (1)(f)(i) and ARM 17.24.219(1)(b), but are restated such that each requirement is a separate subsection to improve readability. New (1)(d)(ii) would require operators to post signs identifying soil and overburden stockpiles and is necessary as a best management practice to avoid comingling of soil and overburden during mining. The requirement is necessary to ensure that soil stockpiles are not contaminated with other materials because the availability of soil on site is critical to keeping the costs of reclamation within the principal amount of the reclamation bond.

The proposed amendments to (1)(e), currently numbered as (1)(c), would restate requirements for explaining the proposed mining and material handling operations. The proposed amendments are necessary to improve the syntax of the rule. Otherwise, new (1)(e)(ii) would implement the requirement for a construction project plan that is set forth in 82-4-403(7)(g)(ii), MCA.

The proposed amendments to (1)(f), currently numbered as (1)(d), would restate the provision for regulation of the hours of operation in the event that an operation is proposed in the vicinity of a residential area. The proposed amendments are necessary to improve the syntax of the rule. The proposed last sentence of (1)(f) is necessary so that the department may inspect an operating record outside of a site inspection.

New (1)(g) would combine and restate the requirements currently set forth in ARM 17.24.217(1) and 17.24.218(1)(e)(i) that relate to identification of water resources. New (1)(g) is necessary to improve regulatory clarity by consolidating regulations addressing water resources under a single rule and by distinguishing the requirement that the plan of operation address water resources in and within 1000 feet of the proposed permit area from the requirement to address water quality protection and management proposed in (1)(h). New (1)(g)(v) would move language currently located in (1)(e)(i) to consolidate all provisions concerning water resources to a single location in the rule.

The proposed amendments to (1)(h), currently numbered as (1)(e), would restate the provision for water quality protection and management. The proposed amendments to (1)(h) would include restatement of the requirements currently located at (1)(e)(ii) for the purpose of gathering all provisions specifically relevant to water quality under a single subsection. Also, the requirements of the rule would be restated in terms that follow the Montana water quality laws to avoid confusion and enhance regulatory certainty.

The proposed amendments to (1)(i), currently numbered as (1)(e)(i), would restate requirements for the plan of operation regarding spill prevention and control. The proposed amendment would restate these requirements in a separate subsection to avoid confusion and improve the logic and flow of the rule.

New (1)(j) would gather and restate at one location in the rule prohibitions against mining necessary to ensure reclamation of highwalls and to avoid impairment of other property rights, such as easements and rights of way, and to protect drainages and waterways. New (i)(j) restates these requirements to improve syntax and readability. New (1)(j)(iii) is necessary to simplify and clarify the obligation of an applicant or an operator to notify the county weed board, if any, of the proposed operation.

The proposed amendments to (1)(k), currently numbered (1)(h), are necessary to improve syntax and readability of the rule and correct references to rules as they would be amended by the proposed amendments to this subchapter.

New (2) is necessary to inform applicants and operators that approval of an application under the Act and this subchapter does not relieve the applicant or operator from the requirements of other applicable laws.

17.24.219 PLAN OF OPERATION--RECLAMATION PLAN--AND PERFORMANCE STANDARDS (1) The plan of operation must include the following site reclamation plan commitments and information:

(a) a postmining land uses section~~, including~~ that includes a description of the type, location, and size of each postmining land use area in the ~~main~~ permit area. Postmining land use types include, but are not limited to, internal roads, material stockpile areas, water source pond, wetland, fish pond, riparian area, grassland, rangeland, shrubland, woodland, ~~special use~~ pasture, hayland, cropland, wildlife habitat, ~~livestock protection site,~~ recreation site, and residential, commercial, and industrial building sites;

~~(b) a soil and overburden handling section, including:~~

~~(i) a statement that the operator will strip soil before other opencut operation disturbances occur; strip, stockpile, and replace soil separately from overburden; strip a minimum of six inches of soil, if available, from accessible facility-level areas; strip all soil from accessible mine-level areas; strip and retain enough overburden, if available, from mine-level areas so that up to an 18-inch thickness of overburden and soil can be replaced on dryland mine-level reclamation, and up to a 36-inch thickness of overburden and soil can be replaced on cropland and irrigated mine-level reclamation; maintain at least a 10-foot buffer stripped of soil and needed overburden along the edges of highwalls; haul soil and overburden directly to areas prepared for resoiling, or stockpile them and protect them from erosion, contamination, compaction, and unnecessary disturbance; at the first seasonal opportunity, shape and seed to an approved perennial species mix the soil and overburden stockpiles that will remain in place for more than two years; and keep all soil on site and accessible until the approved postmining land uses are assured to the department's satisfaction. Only initial setup activities and soil stockpiling may occur on unstripped areas. The department may require that more than a six-inch thickness of soil be stripped from facility-level areas in order to protect soil quantity or quality for certain postmining land uses; and~~

~~(ii) a description of the average thicknesses of overburden and soil to be replaced on mine-level areas. Resoiled surfaces must be seeded to a cover crop, or seeded or planted to the approved vegetative species, at the first seasonal opportunity after resoiling;~~

~~(c)~~ (b) a surface cleanup ~~and grading~~ section~~, including:~~

~~(i)~~ that includes a statement that the operator ~~will retrieve and properly use, stockpile, or dispose of all refuse, surfacing, and spilled materials found on and along access roads and in the main permit area, and leave reclaimed surfaces in~~ will:

(i) at the conclusion of opencut operations, except as provided in (1)(b)(ii), haul away from the permit area or use all excavated or processed material for backfill as provided in (1)(c);

(ii) upon the request by the landowner, on the landowner consultation form, segregate specific types, grades, and quantities of material into stockpiles maintained in one location, along with a separate stockpile of the quantity of soil required to reclaim the area where the material is stockpiled, shaped, and seeded and placed within 100 feet of a material stockpile;

(iii) a stockpile of materials for the landowner as provided by (1)(b)(ii) must be free of excess fines or other waste materials that would render the material unsuitable for commercial use;

(iv) provide a description of the types, grades, and quantities of material proposed to remain stockpiled as provided by (1)(b)(ii) and (1)(b)(iii), and justify the quantities stockpiled for landowner use based on current and expected demand for the materials;

(v) at the conclusion of opencut operations, haul away and properly dispose of all refuse, oiled surfacing, contaminated materials, concrete that is not clean-fill, and unused clean fill from affected lands;

(vi) haul away all asphaltic pavement from the permit area, except on-site-generated asphaltic pavement may be used as mined-area backfill in accordance with (1)(b)(vii) and with the consent of the landowner;

(vii) place on-site-generated asphaltic pavement, coarse clean fill, and other clean fill unsuitable for plant growth under at least three feet of material suitable for sustaining the postmining vegetation;

(viii) place on-site generated asphaltic pavement in an unsaturated condition at least 25 feet above the seasonal high water table; and

(ix) for the purposes of (1)(b)(ii) and (iii), the operator remains responsible for reclamation of the areas occupied and affected by material and soil stockpiles until the department has approved phase II reclamation for the areas where the stockpiles are located or assignment of the permit to the landowner or another party;

(c) a backfill and grading section that includes a statement that the operator will:

(i) use only overburden and materials from the permit area, or otherwise only clean fill from any source, to reclaim affected land to a stable condition ~~and~~ with 5:1 or flatter slopes for hayland and cropland, 4:1 or flatter slopes for sandy surfaces, and 3:1 or flatter slopes for other sites and surfaces appropriate to the designated post-mine land use;

(ii) reclaim premine drainage systems to blend into the surrounding topography and drainages;

(iii) ~~leave them graded to~~ drain off-site or concentrate water in low areas identified in the permit;

(iv) backfill and grade to ~~leave them~~ at least three feet above the ~~ordinary~~ seasonal high water table level for dryland reclamation and at approved depths below the ~~ordinary~~ seasonal low water table level for pond reclamation; ~~and blend them into the surrounding topography and drainageways.~~

(v) record the average thickness of overburden replaced and never cover soil with overburden;

(vi) replace all soil, and overburden if sufficient soil is unavailable, to a minimum depth of 24 inches or to another depth approved in writing by the department and record the average thicknesses of soil replaced;

(vii) ~~The applicant may propose the establishment of~~ for the purposes of (1)(c)(i) and (ii), the department may consider steeper slopes for certain postmining land uses ~~and the construction of seasonal ponds. The department may require water table level~~ based on a design or a slope stability analysis prepared by a professional engineer licensed in accordance with Title 37, chapter 67, part 3, MCA, or a geologist with five years of post-graduate academic or professional work experience in the field of soil or rock mechanics;

(viii) if required by the department, conduct post-mining monitoring of ground water levels to ensure that appropriate reclaimed surface elevations are established; ~~and~~

~~(ii)~~ (d) a description of the locations and designs for any special reclamation features such as ~~drainageways,~~ ponds, waterways with defined channels, and building sites. Reclaimed ~~drainageways~~ waterways with defined channels must be located in their approximate premine locations and have channel and floodplain dimensions and gradients that approximate premine conditions, unless otherwise approved by the department. Reclaimed ~~drainageways~~ waterways with defined channels must connect to undisturbed ~~drainageways~~ waterways in a ~~stable~~ manner that avoids disruption or accelerated erosion of the reclaimed waterway or adjoining areas;

(e) an access road reclamation section describing:

(i) reclamation of access, haulage, or other roads included on affected land with the landowner's consent; and

(ii) for private roads to remain open at the request of the landowner, reclamation of the road to a width appropriate to the landowner's anticipated use or as may otherwise be required by applicable land use regulations;

(f) a section that explains how the operator will reclaim water diversion, retention, discharge, and outflow structures constructed for opencut operations;

~~(d)~~ (g) an overburden and soil ~~reconditioning~~ conditioning section~~, including~~ that includes a statement that the operator will:

(i) ~~alleviate overburden and soil compaction by deep tilling~~ till replaced overburden, graded surfaces, and other compacted surfaces:

(A) to a depth of at least 12 inches, ~~before resoiling, and by deep tilling~~ or to another depth required by the department prior to replacing soil, except that:

(I) tillage is not required for relatively non-compactible materials such as sands, materials with a rock fragment content of 35% or more by volume, or bedrock; and

(II) tilling deeper than the soil thickness is not required when cobbly material or bedrock underlies the soil;

(B) on the contour and when the overburden and soil are dry enough to shatter; and

(C) in a manner that protects tilled areas from recompaction;

(ii) record the thicknesses of soil replaced on the permit areas as required by the permit;

(iii) till through ~~the~~ replaced soil and into the surface of the underlying ~~material after resoiling. Deep tillage must be done on the contour and when the overburden and soil are dry enough to shatter. Deep tilled areas must be protected from recompaction. Deep tillage is not required for relatively non-compactible materials such as sands, materials with a rock fragment content of 35% or more by volume, and bedrock. Tilling deeper than the soil thickness is not required when cobbly material or bedrock underlies the soil~~ backfill prior to seeding or planting unless otherwise required by the department; and

(iv) the soil surface must be free of rocks that are not characteristic of the soil prior to disturbance;

~~(e)~~ (h) a revegetation section~~, including~~ that:

(i) describes the types and rates of fertilizer and other soil amendment applications, methods of seedbed preparation, and methods, species, and rates of seeding or planting; and

(ii) includes a statement that the operator will:

~~(i)~~ (A) ~~a statement that the operator will~~ establish vegetation to protect the soils from erosion and that is capable of sustaining the designated postmining land uses;

(B) seed all affected land for vegetation species that are consistent with the premining species composition, cover, production, density, and diversity, or otherwise as appropriate for the designated postmining land use;

(C) ensure that areas seeded or planted to perennial species ~~will be appropriately~~ are adequately protected and managed from the time of seeding or planting through two consecutive growing seasons or until the vegetation is established, whichever is longer;

(D) use seed that is as weed free as is reasonably possible; ~~and comply with the noxious weed control plan approved by the respective weed district for the opencut operation. Revegetation success on~~

(E) ensure that seedbed preparation and drill seeding is done on the contour;

(F) apply drill seeding at the rate of no less than ten pounds per acre or at another rate approved by the department;

(G) apply broadcast seeding at a rate that is at least 100 percent higher than drill seeding rates and drag or press the surface to cover the seed unless otherwise required by the department;

(H) provide seeding rates as pounds of pure live seed per acre;

(I) seed during the late fall or early spring seeding seasons;

(J) apply cover crop seeding and mulch as needed to help stabilize an area or establish vegetation;

(K) achieve revegetation of a non-cropland area ~~is achieved when~~ by establishing vegetation capable of sustaining the designated postmining land use ~~has established.~~;

(L) ~~Revegetation success on~~ achieve revegetation of a cropland area ~~is achieved~~ when a crop has been harvested from the entire area and the yield is comparable to those of crops grown on similar sites under similar growing conditions~~.~~; and

(M) ~~A copy of the approved noxious weed control plan must be submitted with the plan of operation; and~~ agree that reclamation for cropland areas will be considered complete upon inspection by the department or notification by the landowner to the department in writing that the crop yield on the reclaimed land is acceptable.

~~(ii) a description of the types and rates of fertilizer and other soil amendment applications; methods of seedbed preparation; and methods, species, and rates of seeding or planting. When the postmining land use is hayland or cropland, the soil surface must be left free of rocks that could impede agricultural equipment. Seedbed preparation and drill seeding must be done on the contour. Broadcast~~

~~seeding must be done at rates at least 100% higher than drill seeding rates and the surface dragged or pressed to cover the seed. Seeding rates must be given as pounds of pure live seed per acre. Seeding must occur during the late fall or early spring seeding seasons. Cover crop seeding and mulch application may be needed to help stabilize an area or establish vegetation;~~

~~(f)~~ (i) a reclamation ~~timeframes~~ schedule section~~, including~~ that includes:

(i) a statement that the operator will complete ~~all~~ phase I and phase II reclamation ~~work~~ on an area no longer needed for opencut operations, or on areas that the operator no longer has the right to use for opencut operations, within one year after the cessation of such operations or termination of such right. If it is not practical for the operator to reclaim a certain area until other areas are also available for reclamation, the operator may propose an alternate reclamation ~~deadline~~ schedule for that area; and

(ii) a reasonable estimate of the month and year by which ~~final~~ phase II reclamation will be completed considering the estimated ~~mine~~ demand for material ~~demand~~, expected rate of production, ~~and~~ accessible ~~mine~~ material reserves, and the time required to complete revegetation as required by (1)(g) and (h). Final reclamation must be completed by the date given.

~~(2) remains the same.~~

~~AUTH: 82-4-422, MCA~~

IMP: 82-4-402, 82-4-422, 82-4-423, 82-4-431, 82-4-432, 82-4-434, MCA

REASON: The proposed amendments to ARM 17.24.219 would implement amendments to the Opencut Mining Act enacted by Sec. 13 Ch. 385, Laws of 2007. In addition, language in ARM 17.24.218, the provision for an operating plan, which more appropriately applies to reclamation plans, would be moved to ARM 17.24.219 in order to improve regulatory clarity and the logic and flow of the rules. For the same reason, language in ARM 17.24.219 that would have a stronger nexus to a plan of operation has been deleted and restated in ARM 17.24.218.

The proposed amendments to (1)(a) are necessary to improve the syntax and readability of the rule. The terms "internal roads" and "material stockpile areas," which are proposed to be added to the second sentence of (1)(a), are necessary to incorporate postmining land-use concepts that are addressed elsewhere in the rule and would be relevant to a narrative statement explaining proposed postmining land uses. The proposed amendments would also substitute "rangeland" in favor of "livestock protection site" because the common meaning of the former term clarifies the rule for applicants.

ARM 17.24.219(1)(b) would be stricken and moved to ARM 17.24.218(1)(d) to improve the logic and flow of the rule.

The proposed amendments to (1)(b), currently (1)(c), would separate "surface cleanup" from "backfilling and grading" which is a distinct subject matter that has been restated at (1)(c). The new language at (1)(b)(ii), (iii), and (iv) would be restated from ARM 17.24.218(1)(f)(ii) and provides for the operator to leave stockpiled materials for the landowner's use. The restated provision for landowner stockpiles adds language to ensure that the material left for the landowner is useable and free of fines and provides for stockpiling of a sufficient amount of soil to provide for reclamation of the stockpiled area after the stockpile is removed. The new language ensures that the practice of leaving material for use of the landowner is not used as a means of avoiding reclamation requirements. New (1)(b)(v), (vi), and (vii) would restate the provision currently found at ARM 17.24.218(1)(g)(i) that provides for backfill using on-site generated asphalt and coarse clean fill. The new language at (1)(b)(ix) is a restatement of ARM 17.24.218(1)(f)(i) which provides for reclamation of areas where stockpiles are maintained.

Proposed amendments to (1)(c) would incorporate and restate the backfill and grading requirements currently found at ARM 17.24.218(1) (g) and ARM 17.24.219(1)(c) in one location in the rule. New language at (1)(c)(i) would ensure that maximum allowable slopes for reclamation backfill are commensurate with the post-mine land use. Proposed amendments to (1)(c)(iv) would substitute "seasonal high water table" and "seasonal low water table" for the term "ordinary water table" which is imprecise. New (1)(c)(v) requires an operator to record the average thickness of overburden replaced and is necessary to allow the department to ensure that backfill and grading reasonably follow the reclamation plan.

New (1)(c)(vi) requires an operator to obtain written permission from the department in the event that soil cannot be replaced to the 24-inch depth that is generally considered to be the amount necessary to achieve revegetative success. The general provision for replacement of soil to a depth of 24 inches for all affected lands is a necessary improvement to the current rule which specifies different depths of soil for "facility level areas" and "mine-level areas" -- those terms being obsolete regulatory concepts that would be deleted from the rule.

Proposed amendments to (1)(c)(vii) provides for post-mine reclamation to slopes steeper that the requirements set forth in (1)(c)(i) as may be appropriate for site conditions. To ensure stability and safety, a proposal for reclamation to a steeper slope would have to be supported by a slope stability analysis prepared by a professional engineer or qualified geologist.

The proposed amendments to (1)(c)(viii) are necessary to improve the syntax and readability of the rule because the term "water table level monitoring" is not a term that is commonly used in the groundwater hydrology field.

The proposed amendments to (1)(d) are necessary to improve the syntax and readability of the rule by substituting the term "waterways with defined channels" for "drainageways" which provides more precision. The new language at the end of (1)(d) improves regulatory certainty by explaining that "in a stable manner" means "that avoids disruption or accelerated erosion of the reclaimed waterway or adjoining areas."

The proposed amendments to (1)(e) would restate the requirements set forth in ARM 17.24.218(1)(b)(1) and revise the requirement to implement the changes enacted by Sec. 2, Ch. 198, Laws of 2013, which release operators from the requirement to reclaim access roads on affected land if the landowner consents to the road remaining unreclaimed.

The proposed new language at (1)(f) would require an operator to explain how water diversion or storage structures constructed for opencut operations will be reclaimed. The proposed new language ensures that reclamation of or incorporation of such structures into the post-mine land use is explained in the permit application and approved by the department.

The proposed amendments to (1)(g), currently (1)(d), would improve the syntax and readability of the rule. The proposed amendment to (1)(g)(i) would substitute the commonly understood term "till" for the rather nebulous term "alleviate soil and overburden." The language proposed at the end of (1)(g) allows for approval of tillage to a depth other than the 12-inch optimum tillage depth to accommodate specific site conditions.

New language proposed at (1)(g)(ii) would require the operator to record the thickness of soil replaced and is necessary to ensure that the post-mine land use is achieved.

The proposed amendments at (1)(g)(iv), currently part of ARM 17.24.219(1)(d), would improve syntax and readability of the rule. The proposed amendments would strike the term "deep tillage" which is undefined for "tilling" which would be defined in the proposed amendments to ARM 17.24.202(15).

The proposed amendments at (1)(h)(i), currently part of ARM 17.24.219(1)(e)(ii), would improve syntax and readability of the rule. New (1)(h)(ii)(A) through (D) restate some of the provisions of current ARM 17.24.219(1)(e)(i) and would improve syntax and readability of the rule. The proposed new language at (1)(h)(ii)(E) through (I) also incorporates language currently located at ARM 17.24.219(1)(e)(ii) to improve syntax and readability of the rule. The requirement to provide seed cover and mulch that is set forth in (1)(h)(ii)(J) is a best management practice to stabilize a resoiled and revegetated area. The proposed amendments to (1)(h)(ii)(K) and (L) are moved from ARM 17.24.219(1)(e)(i) and revised to improve syntax and clarity and provide a process for verifying whether reseeding operations comply with the requirements for phase II bond release. The new language proposed under (1)(h)(ii)(M) facilitates the department's determination of revegetative success by allowing the department to rely on a written statement from the landowner that crop yields on reclaimed land are acceptable.

The proposed amendments to (1)(i) currently numbered ARM 17.24.219(1)(f) would improve the syntax and readability of the rule. The proposed reference to "phase I and phase II" reclamation in (1)(i)(i) improves clarity because the reclamation schedule section of the reclamation plan would use the same terminology as the proposed amendments to ARM 17.24.203(4).

17.24.220 PLAN OF OPERATION--RECLAMATION BOND CALCULATION (1) A proposed reclamation bond calculation must be submitted as part of the plan of operation on a form provided by the department. The bond amount must be based on a reasonable estimate of ~~what it would~~ the cost for the department to procure the services of a third-party contractor to reclaim, in accordance with this subchapter and the plan of operation, the anticipated maximum disturbance during the life of the bonded opencut operation, including equipment mobilization, contractor profit, and ~~administrative~~ overhead costs. The department shall review the proposed bond calculation and make a final determination.

(2) The estimate of the reclamation costs must address the following considerations:

(a) the requirements for reclamation provided in 82-4-434, MCA, and ARM 17.24.219;

(b) replacement of all soil (and overburden if sufficient soil is unavailable) to a minimum depth of 24 inches or to another depth approved in writing by the department;

(c) the plan of operation and the permit application; and

(d) postmining site conditions and any other site-specific considerations.

(3) An application for a permit under this subchapter is deficient if the proposed amount of the reclamation bond is insufficient to cover the estimated costs of reclamation required by this rule.

~~(2)~~ (4) Federal agencies, the state of Montana, counties, cities, and towns are ~~exempt from bond requirements~~ not required to post a bond or other security.

AUTH: 82-4-422, MCA
IMP: 82-4-405, 82-4-431, 82-4-432, 82-4-433, 82-4-434, MCA

REASON: The proposed amendments to ARM 17.24.220 would implement changes to the Act enacted by Sec. 12, Ch. 385, Laws of 2007, that authorize the department to determine the amount of the reclamation bond based on the cost of reclamation in all cases. The proposed amendments to (1) would require the applicant to submit the estimate of the reclamation bond amount on a form supplied by the department. Addition of "procure the services of a third-party contractor" would establish, as the basis for the estimate, the costs that the department would incur to procure a third-party contractor to reclaim the site in accordance with the permit, including mobilization, general overhead, and profit. Addition of the word "bonded" to (1) would avoid confusion arising from the distinction between "bonded" and "non-bonded" permit areas that are articulated throughout the proposed amendments to the subchapter. The proposed amendments to (1) would improve the clarity of the rule by substituting "contractor profit and overhead" costs for the more nebulous term "administrative" cost.

New (2) is necessary to notify the applicant of specific provisions of the subchapter that are relevant to calculation of reclamation costs for the purpose of bonding.

New (3) is necessary to notify the applicant in the rule of the authority conferred on the department by 82-4-433(1), MCA, to deny an application for a permit if the amount of the reclamation bond or other security is insufficient to cover the estimated costs of reclamation.

The proposed amendments to (4), currently (2), would restate the exemption of government operators from the requirement to obtain a bond or other security for reclamation in order to improve syntax and readability.

17.24.221 PLAN OF OPERATION--MAPS (1) ~~A~~ An application must include a site map, area map, reclamation map, location map, and other maps necessary to describe the proposed opencut operation. Except as provided in (6), maps submitted to the department in accordance with this subchapter must be legible, ~~at a scale of 400 feet to one inch or larger and~~ on ~~a topographic map or~~ an air-photo base, ~~must be submitted as part of the plan of operation~~ and in a scale sufficient to clearly describe the subject matter. An application supported by a map submitted in an electronic format that is incompatible with the department's systems, that cannot be reviewed, or that is otherwise illegible is not acceptable. A map submitted in other than electronic format must fill an 8½- by 11- or 11- by 17-inch sheet leaving margins of approximately 1/2 inch. ~~A smaller scale area map drawn on a topographic map or air photo base may also be submitted as part of the plan.~~

(2) The following ~~existing and proposed main permit area features~~ items must be shown and labeled on ~~the site~~ each map submitted to the department:

~~(a) main permit area boundary~~ operator name;

~~(b) staging, processing facility, and mining areas~~ site name;

~~(c) soil, overburden, and mine material stockpile areas~~ legal description of the proposed permit area;

~~(d) mined-area backfill and excess overburden and fines disposal sites~~ bar scale;

~~(e) soil and overburden test hole locations~~ date of drafting; and

~~(f) water system and control structure locations~~ north arrow~~; and~~

~~(g) sight and sound barrier locations~~.

(3) ~~The locations of existing and proposed access roads must be shown and labeled on the site or an area map~~ Site maps must show and identify the following existing and proposed features as applicable~~.~~:

(a) permitted access roads, including the location, width, waterway crossings, and surfacing;

(b) permit boundaries;

(c) bonded area boundary;

(d) non-bonded area boundary;

(e) excess overburden and fines disposal sites;

(f) sedimentation ponds and other water quality control structures;

(g) staging areas;

(h) heavy equipment parking areas;

(i) fuel storage areas;

(j) sight and sound barriers and berms;

(k) soil stockpile areas;

(l) overburden and excess overburden stockpile areas;

(m) material stockpile areas;

(n) processing facilities, including approximate locations of:

(i) crusher;

(ii) asphalt plant;

(iii) wash plants; and

(iv) concrete plant;

(o) detention ponds;

(p) concrete and asphalt recycling stockpile area;

(q) soil and overburden test hole and observation point locations;

(r) existing and proposed monitoring well locations;

(s) water system and structures, including:

(i) supply wells;

(ii) water recycling and settling ponds;

(iii) surface water extraction points;

(iv) discharge points for water used in opencut operations; and

(v) all surface waters including, but not limited to, ponds, lakes, wetlands, and defined and/or eroded channels of waterways including, but not limited to, rivers, creeks, intermittent streams, drainages, ditches, and other waterways;

(t) above and below ground utilities and easements;

(u) roads crossing areas where opencut activities are prohibited by ARM 17.24.218(1)(j) at a 90-degree angle or as close to a 90-degree angle as site conditions allow;

(v) erosion controls;

(w) historic disturbances within or adjacent to permit area boundary;

(x) the data point and map identification number for each pair of coordinates the operator provided on the boundary coordinate table; and

(y) any other pertinent features that are necessary to ensure compliance with the Act and rules.

~~(4) The following existing features in and within 500 feet of access roads and 1,000 feet of the main permit area must be shown and labeled on the site or an area map:~~

~~(a) premine land uses including, but not limited to:~~

~~(i) water source pond;~~

~~(ii) wetland;~~

~~(iii) fish pond;~~

~~(iv) riparian area;~~

~~(v) grassland;~~

~~(vi) shrubland;~~

~~(vii) woodland;~~

~~(viii) special use pasture;~~

~~(ix) hayland;~~

~~(x) cropland;~~

~~(xi) wildlife habitat;~~

~~(xii) livestock protection site;~~

~~(xiii) recreation site; and~~

~~(xiv) residential, commercial, and industrial sites;~~

~~(b) reclaimed and unreclaimed surface disturbances;~~

~~(c) surface water features, as described in ARM 17.24.217(1)(a);~~

~~(d) vegetative types including, but not limited to:~~

~~(i) wetland;~~

~~(ii) riparian;~~

~~(iii) grassland;~~

~~(iv) shrubland;~~

~~(v) woodland;~~

~~(vi) special use pasture;~~

~~(vii) hayland; and~~

~~(viii) cropland;~~

~~(e) fish and wildlife habitats of special concern, including, but not limited to:~~

~~(i) lakes;~~

~~(ii) ponds;~~

~~(iii) streams;~~

~~(iv) wetlands;~~

~~(v) riparian areas;~~

~~(vi) unique cover areas;~~

~~(vii) travel lanes;~~

~~(viii) migration routes;~~

~~(ix) raptor cliff and nest areas; and~~

~~(x) reproductive, nursery, and wintering areas;~~

~~(f) residential areas and structures that could be impacted by opencut operations, as described in ARM 17.24.217(1)(e); and~~

~~(g) non-access roads, fences, utilities, and buffer zones.~~

(4) Area maps must show and identify the following features within 1,000 feet outside of the permit boundary:

(a) roads leading to the site;

(b) access roads from the public road turnoff to the permit area (if roads go beyond the area map, show the full extent on the location map) including the location, width, waterway crossings, and surfacing;

(c) water wells;

(d) natural and man-made drainage features including, but not limited to, ephemeral, intermittent, and perennial streams, wetlands, ponds, springs, ditches, and impoundments in and within 500 feet of access roads and show the defined and/or eroded channel of any such feature and any setback areas, along with a description of the use of any man-made feature;

(e) other opencut operations;

(f) above and below ground utilities;

(g) significant geographical features;

(h) residential areas and structures that could be impacted by opencut operations, such as inhabitable dwellings and commercial and industrial facilities; and

(i) any other pertinent features that are necessary to ensure compliance with the Act and this subchapter.

(5) ~~The locations of existing and proposed water wells in and within 1,000 feet of the main permit area must be shown and labeled on the site or an area map.~~ Reclamation maps must show and identify all the following existing and proposed features in accordance with the plan of operation:

(a) all postmining land uses;

(b) mined area backfill sites;

(c) landowner material stockpile areas to remain;

(d) all roads or portions of roads proposed to remain open, at the request of the landowner, at the conclusion of opencut operations, including road locations, intended use, final width, and surfacing;

(e) long and short axis cross-sections of any pond or depression in which water is expected to collect;

(f) arrows depicting the anticipated direction of water flow across the reclaimed site; and

(g) any other pertinent features that are necessary to ensure compliance with the Act and this subchapter.

(6) The ~~operator name, site name, legal description, scale, date of drafting, and north arrow must be shown on all plan of operation maps~~ location map may be on an aerial or topo base and must show the site's location in relation to the nearest

town, city, or major intersection and be sufficient to allow the public to locate the proposed site.

(7) Complete and accurate maps must be submitted. The department may require that part or all of the area in and within 500 feet of permitted access roads and 1,000 feet of the ~~main~~ permit area be surveyed to provide sufficient map detail and accuracy.

AUTH: 82-4-422, MCA
IMP: 82-4-402, 82-4-422, 82-4-423, 82-4-431, 82-4-434, MCA

REASON: The proposed amendments to ARM 17.24.221 would generally update the requirements for submittal of maps and reconcile the rule with the other proposed amendments to the subchapter. The proposed amendments would clarify what is required to be displayed on a map. Otherwise, the proposed amendments improve the syntax and readability of the rule.

The proposed amendments to (1) specify the types of maps addressed in the rule. In addition to the site and area maps called for in the current rule, the proposed rule specifies two new maps, a reclamation map and a location map, as explained below. Proposed amendments to (1) provide formatting standards for maps submitted in electronic and non-electronic formats. Imposition of the standards is necessary to ensure that submittals are legible and in a format that is compatible with the department's hard copy and electronic records retention systems. In addition, definitions are being proposed for each type of map for clarity.

The proposed amendments to (2) would amend the rule to restate the general requirements for all maps that are currently set forth in (6). The proposed amendments would improve clarity by avoiding unnecessary repetition. The required information would ensure that the maps are usable and retrievable in the department's record management systems.

Proposed new (3) generally restates the requirements currently found in existing (4) and identifies them as requirements for "site maps" that primarily describe the area proposed for permitting under the Act. The required items are consistent with and would pictorially explain regulatory terms and concepts set forth in the proposed amendments to the subchapter and other relevant environmental laws. New language at (3)(h) and (i) would require depiction of features generally included as "staging areas" under the current rule.

New language at (3)(j) would require depiction of "sight and sound barriers and berms" to assist with determination of the sufficiency of measures to mitigate impacts to residential areas and dwellings.

Proposed new (4) generally restates the requirements currently found in (4) and (5) and identifies them as requirements for "area maps" that depict areas outside the proposed permit area. The items identified as requirements for area maps are necessary to depict conditions outside the permit area that may be adversely impacted by the proposed operation. The required items are consistent with and would pictorially explain regulatory terms and concepts set forth in the proposed amendments to the subchapter and other relevant environmental laws.

New (5) would require applicants to prepare a reclamation map that is necessary to facilitate application review. The list of items required for the reclamation maps are regulatory terms and concepts set forth in the proposed amendments to this subchapter. The requirement to provide cross-sections is typical of as-built maps commonly used in the construction and mining industries.

The proposed amendments to (6) would revise the provision to direct applicants to provide a location map that shows the location of the proposed operation in relation to the principal means of access. The map is necessary to enable program staff to find their way to a proposed mine site for site inspections. The deleted language in (6) would be restated in (2).

The proposed amendments to (7) would conform the language of the rule to the other amendments proposed to this subchapter.

17.24.222 PLAN OF OPERATION--ADDITIONAL INFORMATION AND CERTIFICATION (1) The department may require that an operator provide additional ~~plan of operation~~ information~~, including~~ for the plan of operation that includes, but is not limited to:

(a) through (2) remain the same.

(3) The plan of operation must ~~conclude with~~ include a statement signed and dated by the operator certifying that ~~the statements, descriptions, and information provided apply to the proposed permit area, applicable adjacent areas, and proposed opencut operations, and that the requirements of the plan of operation will be followed unless officially amended through the department.~~:

(a) the operator has read and understands the application, the information contained in the application, and all documents submitted in support of the application;

(b) under penalty of 45-7-203, MCA, all the statements, descriptions, information, and documents provided to the department for the application are true and accurate to the best of the operator's knowledge and belief based upon the exercise of due diligence; and

(c) the operator will follow and adhere to the plan of operation and all other requirements of the operator described in the application and the permit and as the permit may be amended by the department in accordance with the Act and this subchapter.

AUTH: 82-4-422, MCA
IMP: 82-4-402, 82-4-422, 82-4-423, 82-4-431, 82-4-432, 82-4-434, 82-4-436, MCA

REASON: The proposed amendments to ARM 17.24.222(1) would improve the syntax and readability of the rule. The proposed amendments to (3) would explain, with greater specificity, the certifications that the department requires of applicants. The certifications would ensure that the applicant, rather than a consultant, has read, understands, and will comply with the statements in the application.

17.24.223 ZONING COMPLIANCE FOR SAND OR GRAVEL MINING (1) ~~In order to ensure that a proposed sand or gravel operation will be in compliance with local zoning regulations, permit~~ Permit applications for sand or gravel opencut operations, including ~~and~~ amendment applications ~~for sand or gravel operations~~ that add acreage or change the postmining land use or add an asphalt or concrete plant, must include a statement from the appropriate local governing body certifying, on a form provided by the department, that the proposed mine site and plan of operation comply with local zoning regulations. ~~No application for a permit or such amendment to mine sand or gravel may be approved by the department unless accompanied by such a statement submitted on a form provided by the department.~~

AUTH: 82-4-422, MCA
IMP: 82-4-431, 82-4-432, MCA

REASON: The proposed amendments to ARM 17.24.223 would revise the rule to more closely follow the language of the Act and to improve syntax and clarity. The proposed amendments would require certification of compliance with zoning requirements when an operator adds an asphalt plant to ensure that the scope of zoning compliance match the acknowledgements required of a consulting landowner in ARM 17.24.206. The provision for certifying compliance of the proposed project with local zoning regulations is proposed to be deleted because the provision duplicates the requirements for a complete application set forth in ARM 17.24.212 and 82-4-432(2)(b), MCA.

17.24.224 ASSIGNMENT OF PERMITS (1) A person may assume a permit from an operator by submitting an assignment application to the department. Upon receipt of an assignment application, the department shall inspect the permitted site, if necessary, and evaluate the application and existing permit to determine if the requirements of the Act and this subchapter ~~will be~~ are satisfied.

(2) The department shall approve an ~~assignment~~ application ~~if it determines that~~ for assignment of a permit that meets the following requirements:

(a) the application ~~contains~~ includes a completed ~~copies~~ copy of the application for assignment ~~and assignment forms~~ on a form provided by the department, and, if required by the department, ~~necessary revisions to~~ an application to amend the permit~~.~~;

(b) ~~The~~ the application ~~for assignment form shall include a statement~~ includes an acknowledgment that:

(i) the assignee has reviewed and understands the terms of the permit that is effective at the time of the assignment;

(ii) the assignee agrees to assume all the obligations set forth in the permit, including the plan of operation, the Act, and this subchapter; and

(iii) the ~~applicant~~ assignee assumes responsibility ~~for outstanding permit and site issues~~ to reclaim the site in accordance with the terms of the permit, the Act, and this subchapter and for any violations or issues of noncompliance in existence at the time of the assignment;

~~(b)~~ (c) the assignment application ~~materials~~, any necessary permit amendment application, and any necessary revisions to the permit satisfy the requirements of the Act and this subchapter; and

~~(c)~~ (d) the application includes a reclamation ~~an adequate~~ bond ~~has been submitted. To be adequate, the bond must meet the requirements of ARM~~

~~17.24.220, and must include the cost to the department of reclaiming all previously disturbed lands within the permit area~~ or other security that meets the requirements of 82-4-433, MCA, this subchapter, and the plan of operation.

(3) An assignment ~~does not become effective until approved by the department~~ becomes effective when the department notifies the applicant in writing that the information and materials provided to the department meet all the requirements of the Act and this subchapter and that the assignment is approved and issued by the department. ~~The assignee must ensure that it has a complete copy of the approved permit and assignment materials. The~~ Upon notification of the department's approval of the assignment, the assignee ~~is~~ becomes responsible for ~~complying with all terms of the permit, including all provisions of the plan of operation~~ all the obligations described in (2)(b).

~~(4) An assignment application does not require the payment of an additional fee.~~

AUTH: 82-4-422, MCA
IMP: 82-4-402, 82-4-432, 82-4-433, 82-4-434, MCA

REASON: The proposed amendments to ARM 17.24.224 would more closely follow the language of the Act and improve syntax and clarity. The proposed amendment to (2)(a) would improve the rule for syntax and clarity and clarify that the department may require the applicant to submit an application to amend the permit in favor of the current language calling for "revisions to the permit," which does not occur elsewhere in the rule. Amendment of the permit may be necessary if the department determines that deviations from the requirements of the permit or the Act by the assigning operator must be corrected before the permit may be assigned or transferred. The proposed amendments to (2)(b) are necessary to ensure that the applying assignee has reviewed and understands the application and agrees to assume all the obligations set forth in the permit, including correction of any violations of the Act. The proposed amendments to (2)(b) also are is necessary to state with more precision the duties and obligations that would be undertaken by the assignee. The proposed amendments to (2)(c), currently (2)(b), would incorporate the permit amendment language stated in (2)(a) for clarity. The proposed amendments to (2)(d), currently (2)(c), are necessary to improve syntax and readability. The proposed amendments to (2)(d) are necessary to clarify the requirements for bonding when a permit is assigned by providing references to the applicable statute and to the subchapter instead of the incomplete list of the requirements for reclamation security currently stated in (2)(c).

The proposed amendments to (3) are necessary to inform the applicant that a permit assignment does not become effective until the department notifies the applicant in writing that the assignment application is approved and issued by the department. The proposed amendments are necessary to establish a clear time when opencut operations may commence pursuant to an assigned permit. Current (4) would be deleted because Sec. 11, Ch. 385, Laws of 2007 repealed the authority of the department to charge a fee for submittal of permit applications.

17.24.225 PERMIT COMPLIANCE (1) An operator shall comply with the provisions of its permit, this subchapter, and the Act. ~~The department may issue an order requiring abatement of a violation within a reasonable time. The applicant may request an extension of the deadline the department may grant the extension upon finding that good cause for the extension has been shown The permittee shall comply with the abatement order within the time set in the order or extension.~~

(2) A permittee may allow another person to mine and process mine materials at the permitted operator's site~~,~~ only if the permittee retains control over that person's activities and ensures that no violations of the Act, this subchapter, or the permit occur. If ~~the person violates~~ a violation of the provisions of the Act, this subchapter, or the permit~~,~~ occurs, the permittee is responsible for the violation~~,~~ and the department may require abatement pursuant to (1) or initiate an enforcement action under the Act.

~~(3) A person who conducts opencut operations at a nonpermitted site and who was obligated to obtain a permit is in violation of 82-4-431, MCA, and the department may issue an order requiring cessation of the operation and may also order abatement of the violation, including reclamation of the site, within a reasonable time. The person may request an extension of the deadline, giving reasons why the extension is necessary, and the department may grant extensions upon a finding that good cause for the extension has been shown. The person shall comply with the abatement order within the time required by the order or extension.~~

AUTH: 82-4-422, MCA
IMP: 82-4-402, 82-4-422, 82-4-423, 82-4-431, 82-4-432, MCA

REASON: The proposed amendments to ARM 17.24.225 would more closely follow the language of the Act and improve syntax and clarity. The deleted language merely repeats language contained in the Act and that need not be repeated in the rule.

17.24.226 ADMINISTRATIVE REQUIREMENTS FOR LIMITED OPENCUT OPERATIONS (1) through (4) remain the same.

(5) An operator may not commence a limited opencut operation within 300 feet of a permitted operation until the operator submits a written statement to the department that:

(a) no part of the proposed limited opencut operation is on land affected by the permitted operation;

(b) both operations can be reclaimed according to their respective requirements under the Act and this subchapter; and

(c) the principal amount of the new reclamation bond or other security, if required, is sufficient to cover the estimated costs of reclamation of the limited opencut operations under the Act and this subchapter.

AUTH: 82-4-422, MCA
IMP: 82-4-431, MCA

REASON: New ARM 17.24.226(5) is necessary to ensure that an operator considers the implications and constraints of locating a limited opencut operation within 300 feet of a permitted operation and communicates them to the department.

The explanations required by the rule would ensure that reclamation may be achieved according to the different standards that apply to each type of operation. The 300-foot threshold in (5)(b) would follow the distance requirements for processing facilities set forth in 82-4-403(7)(c) and (d), MCA.

4. The rules proposed to be repealed are as follows:

17.24.216 GENERAL APPLICATION CONTENT AND PROCEDURES (AUTH: 82-4-422, MCA; IMP: 82-4-402, 82-4-422, 82-4-431, 82-4-432, MCA), located at page 17-1930, Administrative Rules of Montana. The board proposes repeal of this rule for conciseness regulatory clarity, because it generally restates requirements proposed for ARM 17.24.212 and 17.24.213.

17.24.217 PLAN OF OPERATION--PREMINE INFORMATION (AUTH: 82-4-422, MCA; IMP: 82-4-402, 82-4-422, 82-4-431, 82-4-432, 82-4-434, MCA), located at page 17-1931, Administrative Rules of Montana. The board proposes deletion of ARM 17.24.217 for conciseness and regulatory clarity because it generally restates requirements proposed for ARM 17.24.218.

5. 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 Elois Johnson, Paralegal, Department of Environmental Quality, 1520 E. Sixth Avenue, P.O. Box 200901, Helena, Montana 59620-0901; faxed to (406) 444-4386; or e-mailed to ejohnson@mt.gov, no later than 5:00 p.m., ___________, 2015. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

6. Ben Reed, attorney for the board, or another attorney for the Agency Legal Services Bureau, has been designated to preside over and conduct the hearing.

7. 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, e-mail, 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 supply; 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. Notices will be sent by e-mail unless a mailing preference is noted in the request. Such written request may be mailed or delivered to Elois Johnson, Paralegal, Department of Environmental Quality, 1520 E. Sixth Ave., P.O. Box 200901, Helena, Montana 59620-0901, faxed to the office at (406) 444-4386, e-mailed to Elois Johnson at ejohnson@mt.gov, or may be made by completing a request form at any rules hearing held by the board.

8. The bill sponsor contact requirements of 2-4-302, MCA, do not apply.

9. With regard to the requirements of 2-4-111, MCA, the department has determined that the amendment and repeal of the above-referenced rules will not significantly and directly impact small businesses.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

____________________________ BY: __________________________________

JOHN F. NORTH
Rule Reviewer

JOAN MILES
Chairman

Certified to the Secretary of State, ___________, 2015.

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM

EXECUTIVE SUMMARY FOR ACTION ON RULE INITIATION

Agenda # III.B.3.

Agenda Item Summary: The Department requests that the Board initiate rulemaking to repeal rules in ARM Title 17, chapters 4, 30, and 38, pertaining to water pollution rules, radiological criteria, state and EPA coordination, pretreatment, definitions, enforcement actions for administrative penalties, purpose, definitions, enforcement procedures and suspended penalties. The Department is requesting the repeal of rules which repeat statutory language, no longer reflect current federal requirements, or were adopted to implement statutory enforcement provisions that were superseded by legislation enacted in 2005.

List of Affected Rules: This rulemaking would repeal ARM 17.4.201, 17.30.645, 17.30.1386, 17.30.1401, 17.30.1402, 17.30.1405, 17.30.1406, 17.30.1407, 17.30.1410, 17.30.1411, 17.30.1412, 17.30.1413, 17.30.1414, 17.30.1419, 17.30.1420, 17.30.1421, 17.30.1425, 17.30.1426, 17.30.1602, 17.30.2001, 17.30.2003, 17.38.601, 17.38.602, 17.38.603, and 17.38.607.

Affected Parties Summary: This rulemaking will not affect any regulated sources. The rules proposed for repeal either merely repeat statutory language, were never enforced, or are not currently enforced by the Department.

Scope of Proposed Proceeding: The Department requests that the Board initiate rulemaking and conduct a public hearing to consider the proposed repeal of the above-stated rules.

Background:

Proposed repeal of ARM 17.4.201 and 17.30.645. These rules pertaining to water pollution rules and radiological criteria unnecessarily repeat statutory language.

Proposed repeal of ARM 17.30.1386. This rule sets forth reporting requirements from the Department to the EPA regarding MPDES permitting. These reporting requirements have been replaced by reporting requirements set forth in annual agreements executed by EPA and the Department.

Proposed repeal of ARM 17.30.1401, 1402, 1405, 1406, 1407, 1410, 1411, 1412, 1413, 1414, 1419, 1420, 1421, 1425, and 1425. These rules were adopted in anticipation of the Department receiving delegation from the EPA for the federal pretreatment program. The delegation did not take place, however, because of a lack of funding. As a result, the pretreatment program in Montana continues to be administered by the EPA. These rules, which were never implemented, do not reflect current EPA requirements.

Proposed repeal of 17.30.2001 and 2003 and 17.38.601, 602, 603, and 607. In 2005, the Legislature enacted standard penalty factors that the Department must consider in penalty calculations. In May 2006, the Board adopted ARM 17.4.301 through 308 implementing the new penalty factors.

Upon adoption of the new rules, the majority of the water quality and public water supply penalty rules in effect at the time were repealed. However, the Board did not repeal the definitions set forth in 17.30.2001 and 2003 and the procedural requirements set forth in 17.38.601, 602, 603, and 607 in order to guide the Department's determination of "gravity" as required under the new standard penalty factors. The rules implementing the current standard penalty factors have been in effect for more than nine years and the remaining definitional rules under the Water Quality Act and the procedural rules under the Public Water Supply Act are no longer needed.

Hearing Information: The Department recommends the Board appoint a hearing officer and conduct a public hearing to take comment on the proposed repeal of the above-stated rules.

Board Options: The Board may:

1. Initiate rulemaking and issue the attached Notice of Public Hearing on Proposed Repeal;
2. Modify the Notice and initiate rulemaking; or
3. Determine that the repeal of the rules is not appropriate and deny the Department's request to initiate rulemaking.

DEQ Recommendation: The Department recommends that the Board initiate rulemaking and appoint a hearing examiner to conduct a public hearing, as described in the attached draft Notice of Public Hearing on Proposed Repeal.

Enclosures:

1. Draft Notice of Public Hearing on Proposed Repeal

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the repeal of ARM 17.4.201, 17.30.645, 17.30.1386, 17.30.1401, 17.30.1402, 17.30.1405, 17.30.1406, 17.30.1407, 17.30.1410, 17.30.1411, 17.30.1412, 17.30.1413, 17.30.1414, 17.30.1419, 17.30.1420, 17.30.1421, 17.30.1425, 17.30.1426, 17.30.1602, 17.30.2001, 17.30.2003, 17.38.601, 17.38.602, 17.38.603, and 17.38.607 pertaining to water pollution rules, radiological criteria, state and EPA coordination, pretreatment, definitions, enforcement actions for administrative penalties, purpose, definitions, enforcement procedures, and suspended penalties	)	NOTICE OF PUBLIC HEARING ON PROPOSED REPEAL (PROCEDURAL RULES) (WATER QUALITY) (PUBLIC WATER SUPPLY AND SEWAGE SYSTEM REQUIREMENTS)

TO: All Concerned Persons

1. On __________, 2015, at __:__ __.m., the Board of Environmental Review will hold a public hearing [in/at address], Montana, to consider the proposed repeal 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 Elois Johnson, Paralegal, no later than 5:00 p.m., February 23, 2015, to advise us of the nature of the accommodation that you need. Please contact Elois Johnson at Department of Environmental Quality, P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2630; fax (406) 444-4386; or e-mail ejohnson@mt.gov.

3. The rules proposed for repeal are as follows:

17.4.201 WATER POLLUTION RULES (AUTH: 2-4-201, 2-4-202, MCA; IMP: 75-5-307, MCA), located at page 17-91, Administrative Rules of Montana.

REASON: This rule merely repeats statutory requirements contained in 75-5-307(1), MCA. The statute is self-implementing and the rule is therefore unnecessary. Section 2-4-305(2), MCA, provides that rules may not unnecessarily repeat statutory language.

17.30.645 RADIOLOGICAL CRITERIA (AUTH: 75-5-201, 75-5-301, MCA; IMP: 75-5-301, MCA), located at page 17-2753, Administrative Rules of Montana.

REASON: This rule merely prohibits violation of radiological criteria in

Department Circular DEQ-7. Violation of any provision of DEQ-7 is "pollution," as defined in 75-5-301(30)(a), MCA. Causing pollution is prohibited by 75-5-605(1)(a), MCA, and the rule is therefore unnecessary. Section 2-4-305(2), MCA, provides that rules may not unnecessarily repeat statutory language.

17.30.1386 STATE AND EPA COORDINATION (AUTH: 75-5-304, MCA; IMP: 75-5-304, 75-5-401, MCA), located at pages 17-3002 and 17-3003, Administrative Rules of Montana.

REASON: This rule specifies reporting requirements from the Department of Environmental Quality (department) to the Environmental Protection Agency (EPA) regarding MPDES permitting. It was adopted in 1989 to comply with EPA requirements then in effect. Those requirements have since been modified. Current reporting requirements are contained in annual agreements entered into between EPA and the department. Therefore, this rule is unnecessary.

17.30.1401 APPLICABILITY (AUTH: 75-5-304, MCA; IMP: 75-5-304, MCA), located at page 17-3025, Administrative Rules of Montana.

17.30.1402 DEFINITIONS (AUTH: 75-5-201, 75-5-304, MCA; IMP: 75-5-304, MCA), located at pages 17-3025 through 17-3027, Administrative Rules of Montana.

17.30.1405 LOCAL LAW (AUTH: 75-5-304, MCA; IMP: 75-5-304, MCA), located at page 17-3029, Administrative Rules of Montana.

17.30.1406 NATIONAL PRETREATMENT STANDARDS: PROHIBITED DISCHARGES (AUTH: 75-5-201, 75-5-304, MCA; IMP: 75-5-304, MCA), located at pages 17-3029 through 17-3031, Administrative Rules of Montana.

17.30.1407 NATIONAL PRETREATMENT STANDARDS: CATEGORICAL STANDARDS (AUTH: 75-5-201, 75-5-304, MCA; IMP: 75-5-304, MCA), located at page 17-3031, Administrative Rules of Montana.

17.30.1410 REMOVAL CREDITS (AUTH: 75-5-304, MCA; IMP: 75-5-304, MCA), located at page 17-3033, Administrative Rules of Montana.

17.30.1411 PRETREATMENT PROGRAMS: DEVELOPMENT BY POTW (AUTH: 75-5-201, 75-5-304, MCA; IMP: 75-5-304, MCA), located at pages 17-3033 through 17-3039, Administrative Rules of Montana.

17.30.1412 POTW PRETREATMENT PROGRAMS AND AUTHORIZATION TO REVISE PRETREATMENT STANDARDS: SUBMISSION FOR APPROVAL (AUTH: 75-5-201, 75-5-304, MCA; IMP: 75-5-304, MCA), located at pages 17-3041 through 17-3043, Administrative Rules of Montana.

17.30.1413 APPROVAL PROCEDURES FOR POTW PRETREATMENT

PROGRAMS AND POTW GRANTING OF REMOVAL CREDITS (AUTH: 75-5-201, 75-5-304, MCA; IMP: 75-5-304, MCA), located at pages 17-3043 through 17-3045, Administrative Rules of Montana.

17.30.1414 REPORTING REQUIREMENTS FOR POTW'S AND INDUSTRIAL USERS (AUTH: 75-5-201, 75-5-304, MCA; IMP: 75-5-304, MCA), located at pages 17-3047 through 17-3056, Administrative Rules of Montana.

17.30.1419 CONFIDENTIALITY OF INFORMATION (AUTH: 75-5-201, 75-5-105, MCA; IMP: 75-5-401, MCA), located at page 17-3059, Administrative Rules of Montana.

17.30.1420 NET/GROSS CALCULATION (AUTH: 75-5-201, 75-5-304, MCA; IMP: 75-5-304, MCA), located at page 17-3059, Administrative Rules of Montana.

17.30.1421 UPSET PROVISION (AUTH: 75-5-304, MCA; IMP: 75-5-304, MCA), located at pages 17-3059 and 17-3060, Administrative Rules of Montana.

17.30.1425 BYPASS (AUTH: 75-5-201, 75-5-304, MCA; IMP: 75-5-304, MCA), located at pages 17-3063 and 17-3064, Administrative Rules of Montana.

17.30.1426 MODIFICATION OF POTW PRETREATMENT PROGRAMS (AUTH: 75-5-201, 75-5-304, MCA; IMP: 75-5-304, MCA), located at pages 17-3064 and 17-3065, Administrative Rules of Montana.

REASON: Title 17, chapter 30, subchapter 14 was also adopted in December of 1989, in preparation for the Department of Health and Environmental Sciences (now the Department of Environmental Quality) receiving delegation of the federal pretreatment program. However, because of lack of funding, neither department accepted the delegation. Therefore, the pretreatment program for Montana is operated by EPA and these rules have never been implemented. The rules do not reflect current EPA requirements. Therefore, if the department were to seek delegation, it would be better to adopt new rules rather than to modify these rules. Retaining outdated rules for a program that the department does not administer causes confusion.

17.30.2001 DEFINITIONS (AUTH: 75-5-201, MCA; IMP: 75-5-611, MCA), located at pages 17-3172 and 17-3173, Administrative Rules of Montana.

17.30.2003 ENFORCEMENT ACTIONS FOR ADMINISTRATIVE PENALTIES (AUTH: 75-5-201, MCA; IMP: 75-5-611, MCA), located at pages 17-3175 and 17-3176, Administrative Rules of Montana.

REASON: The board promulgated ARM 17.30.2001 through 17.30.2006 in April 1998 to establish administrative penalty calculation procedures for Montana Water Quality Act (WQA). The board's predecessor, the Board of Health and

Environmental Sciences, promulgated ARM 17.38.601 through 17.38.607 in February 1995 to establish administrative enforcement procedures and administrative penalties for the Public Water Supply Laws (PWSL).

Legislation passed in 2005 established a standard set of penalty factors that must be considered in penalty calculations. See 75-5-1001, MCA. In May 2006, the board promulgated new rules to establish a penalty calculation process based on the statutory penalty factors in ARM 17.4.301 through 17.4.308. The new penalty calculation rules apply to penalties assessed under the Water Quality and Public Water Supply Acts. Upon promulgation of the new penalty rules, the majority of the old water quality and public water supply penalty calculation rules were repealed. However, the board did not repeal definitions and some procedural parts of the old rules in order to help guide the department's determination of the gravity factor under the new rules. After nine years of implementation of the new penalty rules, it is apparent that the remaining portions of the old water quality and public water supply penalty rules are no longer needed.

Most of ARM 17.30.2003(1) and (2) duplicate procedures described in 75-5-611 and 75-5-617, MCA. ARM 17.30.2003(3) describes a standard procedure regarding service of certified mail and is not needed. ARM 17.30.2003(4) states that a notice letter sent in accordance with 75-5-611(1), MCA, satisfies the requirement to send a notice letter as required in 75-5-617(2), MCA. Both sections of law require the department to send a notice letter. Because it is obviously most efficient to send only one notice letter, this declaration in rule is not needed.

ARM 17.30.2003(5) and (6) establish a procedure under which the department may not assess a penalty if the violator submits a letter that certifies that the activity was or is now in compliance or proposes a corrective action plan to return the activity to compliance. The department must respond to the letter within 30 days and determine if the violator's response was adequate. If inadequate or if adequate but not complied with, the department may issue an order that assesses a penalty. These provisions unduly limit the department's enforcement discretion.

ARM 17.30.2003(7) duplicates 75-5-611(2), MCA, and (8) merely references the standard penalty rules.

ARM 17.30.2003(9) is unnecessary if the previous sections are no longer in effect.

17.38.601 PURPOSE (AUTH: 75-6-103, MCA; IMP: 75-6-109, MCA), located at page 17-3667, Administrative Rules of Montana.

REASON: This rule describes the purpose of the PWS rules that establish administrative enforcement procedures and penalties. Because the board is repealing the remaining rules, the purpose statement is no longer applicable.

17.38.602 DEFINITIONS (AUTH: 75-6-103, MCA; IMP: 75-6-109, MCA), located at pages 17-3667 and 17-3668, Administrative Rules of Montana.

REASON: Because the board is repealing the remaining rules, the definitions in this rule are no longer needed.

17.38.603 ENFORCEMENT PROCEDURES (AUTH: 75-6-103, MCA; IMP: 75-6-109, MCA), located at pages 17-3668 and 17-3669, Administrative Rules of Montana.

REASON: ARM 17.38.603(1)(a) generally duplicates 75-6-110(1), MCA, which states that, unless a violation represents an imminent threat, the department shall first send a violation letter. Because this requirement is stated in statute, the rule is not needed. ARM 17.38.603(2) lists requirements or conditions that may be included in orders. The department is aware of its enforcement options; therefore this list is not necessary. ARM 17.38.601(3) duplicates 75-6-110(3), MCA.

17.38.607 SUSPENDED PENALTIES (AUTH: 75-6-103, MCA; IMP, 75-6-109, MCA), located at page 17-3673, Administrative Rules of Montana.

REASON: This rule authorizes the director of the department to suspend penalties in an administrative order. After this rule was adopted, the Legislature, in the 2005 bill that established standard penalty factors, gave the department that authority in 75-1-1001(2), MCA. Therefore, this rule is no longer needed.

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 Elois Johnson, Paralegal, Department of Environmental Quality, 1520 E. Sixth Avenue, P.O. Box 200901, Helena, Montana 59620-0901; faxed to (406) 444-4386; or e-mailed to ejohnson@mt.gov, no later than 5:00 p.m., ____________, 2015. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

5. Ben Reed, attorney for the board, or another attorney for the Agency Legal Services Bureau, has been designated to 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, e-mail, 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 supply; 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. Notices will be sent by e-mail unless a mailing preference is noted in the request. Such written request may be mailed or delivered to Elois Johnson, Paralegal, Department of Environmental Quality, 1520 E. Sixth Ave., P.O. Box 200901, Helena, Montana 59620-0901, faxed to the office at (406) 444-4386, e-mailed to Elois Johnson at ejohnson@mt.gov, or may be made by completing a request form at any rules hearing held by the board.

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

8. With regard to the requirements of 2-4-111, MCA, the department has determined that the adoption of the above-referenced rules will not significantly and directly impact small businesses.

Reviewed by:	DEPARTMENT OF ENVIRONMENTAL QUALITY
__________________________	BY: ________________________________
JOHN F. NORTH Rule Reviewer	JOAN MILES, CHAIRMAN

Certified to the Secretary of State, __________________, 2015.

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM

EXECUTIVE SUMMARY FOR ACTION ON RULE ADOPTION

Agenda #III.C.1.

Agenda Item Summary: Rulemaking to adopt the air quality rules to include provisions meeting the requirements of Section 128 of the federal Clean Air Act (CAA) regarding state Boards and conflict of interest.

List of Affected Rules: New Rules I through III (ARM 17.8.150, 17.8.151, 17.8.152)

Affected Parties Summary: The new rules would affect any Board of Environmental Review member who has a potential conflict of interest and/or derive a significant portion of his or her income from regulated persons. It would also affect persons involved in contested case proceedings before the Board if the Board cannot act because of the prohibition in New Rule II.

Background: The federal Clean Air Act requires states to develop a state implementation plan (SIP) that outlines how the State will attain and maintain compliance with the national ambient air quality standards (NAAQS). The Montana SIP was originally submitted to the Environmental Protection Agency (EPA) in 1972. As a SIP-approved State, Montana must satisfy all of the applicable requirements of the federal CAA in order to maintain an EPA-approved air quality program, including the requirements of Section 128. In relevant part, Section 128 provides that SIPs contain requirements that any board that approves permits or enforcement orders have a majority of members that "represent the public interest and do not derive any significant portion of their income from persons subject to permits or enforcement orders" and that those members shall disclose any potential conflicts of interest.

The proposed new rules include definitions, conflict of interest requirements for members of the Board of Environmental Review, and the process by which the Board members will report any possible conflicts of interest. Upon promulgation, the proposed rules would satisfy the requirements of Section 128 of the federal CAA.

Hearing Information: No hearing was held. The only comment was a recommended amendment submitted by the Department.

Board Options: The Board may:

1. Adopt the rules as proposed.
2. Adopt the rules with the amendment contained in the attached notice of adoption.
3. Determine that it will not adopt the rules.

DEQ Recommendation: The Department recommends that the Board adopt the attached HB 311/521 analysis and the rules with the amendment and response to comment as provided in the attached notice of adoption.

Enclosures:

1. Notice of Proposed Adoption (No Public Hearing Contemplated)
2. Testimony from John North
3. HB 311/521 Analysis
2. Draft Notice of Adoption

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the adoption of New Rules I through III pertaining to the Clean Air Act	)))))))	NOTICE OF PROPOSED ADOPTION (AIR QUALITY) NO PUBLIC HEARING CONTEMPLATED

TO: All Concerned Persons

1. On October 16, 2015, the Board of Environmental Review proposes to adopt the above-stated rules.

2. The board will make reasonable accommodations for persons with disabilities who wish to participate in this rulemaking process or need an alternative accessible format of this notice. If you require an accommodation, contact Elois Johnson, Paralegal, no later than 5:00 p.m., August 24, 2015, to advise us of the nature of the accommodation that you need. Please contact Elois Johnson at Department of Environmental Quality, P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2630; fax (406) 444-4386; or e-mail ejohnson@mt.gov.

3. The proposed new rules provide as follows:

NEW RULE I DEFINITIONS For purposes of this subchapter, the following terms have the following meanings:

(1) "Board" means the Board of Environmental Review provided for in 2-15-3502, MCA.

(2) "Potential conflict of interest" means:

(a) any income from a regulated person; or

(b) any interest or relationship that would preclude the individual having the interest or relationship from being considered one who represents the public interest.

(3) "Regulated person" means:

(a) a person, other than a department or agency of a state, local, or regional government, who is subject to a permit or an enforcement order that implements the federal Clean Air Act; or

(b) any trade or business association of which a person described in (3)(a) is a member.

(4) "Represent the public interest" means that the person does not:

(a) own a controlling interest in or have five percent or more of his or her capital invested in a regulated person;

(b) serve as attorney for, act as consultant for, or serve as an officer or director of a regulated person; or

(c) hold any other official or contractual relationship with a regulated person.

(5) "Significant portion of income" means ten percent or more of gross

personal income for a calendar year, including retirement benefits, consultant fees, and stock dividends, except that it shall mean 50 percent or more of gross personal income for a calendar year if the recipient is over 60 years of age and is receiving such portion pursuant to retirement, pension, or similar arrangement. For purposes of this section, income derived from mutual-fund payments, or from other diversified investments as to which the recipient does not know the identity of the primary sources of income, shall be considered part of the recipient's gross personal income but shall not be treated as income derived from persons subject to permits or enforcement orders under the Clean Air Act.

AUTH: 75-2-111, MCA
IMP: 75-2-111, MCA

NEW RULE II BOARD ACTION (1) The board may not take action on any contested case matter that arises under the Clean Air Act of Montana unless a majority of members of the board at the time of the action:
(a) represent the public interest; and
(b) do not derive a significant portion of income from a regulated person.

AUTH: 75-2-111, MCA
IMP: 75-2-111, MCA

NEW RULE III REPORTING (1) At the first meeting each calendar year and prior to the first meeting following a change in the board's membership, each board member who represents the public interest and does not derive a significant portion of income from regulated persons shall file with the board secretary a written certification of this status.
(2) If, subsequent to making a certification under (1), a board member no longer represents the public interest or has begun to derive a significant portion of income from regulated persons, the member shall file with the board a written withdrawal of certification.
(3) Whenever the board is prohibited by [New Rule II] from taking action, the chairman shall notify the Governor of this fact in writing and shall in the notice list the members of the board who do not represent the public interest or who derive a significant portion of income from regulated persons.
(4) Each board member who has a potential conflict of interest shall file with the board a written disclosure of the interest that creates the potential conflict.

AUTH: 75-2-111, MCA
IMP: 75-2-111, MCA

REASON: Section 110 of the federal Clean Air Act (CAA) (42 USC 7410) requires a state seeking primacy for the implementation and enforcement of the CAA to develop a state implementation plan (SIP) that outlines how the state will attain and maintain compliance with the National Ambient Air Quality Standards (NAAQS). Montana's SIP was initially submitted to the Environmental Protection Agency (EPA) in 1972. As a SIP-approved state, Montana must satisfy all of the applicable requirements of the CAA in order to maintain an EPA-approved air quality program and retain program primacy.

In 2013, the EPA identified a problem with Montana's SIP specific to the requirements of Section 128 of the Clean Air Act (42 USC 7428). In relevant part, Section 128 provides that a SIP must contain the following requirements:

> "(1) any board or body which approves permits or enforcement orders under this Act shall have at least a majority of members who represent the public interest and do not derive any significant portion of their income from persons subject to permits or enforcement orders under this Act; and
> (2) any potential conflicts of interest by members of such board or body or the head of an executive agency with similar powers be disclosed."

Because the Board of Environmental Review has such authority, compliance with Section 128 of the CAA is required.

The proposed new rules include definitions, conflict of interest requirements for members of the board, and the process by which the board members will report any possible conflicts of interest. These rules would impose on the board the substantive prohibition contained in section 128(1), the disclosure requirement contained in section 128(2), and definitions that provide for reasonable implementation of these requirements. The definitions are patterned after EPA's "Guidance to States Meeting Conflict of Interest Requirements of Section 128." The EPA has been consulted and has indicated that adoption of these rules into Montana's SIP would be sufficient for Montana to make that SIP compliant with section 128 and allow Montana to retain primacy under the CAA.

4. Concerned persons may submit their data, views, or arguments concerning the proposed action in writing to Elois Johnson at Department of Environmental Quality, P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2630; fax (406) 444-4386; or e-mail ejohnson@mt.gov, no later than September 10, 2015. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

5. If persons who are directly affected by the proposed action wish to express their data, views, or arguments orally or in writing at a public hearing, they must make written request for a hearing and submit this request along with any written comments they have to Elois Johnson at Department of Environmental Quality, P.O. Box 200901, Helena, Montana 59620-0901; phone (406) 444-2630; fax (406) 444-4386; or e-mail ejohnson@mt.gov, no later than September 10, 2015.

6. If the board receives requests for a public hearing on the proposed action from either 10 percent or 25, whichever is less, of the persons who are directly affected by the proposed action; from the appropriate administrative rule review committee of the Legislature; from a governmental subdivision or agency; or from an association having not less than 25 members who will be directly affected, a hearing will be held at a later date. Notice of the hearing will be published in the Montana

Administrative Register. Ten percent of those persons directly affected has been determined to be 180 based on the approximately 1800 permit holders.

7. 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, e-mail, 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 supply; 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. Notices will be sent by e-mail unless a mailing preference is noted in the request. Such written request may be mailed or delivered to Elois Johnson, Paralegal, Department of Environmental Quality, 1520 E. Sixth Ave., P.O. Box 200901, Helena, Montana 59620-0901, faxed to the office at (406) 444-4386, e-mailed to Elois Johnson at ejohnson@mt.gov, or may be made by completing a request form at any rules hearing held by the department.

8. The bill sponsor contact requirements of 2-4-302, MCA, do not apply.

9. With regard to the requirements of 2-4-111, MCA, the board has determined that the proposed new rules will not significantly and directly impact small businesses.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

/s/ John F. North
JOHN F. NORTH
Rule Reviewer

BY: */s/ Joan Miles*
JOAN MILES, CHAIRMAN

Certified to the Secretary of State, August 3, 2015.

Filed with the
MONTANA BOARD OF
ENVIRONMENTAL REVIEW
This ____ day of ____
at ____ o'clock ____ .m.
By: ____

DEQ
Montana Department
of Environmental Quality

Memo

TO: The Board of Environmental Review

FROM: John North, Chief Legal Counsel, Department of Environmental Quality

DATE: September 10, 2015

SUBJECT: Testimony for MAR Notice Number 17-372, Clean Air Act Conflict of Interest

Section 110 of the federal Clean Air Act (CAA) (42 USC 7410) requires a state seeking primacy for the implementation and enforcement of the CAA to develop a state implementation plan (SIP) that outlines how the state will attain and maintain compliance with the National Ambient Air Quality Standards (NAAQS). Montana's SIP was initially submitted to the Environmental Protection Agency (EPA) in 1972. As a SIP-approved state, Montana must satisfy all of the applicable requirements of the CAA in order to maintain an EPA-approved air quality program and retain program primacy.

In 2013, the EPA identified a problem with Montana's SIP specific to the requirements of Section 128 of the Clean Air Act (42 USC 7428). In relevant part, Section 128 provides that a SIP must contain the following requirements:

> "(1) any board or body which approves permits or enforcement orders under this Act shall have at least a majority of members who represent the public interest and do not derive any significant portion of their income from persons subject to permits or enforcement orders under this Act; and
> (2) any potential conflicts of interest by members of such board or body or the head of an executive agency with similar powers be disclosed."

Because the Board of Environmental Review has such authority, compliance with Section 128 of the CAA is required.

The proposed new rules include definitions, conflict of interest requirements for members of the board, and the process by which the board members will report any possible conflicts of interest. With one exception, these rules would impose on the board the substantive prohibition contained in section 128(a)(1), the disclosure requirement contained in section 128(a)(2), and definitions that provide for reasonable implementation of these requirements. The exception is that section 128(a)(1) provides that, for a board to take action, a majority of board members must not derive a significant portion of their income from regulated persons. Proposed Rule II(1)(b) on the other hand provides that a majority of board members must not derive a significant portion of their income from "a regulated person." This is less stringent than the federal statute. New Rule III uses the proper term "persons."

The Department respectfully requests that the Board adopt proposed New Rules I and III as proposed and that the Board adopt proposed New Rule II with the substitution of "regulated persons" for "a regulated person." The Department apologizes for this oversight in the proposed rule.

Montana Department of
ENVIRONMENTAL QUALITY

MEMO

TO: Board of Environmental Review

FROM: John F. North, Chief Legal Counsel
Department of Environmental Quality

DATE: October 6, 2015

SUBJECT: HB 521 Stringency and HB 311Takings Analyses for MAR Notice No. 17-372

HB 521, which is codified at 75-2-207, MCA, requires that the Department make certain findings before it may adopt water quality rules that are more stringent than comparable federal regulations that address the same circumstances.

In MAR Notice No. 17-372, the Board is proposing to impose conflict of interest requirements comparable to section 128 of the federal Clean Air Act. There are no comparable federal rules. Therefore, adoption of these rules is not more stringent than comparable federal rules.

HB 311 is codified as Title 2, Chapter 10, MCA. That chapter requires an agency to conduct a takings impact assessment for actions, including adoption of rules, with taking or damaging implications. It directs that the Attorney General privide a checklist for agencies to use in determining whether actions have taking or damaging implications. Attached is a checklist for this rule adoption. It indicates that adoption of these rule amendments does not have taking or damaging implications.

Attachment

PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST: MAR Notice No. 17-372

DOES THE PROPOSED AGENCY ACTION HAVE TAKINGS IMPLICATIONS UNDER THE PRIVATE PROPERTY ASSESSMENT ACT?

Yes	No	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deprive the owner of all economically viable uses of the property?
	X	4. Does the action deny a fundamental attribute of ownership?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If the answer is NO, skip questions 5a and 5b and continue with question 6.]
		5a. Is there a reasonable, specific connection between the government requirement and legitimate state interests?
		5b. Is the government requirement roughly proportional to the impact of the proposed use of the property?
	X	6. Does the action have a severe impact on the value of the property?
	X	7. Does the action damage the property by causing some physical disturbance with respect to the property in excess of that sustained by the public generally? [If the answer is NO, do not answer questions 7a

through 7c.]

______ ______ 7a. Is the impact of government action direct, peculiar, and significant?

______ ______ 7b. Has government action resulted in the property becoming practically inaccessible, waterlogged, or flooded?

______ ______ 7c. Has government action diminished property values by more than 30% and necessitated the physical taking of adjacent property or property across a public way from the property in question?

Taking or damaging implication exist if YES is checked in response to question 1 and also to any one or more of the following questions: 2, 3, 4, 6, 7a, 7b, 7c; or if NO is checked in response to questions 5a or 5b.

______________________________ October 6, 2015

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the adoption of New Rules I through III pertaining to the Clean Air Act	)))	NOTICE OF ADOPTION (AIR QUALITY)

TO: All Concerned Persons

1. On August 13, 2015, the Board of Environmental Review published MAR Notice No. 17-372 regarding a notice of proposed adoption (no public hearing contemplated) of the above-stated rules at page 1092, 2015 Montana Administrative Register, Issue Number 15.

2. The board has adopted New Rules I (17.8.150) and III (17.8.152) exactly as proposed and has adopted New Rule II (17.8.151) as proposed, but with the following changes, stricken matter interlined, new matter underlined:

17.8.151 BOARD ACTION (1) The board may not take action on any contested case matter that arises under the Clean Air Act of Montana unless a majority of members of the board at the time of the action:

(a) remains the same.

(b) do not derive a significant portion of income from ~~a~~ regulated persons.

3. The following comment was received and appears with the board's response:

COMMENT: In New Rule II(1)(b), the word "person" should be plural to provide the same requirement as is contained 42 U.S.C. 7428, which requires that a majority of state board members who do not derive a significant portion of their income from "regulated persons."

RESPONSE: The board agrees and has made the suggested amendment.

4. No other comments or testimony were received.

Reviewed by:	BOARD OF ENVIRONMENTAL REVIEW
______________________________ JOHN F. NORTH Rule Reviewer	By: ______________________________ JOAN MILES Chairman

Certified to the Secretary of State, ____________________, 2015.

RECEIVED
APR 11 2014
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**BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA**

IN THE MATTER OF AMENDMENT NO. 3 TO THE MINING PERMIT FOR BULL MOUNTAIN COAL MINE NO. 1 (PERMIT ID: SMP C1993017).	Case No. BER 2013-07 SM **APPELLANT MONTANA ENVIRONMENTAL INFORMATION CENTER'S MOTION FOR SUMMARY JUDGMENT**

Pursuant to Montana Rule of Civil Procedure 56 and the Hearing Examiner's Order Adopting Joint Stipulated Procedural Schedule for Administrative Review,[1] Appellant Montanan Environmental Information Center (MEIC) hereby moves for summary judgment in this matter, requesting that the hearing examiner and/or the

[1] On March 21, 2014, MEIC filed an unopposed motion to extend the deadline for filing this motion to April 11, 2014.

Board of Environmental Review rule that Montana Department of Environmental Quality's (DEQ) decision and cumulative hydrologic impact assessment authorizing expansion of the Bull Mountain Mine No. 1 are arbitrary and capricious, an abuse of discretion, and/or not accordance with law.

MEIC respectfully requests that the hearing examiner and/or Board of Environmental Review grant summary judgment in its favor, declare approval of the Bull Mountain Mine No. 1 expansion unlawful and void *ab initio*, and set aside DEQ's decision until the agency remedies its violations of the Montana Surface and Underground Mining Reclamation Act.

Respectfully submitted this 11th day of April 2014,

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Attorneys for Montana Environmental Information Center

CERTIFICATE OF SERVICE

I hereby certify that on the 11th day of April 2014, a true and correct copy of the foregoing was hand delivered to:

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Special Assistant Attorney General
Department of Environmental Quality
Legal Unit, Metcalf Bldg.
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May 30, 2014

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Hand-Delivered

RE: ***In the Matter of Amendment No. 3 to the Mining Permit for Bull Mtn***
Cause No. BER 2013-07 SM

Dear Joyce:

Enclosed for filing in the above-referenced matter please find the original and one copy of **Signal Peak LLC's Cross Motion for Summary Judgment and Combined Response to MEIC's Motion for Summary Judgment and Brief in Support of Cross-Motion for Summary Judgment**. Please advise me of the filing of these documents by date-stamping the attached copies and returning them with our staff courier.

Should you have any questions regarding this filing, please do not hesitate to contact me. Thank you for your assistance.

Sincerely,

BROWNING, KALECZYC, BERRY & HOVEN, P.C.

By Amber G. Carlson
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Filed with the
MONTANA BOARD OF
ENVIRONMENTAL REVIEW
This 30th day of May, 2014
at 3:10 o'clock p.m.
By: [signature]

**BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA**

IN THE MATTER OF AMENDMENT NO. 3 TO THE MINING PERMIT FOR BULL MOUNTAIN COAL MINE NO. 1 (PERMIT ID: SMP C1993017).	**SIGNAL PEAK ENERGY, LLC'S CROSS-MOTION FOR SUMMARY JUDGMENT**

Intervenor Signal Peak Energy, LLC ("SPE"), through counsel, respectfully submits this Combined Response in Opposition to Appellant Montana Environmental Information Center's ("MEIC") Motion for Summary Judgment and Brief in Support of its Cross-Motion for Summary Judgment. The parties agreed MEIC's challenge to SPE's permit application for the Bull Mountains Mine No. 1 raised purely legal questions, making this matter appropriate for summary judgment pursuant to Rule 56, Mont. R. Civ. P. Therefore, in opposition to MEIC's Motion for Summary Judgment and in support of judgment on behalf of SPE and the Montana Department of Environmental Quality ("DEQ"), SPE files the accompanying Brief. For the reasons set forth therein, and for the reasons set forth in DEQ's Brief in Opposition to MEIC's Motion for Summary Judgment, SPE asks the Board to deny MEIC's Motion, grant SPE's Cross-Motion, and dismiss MEIC's appeal.

//

DATED this 30th day of May, 2014.

BROWNING, KALECZYC, BERRY & HOVEN, P.C.

By ______________________________
Steven T. Wade
Sara S. Berg
Jessie L. Luther

Attorneys for Signal Peak Energy LLC

CERTIFICATE OF SERVICE

I hereby certify that on the 30th day of May, 2014, a true copy of the foregoing was mailed by first-class mail, postage prepaid, addressed as follows:

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Filed with the
MONTANA BOARD OF
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This 30th day of May, 2014
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BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

IN THE MATTER OF AMENDMENT NO. 3 TO THE MINING PERMIT FOR BULL MOUNTAIN COAL MINE NO. 1 (PERMIT ID: SMP C1993017).	**SIGNAL PEAK ENERGY, LLC'S COMBINED RESPONSE TO MEIC'S MOTION FOR SUMMARY JUDGMENT AND BRIEF IN SUPPORT OF CROSS-MOTION FOR SUMMARY JUDGMENT**

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Intervenor Signal Peak Energy, LLC ("SPE"), through counsel, respectfully submits this Combined Response in Opposition to Appellant Montana Environmental Information Center's ("MEIC") Motion for Summary Judgment and Brief in Support of its Cross-Motion for Summary Judgment.

INTRODUCTION

SPE seeks a reasonable expansion of its present Bull Mountains Mine No. 1, located near Roundup, Montana. The Montana Department of Environmental Quality ("DEQ") undertook a thorough review of SPE's permit application, pursuant to Montana law, and approved the proposal. Now, MEIC challenges DEQ's analysis, interpretation, and application of Montana law and questions whether SPE's application contained sufficient evidence to support DEQ's conclusions. However, DEQ correctly applied Montana's laws and regulations related to mine permitting, as they pertain to the facts and circumstances present in this case. Moreover, a review of the record establishes the facts, data, and science contained in SPE's permit application and reflected in DEQ's decision and order granting it provide ample support for the conclusion that SPE's proposed operation complies with Montana and federal law. Accordingly, SPE asks the Board to deny MEIC's Motion for Summary Judgment and to grant SPE's Cross-Motion for Summary Judgment, because the undisputed facts demonstrate DEQ correctly approved SPE's permit application as a matter of law.

BACKGROUND FACTS

On October 5, 2012, SPE sought approval for amendment to its mining and reclamation plan from DEQ to increase the amount of coal to its permitted area for its Bull Mountains No. 1 Mine under permit ID: SMP C1993017. The proposed amendment would add 7,161 acres to SPE's permit area, expand the underground mine plan, and add about 176 million tons of coal to the permitted life-of-mine reserves. It proposes using mechanical underground mining methods to recover the coal, including continuous mining ("room and pillar") and longwall mining.

After a thorough review, including three rounds of technical deficiency letters and responses, DEQ notified SPE its application was technically acceptable on September 13, 2013.

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Following the period for public comment, DEQ approved the application, issued an amendment to the permit, and issued written findings on October 18, 2013. DEQ reviewed the application pursuant to the Montana Strip and Underground Mine Reclamation Act ("MSUMRA") and its accompanying regulations, codified at ARM 17.24.301 through 17.24.1826. The comprehensive regulatory and permitting program formed by these state laws were adopted pursuant to the requirements of the Surface Mining Control and Reclamation Act ("SMCRA"), 30 U.S.C. §§ 1201–1328. Under SMCRA and MSUMRA, Montana was granted exclusive jurisdiction over regulation and permitting of coal mines within the State.

MEIC appealed DEQ's decision to grant SPE's permit application, resulting in the current proceedings before the Board. MEIC represented and stipulated to DEQ and SPE that its appeal was based purely on questions of law, so the parties stipulated to this summary judgment procedure. A review of the record and its relevant, undisputed facts, and an analysis of the applicable laws and regulations, establishes DEQ correctly applied MSUMRA and accompanying regulations in its review and approval of SPE's permit application. MEIC's Motion should be denied; SPE's Cross-Motion should be granted; and this appeal should be dismissed.

STANDARD OF REVIEW

As an initial but extremely important matter, in its Brief in Support of summary judgment, MEIC misleads the Board and articulates the incorrect standard of review. The Board's review of DEQ's permitting decision is conducted pursuant to the contested case provisions of the Montana Administrative Procedure Act ("MAPA"). *Montana Environmental Information Center v. Montana Dep't of Environmental Quality*, 2005 MT 96, ¶ 22, 326 Mont. 502, 112 P.3d 964 (citing § 75-2-211(10), MCA). "Under those provisions, all parties shall be given opportunity to appear and present evidence and argument regarding all the issues raised in the proceeding." *Id.* (citing § 2-4-612(1), MCA). Moreover, "[t]he agency's experience, technical competence, and specialized knowledge may be utilized in the evaluation of evidence." § 2-4-612(7), MCA.

At the initial stages of these proceedings, MEIC took the position that their appeal was purely a question of law and should be decided by summary judgment. Based on that representation, the parties entered into a Stipulated Schedule, which was adopted by the Hearing Examiner in the Order Adopting Joint Stipulated Procedural Schedule for Administrative Review (Jan. 6, 2014). As set forth below, MEIC is not entitled to summary judgment, and therefore, this appeal should be dismissed.

The Board's administrative review of DEQ's permitting decision should proceed in accordance with Rule 56, Mont. R. Civ. P. The Montana Supreme Court described the standard of review applicable to motions for summary judgment in *Lorang v. Fortis*, 2008 MT 252, 345 Mont. 12, 192 P.3d 186:

> Summary judgment may be granted only when there is a complete absence of genuine issues of material fact and the moving party is entitled to judgment as a matter of law. M.R. Civ. P. 56(c); *LaTray [v. City of Havre*, 2000 MT 119], ¶14[, 299 Mont. 449, 999 P.2d 1010]. The party seeking summary judgment bears the initial burden of establishing a complete absence of genuine issues of material fact. *LaTray*, ¶14. To satisfy this burden, the moving party must "exclude any real doubt as to the existence of any genuine issue of material fact" by making a "clear showing as to what the truth is." *Toombs v. Getter Trucking, Inc.*, 256 Mont. 282, 284, 846 P.2d 265, 266 (1993). In doing so, the moving party must contend with our rules which favor the party opposing summary judgment.
>
> In determining whether genuine issues of material fact exist, we must view all evidence in the light most favorable to the non-moving party. *LaTray*, ¶15. Therefore, all reasonable inferences that may be drawn from the evidence must be drawn in favor of the party opposing summary judgment. *LaTray*, ¶15. If there is any doubt as to whether a genuine issue of material fact exists, that doubt must be resolved in favor of the party opposing summary judgment. *Newbury v. State Farm Fire & Cas. Ins. Co.*, 2008 MT 156, ¶14, 343 Mont. 279, ¶14, 184 P.3d 1021, ¶14; *Krusemark v. Hansen*, 186 Mont. 174, 177, 606 P.2d 1082, 1084 (1980); *Mathews v. Glacier Genl. Assurance Co.*, 184 Mont. 368, 379, 603 P.2d 232, 238 (1979).
>
> If the moving party meets its burden of demonstrating a complete absence of genuine issues of material fact, the burden then shifts to the non-moving party to set forth specific facts, not merely denials, speculation, or conclusory statements, in order to establish that a genuine issue of material fact does indeed exist. M.R. Civ. P. 56(e); *LaTray*, ¶14. Finally, if no genuine issues of material fact exist, it must then be determined whether the facts actually entitle the moving party to judgment as a matter of law. M.R. Civ. P. 56(c).

Lorang, ¶¶ 37-39.

Should the Board determine summary judgment in favor of one party or the other is appropriate, it must issue a final decision or order pursuant to § 2-4-623, MCA:

> (1) (a) A final decision or order adverse to a party in a contested case must be in writing. A final decision must include findings of fact and conclusions of law, separately stated. Findings of fact, if set forth in statutory language, must be accompanied by a concise and explicit statement of the underlying facts supporting the findings....
>
> (b) If an agency intends to issue a final written decision in a contested case that grants or denies relief and the relief that is granted or denied differs materially from a final agency decision that was orally announced on the record, the agency may not issue the final written decision without first providing notice to the parties and an opportunity to be heard before the agency.
>
> (2) Findings of fact must be based exclusively on the evidence and on matters officially noticed.
>
> (3) Each conclusion of law must be supported by authority or by a reasoned opinion.

See also Montana Environmental Information Center, ¶ 22.

Accordingly, should the Board determine that summary judgment is appropriate, *i.e.*, that there are no genuine issues of material fact and the prevailing party is entitled to judgment as a matter of law, it must "enter findings of fact based on the preponderance of the evidence presented and then enter conclusions of law based on those findings." *Id.* The record and applicable law in this appeal support summary judgment in SPE's favor, affirming DEQ's decision to approve SPE's permit application.

SUMMARY OF MATERIAL FACTS

In its Response to MEIC's Motion for Summary Judgment, DEQ has listed the facts material to the legal questions posed to the Board. DEQ has also explained the permitting process leading up to MEIC's challenge, some relevant details regarding SPE's proposed coal mine expansion, and some of the science and technology behind processes such as groundwater modeling, longwall mining, and water quality. In lieu of merely repeating those facts and data, SPE below summarizes and highlights the undisputed facts that conclusively establish MEIC is not entitled to summary judgment and DEQ and SPE should prevail in this matter.

1. As part of the permit application process and pursuant to MSUMRA, SPE provided a Probable Hydrologic Consequences ("PHC") evaluation to assist DEQ in its assessment of the cumulative hydrologic impacts of the proposed mining operation. MEIC Exhibit 5. The PHC includes a Groundwater Model. MEIC Exhibit 6.

2. The PHC states, in pertinent part:

a. There is no evidence of any mining related impacts to water quality in the Overburden, Mammoth Coal, Upper Underburden, or spring water in the vicinity of the Bull Mountains Mine No. 1. MEIC Ex. 5 (PHC), at 314-5-30 – 33.

b. "The quality of groundwater that does not come in contact with the highly fractured rocks immediately above the mined out area or the gob (mine waste) should not be affected by mining.... Any impacts to the groundwater quality are anticipated to be limited to the mine gob, and perhaps, to a limited portion of the upper Underburden that is in direct hydraulic communication with the mine gob." *Id.* at 314-5-47.

c. "No significant change in acidity is anticipated to occur in the operational or post-mining groundwater resources in the Bull Mountains Mine No. 1 permit, mine plan, and down-gradient areas. A general increase in total dissolved solids, sodium and sulfate concentration is anticipated in the groundwater that flows through the gob and potentially in the highly fractured zones immediately above the mined out area; however, groundwater quality will continue to be suitable for the current and post-mining uses of watering livestock and wildlife." *Id.*

d. "Presently, the pre-mine groundwater water quality (Table 5 (314A)) exceeds sulfate and total dissolved solids standards for livestock (Attachment G). The groundwater generally classifies as either Class II or Class III groundwater. This will be the case after mining. However, there is potential that some of this groundwater will change from a Class II to a Class III designation. On this basis, post-mining groundwater quality will fall within either the Class II or Class III designation of the State (Table 4 (314A)). The groundwater for either classification would also be suitable for livestock watering (See Attachment G). *Id.* at 314-5-52.

e. "In summary, any groundwater quality degradation that occurs is likely to be associated with desaturation/saturation of the mining gob during and following mining activity. Degradation is predicted to remain within, or very near the mine workings and permit boundaries, for the next 50 years assuming that the mine gate roads remain intact (Scenario 2). If the gate roads collapse (Scenario 1), then any potential migration of degraded groundwater will be much slower. Otherwise, it is unlikely that there will be a diminution of groundwater quality outside the LOM boundary that could adversely affect domestic, agricultural or other legitimate uses of groundwater. It is considered highly likely that water use classifications will remain the same after mining as it was before mining for areas outside the LOM." *Id.* at 314-5-58.

3. The Groundwater Model "provides a conservative and consistent basis for comparing the hydrologic response and relative impacts to the ground water associated with mining in the proposed disturbance area." MEIC Ex. 6, at 314-6-26. As explained in the Groundwater Model:

a. "[P]article tracking does not account for potential influence of adsorption/desorption influences for given analytes. Rather, it simply simulates and tracks flow paths. Particle tracking also does not account for effects of dilution as other contributions to groundwater flow occur (e.g., recharge, etc.) In effect, particle tracking serves as a very conservative predictor of the implications of solute transport." *Id.* at 314-6-25.

b. "The particle tracking results for Scenario 1 [gate roads collapse] show that given the limiting assumptions described in the flow modeling effort, and also in accordance with the limitations described above, it is projected that any inorganic constituents emanating from the mine gob will be retained within the mine permit boundary." *Id.* at 314-6-23.

c. "The particle tracking results for Scenario 2 [gate roads remain intanct] shows that with the same limiting/conservative assumptions described heretofore, that it is possible that some flow from the mine gob may flow just outside the permit boundary." *Id.* at 314-6-24.

4. The part of DEQ's written findings issued to approve a permit or an amended permit that analyzes and determines whether the proposed mine operation, including but not limited to the PHC and other information, is designed to prevent material damage to the hydrologic balance outside the mine permit area is contained within the Cumulative Hydrologic Impact Assessment ("CHIA"). The CHIA is attached as Exhibit 10 to MEIC's Motion.

5. Section 9 of the CHIA contains the Hydrologic Impact Assessment, which discusses DEQ's findings related to the proposed expansion's impact on surface and ground water within and outside the permit area. Section 9 includes discussion regarding the Groundwater Model and predictions regarding the proposed expansion's effect on different aquifers, including the alluvium, the overburden, the Mammoth Coal, and the underburden. In relevant part, Section 9 states:

a. DEQ used groundwater monitoring data, maps, graphs, and the groundwater flow model in the PHC to assess impacts to the hydrologic balance, along with groundwater levels and quality data reported annually to DEQ by SPE. MEIC Exh. 10, at 9-8.

b. "Because mine dewatering produces groundwater flow towards the mine working during mining, no water quality affects are expects during mining. After mining is completed, some of the mine gob will become saturated. Groundwater quality in the mine gob is expected to be degraded relative to natural water quality, however, due to the small quantity of gob influenced water and the slow water movement in the Mammoth Coal this poor quality water is not expected to migrate outside the permit boundaries within 50 years after mining." *Id.* at 9-11.

c. Based upon monitoring well information, there is no evidence of any mining related impacts to upper underburden or to the relatively deep upper underburden water quality in the vicinity of the Bull Mountains Mine No. 1 and no exceedances of DEQ-7 water quality standards have been reported in the wells." *Id.* at 9-13.

6. Section 10 of the CHIA contains DEQ's Material Damage assessment of potential impacts from the proposed expansion to surface and ground water inside and outside the permit boundary. Relevant to this Motion and MEIC's claims regarding groundwater, DEQ states:

a. "A decline of groundwater quality is expected as longwall mining and subsidence continue to produce additional panels of collapsed and mineralized rubbled in the Caved Zone (gob).... 'A general increase in total dissolved solids, sodium, and sulfate concentration is anticipated in the groundwater that flows through the gob and potentially in the highly fractured zones immediately above the mined out area.'" *Id.* at 10-2 (quoting PHC, at 314-5-47).

b. "The eventual groundwater quality within the mined-out area or Caved Zone may become similar to the groundwater quality within abandoned coal mines near Roundup, MT where the average TDS [total dissolved solids], sulfate, and specific conductance concentrations are 2,042 mg/L, 1,106 mg/L, and 3,038 μS/cm, respectively. However, the groundwater quality within the Caved Zone may exceed these concentrations since the groundwater in the abandoned mines near Roundup does not come into contact with mineralized gob." *Id.* at 10-2–10-3.

7. In the Material Damage section of the CHIA, DEQ concludes:

> Post mining groundwater quality within the mined-out area (Caved Zone) is expected to degrade after coming into contact with fresh rock surfaces exposed in subsidence fractures and mineralized rubble or gob. Oxidizing conditions are

> anticipated until after mining is complete and resaturation of the collapsed material has occurred. These conditions may result in increased sulfide oxidation, cation exchange, leaching, and weathering, which together may cause an increase in the concentrations of calcium, magnesium, sulfate and sodium ions. Due to the buffering capacity of the alkaline mineralogy of the overburden and shallow underburden, development of acidic conditions in water present in the gob is extremely unlikely. As explained above at 9.5.2, any degradation of groundwater quality is not expected to render groundwaters unsuitable for current or anticipated use. Accordingly, because current mining methods are proposed throughout the expanded permit area, material damage to the quality or quantity of groundwater resources outside the proposed permit area is not expected from continued underground mining. Although presently there is no evidence of a general increase in any water quality parameters that can be attributed to mining, continued monitoring will provide additional insights of the potential effects on groundwater quality predicted to accrue over time as mining progresses.

Id. at 10-4.

ARGUMENT

MEIC has asserted DEQ's decision to issue the permit violated Montana law in two respects: (1) DEQ used the incorrect legal standard to determine the proposed coal mine operation is designed to prevent material damage to water resources outside the permit area; and (2) DEQ's material damage determination is based on inadequate information and not supported by evidence. MEIC Br., at 1-2, 20-30. "As the party asserting the claim at issue, MEIC ha[s] the burden of presenting the evidence necessary to establish the facts essential to a determination that the Department's decision violated the law." *Id.*, ¶ 16 (citing §§ 26-1-401 and 402, MCA). MEIC has not and cannot carry this burden. While MEIC is correct that there are no genuine issues of fact material to its legal challenges to DEQ's decision, the Board should deny its Motion and grant SPE's Cross-Motion, thereby dismissing MEIC's challenge to the permit application, because, as a matter of law, DEQ applied the proper standard to assess material damage outside the permit area and ample evidence supports DEQ's determination.

I. DEQ Applied the Correct Water Quality Standard to Determine SPE's Proposal Prevents Material Damage Outside the Permit Area.

MSUMRA states DEQ may only approve an application for a permit if the application, in pertinent part, "affirmatively demonstrates that: (a) the assessment of the probable cumulative impact of all anticipated mining in the area on the hydrologic balance has been made by the department and the proposed operation of the mining operation has been designed to prevent material damage to the hydrologic balance outside the permit area...." § 82-4-227(3)(a), MCA. DEQ's determination in the CHIA that the SPE's proposed operation satisfies this standard utilized the correct legal standard for "material damage." "Material damage" with respect to hydrologic balance means

> degradation or reduction by coal mining and reclamation operations of the quality or quantity of water outside of the permit area in a manner or to an extent that land uses or beneficial uses of water are adversely affected, water quality standards are violated, or water rights are impacted. Violation of a water quality standard, whether or not an existing water use is affected, is material damage.

§ 82-4-203(31), MCA.

MEIC rests its entire argument regarding DEQ's alleged misapplication of the "material damage" legal standard on its interpretation of "water quality standard." It asserts the water quality standards used to evaluate the potential for material damage are independent from existing or anticipated uses. MEIC Br., at 21-22. MEIC argues DEQ's application of a "use-based" standard dooms DEQ's material degradation analysis because of the statutory language, quoted above, which states violation of a water quality standard, "whether or not an existing water use is affected, is material damage." *Id.* at 22. Essentially, MEIC argues DEQ is prohibited from considering existing use when evaluating water quality standards, and because DEQ referred to existing and anticipated uses in its determination no water quality standards would be violated, it *per se* applied the incorrect legal standard.

A. Under the circumstances present here, "water quality standard" requires consideration of existing and anticipated uses of groundwater.

MEIC's argument is based on an incorrect interpretation of the term "water quality standard" as it applies under the facts and circumstances here. Here, as demonstrated in the PHC and the CHIA and as admitted in MEIC's Brief, the only parameters of concern related to potential groundwater degradation from the proposal are increases in the concentration of calcium, magnesium, sulfate, and sodium ions, a/k/a total dissolved solids or salinity. *Id.* at 16-

17. Accordingly, the Board must look to the water quality standards applicable to salinity to determine whether DEQ used the correct analysis in its material damage determination.

This requires navigating quite a few statutes and regulations related to water quality standards. A close reading of the applicable law demonstrates DEQ's analysis, which employs a "use-based" or narrative evaluation of whether a water quality standard could potentially be violated, was legally correct.

The following standard applies to Class II groundwater:

> (b) Except as provided in ARM 17.30.1005(2), a person may not cause a violation of the following specific water quality standards for Class II ground water:
>
> > (i) the human health standards for ground water listed in DEQ-7;
> >
> > (ii) for concentrations of parameters for which human health standards are not listed in DEQ-7, no increase of a parameter to a level that renders the waters harmful, detrimental, or injurious to the beneficial uses listed for Class II water. The department may use any pertinent credible information to determine these levels; and
> >
> > (iii) no increase of a parameter that causes a violation of the nondegradation provisions of 75-5-303, MCA.

ARM 17.30.1006(2)(b). Salinity is not among the numerical standards listed in DEQ-7, so the standards applicable here are the narrative standard set forth in (2)(b)(ii) and the nondegradation provision in (2)(b)(iii).

The water quality standard in ARM 17.30.1006(2)(b)(ii) prohibits an "increase of a parameter to a level that renders the waters harmful, detrimental, or injurious ***to the beneficial uses*** listed for Class II water." ARM 17.30.1006(2)(b)(ii) (emphasis added). Accordingly, this standard is narrative and based on an evaluation of the impact on current and anticipated uses of the water. DEQ's use of a similar "use-based" standard in its material damage determination in the CHIA correctly applied this standard.

The nondegradation standard in ARM 17.30.1006(2)(b)(iii) references § 75-5-303, MCA, which requires "the quality of high-quality waters" to be maintained unless exempted from review under § 75-5-317, MCA. § 75-5-303(2), MCA. Section 75-5-317, MCA, exempts identified classes of activities that can cause nonsignificant changes in water quality from review where they have low potential for harm to human health or the environment. § 75-5-317(1), (2), MCA. Among those exempted activities is any activity that has low potential for harm to human health or to the environment. § 75-5-317(2)(u), MCA.

ARM 17.30.715 is the regulation that identifies the criteria for determining nonsignificant changes in water quality. Those criteria "consider the quantity and strength of the pollutant, the length of time the changes will occur, and the character of the pollutant." ARM 17.30.715(1). It states, "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." *Id.* Among the nonsignificant criteria listed in ARM 17.30.715(1) is the following, which is applicable to potential groundwater contamination by salinity:

> (g) changes in the quality of water for any parameter for which there are only narrative water quality standards if the changes will not have a measurable effect on ***any existing or anticipated use*** or cause measurable changes in aquatic life or ecological integrity.

ARM 17.30.715(1)(g) (emphasis added). Like the water quality standard set forth in ARM 17.30.1006(2)(b)(ii), this is a narrative, use-based standard. Accordingly, DEQ's use of a narrative standard in its material damage analysis, and specifically when it determined whether any "water quality standards" may be violated, was legally correct under the facts and circumstances present in the Bull Mountains Mine No. 1 permit application.

B. Changes in water classification do not automatically equate to violations of water quality standards.

MEIC makes the pronouncement that "[t]he degradation of ground water from high quality Class II water to low quality Class III water is a violation of a water quality standard." *Id.* at 26 (citations omitted); *see also id.* at 16. This statement mistakes groundwater classification for a "water quality standard." As demonstrated in the discussion above, "water quality standards" do not necessarily equate to water classifications, as MEIC would have the Board believe. Where the potential degradation is based on an increase in TDS and salinity, as it is here, use-based, narrative standards apply.

Further, MEIC argues that, because some groundwater that may have slightly higher levels of total dissolved solids and salinity may, in 50 or more years, reach areas outside the permit boundary, thereby potentially degrading Class II to Class III groundwater, DEQ had to conclude the proposed expansion was not designed to prevent material damage to the hydrologic balance outside the permit area. This argument attempts to impose an overly broad and incorrect reading of the relevant statutes and regulations onto DEQ's material damage analysis obligations.

DEQ properly based its material damage determination on the potential effect of SPE's proposed mining operations on current and anticipated beneficial uses of water.[1] Under the relevant statutes and regulations, the applicable "water quality standard" for salinity in Class II or Class III groundwater takes into consideration the potential impacts on current and anticipated beneficial use, and DEQ correctly concluded the potential increase of the salinity of the groundwater will not cause a violation of the nondegradation provisions of § 75-5-303, MCA, because it qualifies as a nonsignificant activity. DEQ's material damage evaluation employed the correct legal standard and considered all relevant factors. The Board should deny MEIC's Motion for Summary Judgment and grant summary judgment in SPE's favor on this ground.

II. SPE Presented Ample Evidence to Support DEQ's Determination that the Proposed Operation Was Designed to Prevent Material Damage to the Hydrologic Balance Outside the Permit Area.

Furthermore, a review of the record establishes SPE presented sufficient evidence and DEQ determined in writing based on that record evidence that the proposed operation is designed to prevent material damage to the hydrologic balance outside the permit area. SPE and DEQ complied with § 84-4-227(3)(a), MCA. *See also* ARM 17.24.405(6)(c). The Board should deny MEIC's Motion and uphold DEQ's permitting decision.

MEIC's entire argument is based on its assumption that the possibility, 50 years from now, that some Class III groundwater could potentially mingle with Class II groundwater outside

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[1] Waters confined to the Mammoth Coal aquifer cannot cause measurable changes to aquatic life or ecological integrity. DEQ Br. in Opp. to MEIC's Mot. for Summ. J., ¶ 97.

the permit area, equates to material damage of the hydrologic balance. As demonstrated above, this is simply not the case. The material damage assessment does not require an absolute foreclosure of an increase in salinity in any part of the groundwater outside the permit area. Not only is MEIC's application of the water quality standards incorrect, but also the material damage assessment is designed to protect the hydrologic balance, not a single hydrologic unit (e.g., one of four distinct groundwater aquifers).

MEIC's argument fails because it does not take into account DEQ's entire statutory obligation. Once again, Montana law requires DEQ to provide an assessment of the cumulative hydrologic impacts of the proposed operation and all anticipated impacts on surface and ground water systems. The CHIA must be sufficient to determine "whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area." § 82-4-227(3)(a), MCA; ARM 17.24.314(5).

In the CHIA, citing to the PHC and Groundwater Model upon which it relies, DEQ assesses the numerous measures SPE has designed to minimize adverse impacts to and to prevent material damage to the hydrologic balance outside the permit area. Not only does it note the very low likelihood that any degradation of groundwater outside the permit area will occur, even more than 50 years after mining in the permit area ceases, but DEQ also discusses various measures SPE will implement to prevent material damage to the hydrologic balance outside the permit area. These measures include, but are not limited to:

a. Measures to convey and treat mine and stormwater runoff within the disturbed area (MEIC's Ex. 10, at 9-2);
b. Each MPDES-permitted outfall at the operation is associated with a sediment pond designed to contain the runoff from a 10-year, 24-hour rainfall event (*id.* at 9-3);
c. Runoff controls at the waste disposal area (*id.* at 9-4);
d. Minimizing surface impacts to ephemeral watercourses throughout the mine area through best management practices (*id.*);
e. Replacement of springs impacted by surface subsidence in the mine area (*id.* at 9-6);

f. Post-mining controls for portal discharge (*id.*);

g. Documentation of recovery of springs after undermining and subsidence (*id.* at 9-7);

h. Restoration of surface water supplies disrupted by undermining and subsidence (*id.*) (restoration by "restoring springs, stream reaches, and ponds by opportunistic development of springs where they appear, guzzler emplacements, horizontal wells, vertical wells, pipeline systems, deepening or rehabilitating existing wells, reclamation of stream reaches and function, water treatment where appropriate or necessary");

i. Explanation of evidence of recovery of water in wells in overburden after undermining and subsidence (*id.* at 9-10).

DEQ also notes in the CHIA that "[g]roundwater quality of shallow and deep aquifers (alluvium, overburden, coal, and underburden) is monitored regularly by a network of 105 monitoring wells to alert DEQ about the potential for material damage during or post mining." *Id.* at 10-2. These measures conform to recent guidance by OSM describing the duties of a regulatory agency, like DEQ, when it assesses material damage:

> (1) the regulatory authority must make a written finding that the operation is designed to prevent material damage to the hydrologic balance outside the permit area before the permit can be issued; (2) a permit application must include a plan that shows the operation has been designed to prevent such damage; (3) the operation must be conducted to prevent such damage; and (4) the water monitoring requirements are used to determine whether or not such damage is occurring.

73 Fed. Reg. 78970, 78972 (OSM approval of an amendment to West Virginia program).

DEQ's analysis, set forth in the CHIA and reliant upon the PHC and Groundwater Model, along with previous monitoring and activities near the permit area, satisfies these requirements and the requirements set forth in MSUMRA. DEQ concludes the proposed operation is designed to prevent material damage to the hydrologic balance outside the permit area, and it identifies practices in the mine operation plan intended to prevent, detect, and/or mitigate material damage.

MEIC's arguments regarding alleged violations of water quality standards within the proposed operation ignores the language of MSUMRA and the rights of a permittee to distinguish between impacts within and outside the permit boundary. The Montana groundwater quality standards do not apply within the permit area. § 75-5-401(5)(j), MCA (exempting "mining operations subject to operating permits or exploration licenses in compliance with [MSUMRA]" from groundwater permitting). Moreover, the material damage standard and DEQ's required assessment, by its terms, only applies outside the permit boundary. *See* § 82-4-227(3)(a), MCA; ARM 17.24.314(5); *see also* § 82-4-203(31), MCA (defining "material damage" in relation to impacts "outside of the permit area").

CONCLUSION

The CHIA DEQ prepared in this case not only applies the correct legal standard to assess material damage, but it also was based on sufficient evidence to support its determination that the proposed operations were designed to prevent material damage to the hydrologic balance outside the permit area. Accordingly, the Board should deny MEIC's Motion, grant SPE's Cross-Motion, and dismiss MEIC's challenge to SPE's permit application. There are no genuine issues of material fact, and an examination of the applicable law and the record in this appeal demonstrates DEQ correctly applied Montana law when it approved the permit application for Bull Mountains Mine No. 1.

DATED this 30th day of May, 2014.

BROWNING, KALECZYC, BERRY & HOVEN, P.C.

By ______________________
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CERTIFICATE OF SERVICE

I hereby certify that on the 30th day of May, 2014, a true copy of the foregoing was mailed by first-class mail, postage prepaid, addressed as follows:

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Filed with the
MONTANA BOARD OF
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**BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA**

IN THE MATTER OF: THE NOTICE OF APPEAL AND REQUEST FOR HEARING BY MONTANA ENVIRONMENTAL INFORMATION CENTER REGARDING DEQ 'S APPROVAL OF COAL MINE PERMIT NO. C1993 017 ISSUED TO SIGNAL PEAK ENERGY LLC FOR BULL MOUNTAIN MINE NO. 1 IN ROUNDUP, MT.	**CASE NO. BER 2013-07 SM**

DEPARTMENT OF ENVIRONMENTAL QUALITY RESPONSE BRIEF IN OPPOSITION TO MOTION FOR SUMMARY JUDGMENT

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I. INTRODUCTION

1. The State of Montana, Department of Environmental Quality ("DEQ" or "the Department"), in accordance with the Order Adopting Stipulated Procedural Schedule, explains why the Board should uphold DEQ's approval of Amendment No. 3 to Signal Peak Energy, L.L.C.'s ("SPE's") underground mine operating permit (permit number C1993017) ("the AM3 Application" or "the Application") for its Bull Mountain No. 1 Mine ("the SPE Mine") located near Roundup, Montana, and deny the Motion for Summary Judgment submitted by the challenging party, Montana Environmental Information Center ("MEIC").

2. In its notice and request for hearing MEIC raised two points of error:

> 1) DEQ's determination that the proposed mine expansion was designed to prevent material damage to the hydrologic balance outside the permit area was arbitrary and capricious and not in accordance with the law because the assessment employed the incorrect legal standard.
>
> 2) DEQ's determination that the proposed mine expansion was designed to prevent material damage to the hydrologic balance outside the permit area was arbitrary and capricious and not in accordance with the law because the permit application did not affirmatively demonstrate and DEQ could not, therefore, rationally conclude that the proposed mine expansion was designed to prevent material damage to the hydrologic balance.

MEIC Notice of Appeal ("the MEIC Notice") (Ex. B[1]).

3. The focus of MEIC's challenge is the Cumulative Hydrologic Impact Assessment ("CHIA") that is a part of the written finding supporting approval of the AM3 Amendment. As explained in detail below, ¶¶ 10-13, *supra*, the CHIA is an assessment of whether the proposed continuation of mining operations at the SPE Mine is designed to minimize disturbance to the hydrologic balance in areas inside and adjacent to the mine area. The CHIA is a thorough and comprehensive assessment that explains the legal requirements for the assessment, provides a

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[1] Exhibits submitted by DEQ are identified alphabetically (Ex. A, Ex. B, etc.,) in the attached CD-ROM.

detailed explanation of the hydrologic setting for surface and groundwater, assesses potential impacts of proposed mining operations on the hydrologic balance, and assesses disturbance of the hydrologic balance by examining current and anticipated beneficial uses and applicable water quality standards. As DEQ explains below, the uncontested evidence clearly demonstrates that DEQ's determination, set forth in the CHIA, that the SPE Mine is designed to prevent material damage outside the permit area executes the applicable requirements of Montana Strip and Underground Mine Reclamation Act ("MSUMRA") and is supported by the hydrologic information provided by SPE in the AM3 Application and information available to DEQ.

4. DEQ reviewed the Application for compliance with the requirements of MSUMRA which are set forth in §§ 82-4-201 through 254, MCA, along with its implementing rules in the Administrative Code of Montana ("ARM") 17.24.301 through 17.24.1826.[2] MSUMRA describes the comprehensive coal mine regulation and permitting program that Montana adopted pursuant to the requirements of the Surface Mining Control and Reclamation Act, ("SMCRA"), 30 U.S.C. §§ 1201-1328. The Secretary of the U. S. Department of the Interior approved Montana's permanent regulatory program, effective February 10, 1982, making Montana a "primacy state" under SMCRA with exclusive jurisdiction over regulation and permitting of coal mines in Montana. 30 U.S.C. § 1253(a); 30 C.F.R. § 926.10.

II. REVIEW OF THE AM3 APPLICATION AND PROCEDURAL HISTORY

5. On October 5, 2012, SPE submitted the AM3 Application to DEQ to "increase the mine permit area of [the SPE Mine] by adding 7,161 acres and expanding the mine from five longwall panels . . . to fourteen longwall panels", and "approximately 176 million tons of in-place coal reserves or 110 million tons of mineable coal." CHIA[3] p. 3-1.

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[2] Relevant provisions of MSUMRA, and its implementing rules, and the Montana groundwater regulations that are discussed in this Brief are provided in Ex. A-Appendix of Legal Authorities.

[3] References to the CHIA are to "Ex. C-CHIA_DEQ_Findings_Appendix-I" on CD-ROM.

6. In the AM3 Application, SPE proposed to continue longwall coal mining beyond the boundaries of the current permit. Accordingly, DEQ reviewed the AM3 Application as a proposed amendment the existing permit. *See* ARM 17.24.301(12).

7. On December 14, 2012, DEQ notified SPE that the AM3 Application was complete. After three rounds of notices of technical deficiencies and responses, DEQ notified SPE that the Application was technically acceptable on September 13, 2013.

8. On October 18, 2013, after public notice and receipt of public comment required by MSUMRA[4], DEQ approved the Application, and issued an amendment to the permit along with the written findings as required by ARM 17.24.405(6).

9. On November 11, 2013, MEIC timely filed its Notice of Appeal and Request for Hearing.

10. Relevant to the issues before the Board, when DEQ reviews an application for an amendment to an existing coal mine operating permit such as the SPE AM3 Application, it must assess the cumulative impacts of the proposed mine operation on the hydrologic balance by preparing a CHIA. See ARM 17.24.314(5).

11. When it prepares the CHIA, DEQ looks in part to information that MSUMRA requires applicants such as SPE to provide in the application, including the Probable Hydrologic Consequences ("PHC") evaluation. *See* ARM 17.24.304(1)(e); 17.24.314(1). The hydrologic information that must be included in the PHC is comprehensive and must be sufficient along with other information available to allow DEQ to assess the cumulative hydrologic impacts of all proposed mining activities on the hydrologic balance. ARM 17.24.314(3).

12. The PHC submitted by SPE is identified as MEIC Exhibit No. 5. The PHC includes a Groundwater Model. *See* MEIC Ex. 6. The Groundwater Model is described in the CHIA as a

[4] MEIC does not allege that DEQ violated any of the public notice requirements of MSUMRA.

"transient flow model." CHIA p. 5-2. The material damage determination set forth in the CHIA is based in part on the results of the Groundwater Model. CHIA p. 2-4.

13. The CHIA is part of the written findings DEQ must issue when it approves a permit or an amended permit. *See* ARM 17.24.314(5); 17.24.405(1). The CHIA serves as DEQ's findings and determination whether the proposed mine operation, is designed to prevent material damage to the hydrologic balance outside the mine permit area. *See* ARM 17.24.405(6)(c).

III. MSUMRA REQUIREMENTS FOR PROTECTING THE HYDROLOGIC BALANCE

14. MSUMRA specifies the information that must be provided in the PHC:

> a determination of the probable hydrologic consequences of coal mining and reclamation operations, both on and off the mine site, with respect to the hydrologic regime and quantity and quality of water in surface water and ground water systems, including the dissolved and suspended solids under seasonal flow conditions and the collection of sufficient data for the mine site and surrounding areas, so that cumulative impacts of all anticipated mining in the area upon the hydrology of the area and particularly upon water availability can be made. However, this determination is not required until hydrologic information on the general area prior to mining is made available from an appropriate federal or state agency. The permit may not be approved until the information is available and is incorporated into the application.
>
> . . .

Section 82-4-222(1)(m), MCA.

15. MSUMRA conditions approval of a coal mine operating permit on preparation of a CHIA as follows:

> (3) The department may not approve an application for a strip- or underground-coal-mining permit or major revision unless the application affirmatively demonstrates that: (a) the assessment of the probable cumulative impact of all anticipated mining in the area on the hydrologic balance has been made by the department and the proposed operation of the mining operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

Section 82-4-227(3)(a), MCA.

16. MSUMRA defines "hydrologic balance" as follows:

> "Hydrologic balance" means the relationship between the quality and quantity of water inflow to, water outflow from, and water storage in a hydrologic unit, such as a drainage basin, aquifer, soil zone, lake, or reservoir, and encompasses the dynamic relationships among precipitation, runoff, evaporation, and changes in ground water and surface water storage.

Section 82-4-203(25), MCA.

17. MSUMRA defines "material damage" as follows:

> With respect to the protection of the hydrologic balance, degradation or reduction by coal mining and reclamation operations of the quality or quantity of water outside of the permit area in a manner or to an extent that land uses or beneficial uses of water are adversely affected, water quality standards are violated, or water rights are impacted. Violation of a water quality standard, whether or not an existing water use is affected, is material damage.

Section 82-4-203(32), MCA.

18. MSUMRA also defines "adjacent area" as:

> the area outside the permit area where a resource or resources, determined in the context in which the term is used, are or could reasonably be expected to be adversely affected by proposed mining operations, including probable impacts from underground workings.

Section 82-4-203(2), MCA.

19. In addition to serving as a design criterion, minimizing material damage to the hydrologic balance inside and in areas adjacent to the permit area is also a performance standard required of a MSUMRA permittee, such as SPE. § 82-4-231(10)(k), MCA. Specifically, SPE shall conduct mine operations according to plans of operation, including the reclamation plan. See § 82-4-231(1), MCA. The reclamation plan, in pertinent part, obligates SPE to prevent material damage to the hydrologic balance outside the permit area by conducting operations to:

> *minimize* the disturbances to the prevailing hydrologic balance at the mine site *and in adjacent areas* and to the quality and quantity of water in surface water and ground water systems both during and after strip- or underground-coal-mining operations and during reclamation by:
>
> (i) avoiding acid or other toxic mine drainage . . .
>
> (ii) (A) conducting strip- or underground-mining operations so as to prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow or runoff outside the permit area, but the contributions may not be in excess of requirements set by applicable state or federal law;
>
> . . .
>
> (iv) restoring recharge capacity of the mined area to approximate premining conditions;
>
> . . .

Section 82-4-231(10)(k), MCA (emphasis added).

20. MSUMRA's implementing rules define "probable hydrologic consequences":

> "Probable hydrologic consequences" means the projected results of proposed strip or underground mining operations that may reasonably be expected to alter, interrupt, or otherwise affect the hydrologic balance. The consequences may include, but are not limited to, effects on stream channel conditions and the aquatic habitat on the permit area and adjacent areas.

ARM 17.24.301(93).

21. ARM 17.24.314 sets forth the factors that DEQ considers when it reviews an application such as the AM3 Application to determine whether the proposed mine operation is designed to protect the hydrologic balance. That rule explains the CHIA requirement as follows:

> (5) The department shall provide an assessment of the cumulative hydrologic impacts of the proposed operation and all anticipated mining upon surface and ground water systems in the cumulative impact area. The cumulative hydrologic impact assessment must be sufficient to determine, for purposes of a permit decision, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

> The department may allow the applicant to submit data and analyses relevant to the cumulative hydrologic impact assessment with the permit application.

ARM 17.24.314(5).

IV. ANALYSIS OF MATERIAL DAMAGE IN THE CHIA

22. As a preliminary matter, the CHIA assessment requires determination of the cumulative impact area which is a delineation of the hydrologic area that may be affected by the proposed coal mine operations. *See* ARM 17.24.301(32); CHIA p. 5-1. The CHIA describes the "cumulative impact area" that is the areal limit for the hydrologic information that is evaluated in the CHIA. CHIA p. 5-1.

23. In the CHIA, DEQ summarized MSUMRA's requirements for assessing potential material damage to the hydrologic balance in and adjacent to the SPE Mine site as follows:

> Administrative Rule of Montana (ARM) 17.24.314(1) requires that DEQ determine that a given proposed mining and reclamation operation has been designed to minimize disturbance to the hydrologic balance on and off the mine plan area, and prevent material damage to the hydrologic balance outside the permit area. In order to evaluate whether the proposed mining and reclamation plan has been designed to prevent material damage, a Cumulative Hydrologic Impact Assessment (CHIA) is prepared by DEQ. Prior to making a permitting decision, DEQ makes an assessment of cumulative hydrologic impacts of all existing and anticipated mining operations. The CHIA analysis must be sufficient to determine whether mining impacts to the hydrologic balance on and off the permit area have been minimized and material damage outside the permit area has been prevented.

CHIA, p. 2-1 (footnote references and citations omitted).

24. The CHIA explains the methodology that DEQ used when it made the material damage assessment for the AM3 Application:

> Following the definition of material damage in [82-4-203(32)], Montana Code Annotated (MCA), material damage criteria are established for the evaluation of both groundwater and surface water quality and quantity, and are used to determine whether

> water quality standards and beneficial uses of water, including water rights, outside the permit boundary have been or are expected to be impacted by mining activities. The interruption or diminution of a surface water or groundwater supply to the extent that an existing use is precluded is considered to be material damage. When material damage occurs mitigation is required; mitigation would include dependable, long-term replacement of a resource acceptable for the designated use [ARM 17.24.314(1)(c) and 17.24.648] or treatment to return water quality to state standards. Material damage criteria include applicable numeric and narrative water quality standards, and criteria established to protect existing beneficial uses of water.

CHIA p. 2-1 (brackets added for citation to § 82-4-203(32), MCA).

25. The CHIA described how surface water quality standards inform the material damage determination. CHIA pp. 2-2, 2-3.

26. In the CHIA DEQ identified the indicators of material damage to groundwater and the applicable groundwater quality standard:

> Groundwater material damage occurs when, as a result of mining, any of the following circumstances occur:
>
> • Groundwater quality standards outside of the permit area are violated
>
> • Land uses or beneficial uses of groundwater outside of the permit area are adversely affected to the extent that an existing use is precluded
>
> • A groundwater right is adversely impacted
>
> Protection of groundwater quality for beneficial uses is based on narrative standards established by ARM 17.30.1006 (Table 2-4) and numeric standards for individual parameters in Circular DEQ-7 (Table 2-2). Water quality guidelines established for livestock use are shown in Table 2-3. Groundwater quality in the area may naturally exceed these livestock water quality guidelines. Groundwater released from the mine is not required to be purer than natural, background conditions [75-5-306, MCA and ARM 17.30.629(2)(k)].

CHIA pp. 2-3, 2-4. (brackets and parentheses in original).

27. The material damage determination that is the focus of MEIC's challenge is set forth in the CHIA as follows:

> Because mine dewatering produces groundwater flow towards the mine working during mining, no water quality affects are expected during mining. After mining is completed, some of the mine gob will become saturated. Groundwater quality in the mine gob is expected to be degraded relative to natural water quality, however, due to the small quantity of gob influenced water and the slow water movement in the Mammoth Coal this poor quality water is not expected to migrate outside the permit boundaries within 50 years after mining. CHIA p. 9-11.
>
> . . .
>
> Similar to the Mammoth Coal, water quality in the upper underburden aquifer may be locally affected by poor quality water from the mine gob after mining is completed and water levels in the mine area recover. No water quality effects on the deeper underburden aquifer are expected due to the hydraulic separation between this aquifer and the mine. CHIA p. 9-13
>
> . . .
>
> A decline of groundwater quality is expected as longwall mining and subsidence continue to produce additional panels of collapsed and mineralized rubble in the Caved Zone (gob). CHIA p. 10-2
>
> . . .
>
> To date, no material damage to surface waters is evident. Narrative standards for surface waters have not been violated or exceeded, and the quantity of surface waters (springs and ephemeral runoff) has not been impacted due to mining activity, and surface water rights have not been impacted. Accordingly, because current mining activities are proposed throughout the expanded permit area, disturbance of the hydrologic balance on and off the permit area and material damage to surface waters outside the permit area are not expected from continued underground mining. CHIA p. 10-3, 10-4.
>
> . . .
>
> Mining is not expected to affect the alluvial aquifer beyond the permit boundary. The alluvial section within the boundary is generally dry. Groundwater levels in the overburden, Mammoth Coal and upper underburden near the western permit boundary

> have been lowered as a result of mining and drawdown in these aquifers will continue as mining advances. Mining proposed in Amendment 3 will result in continued drawdown to the east, south and north of the mine but is expected to remain largely within the mine permit boundary and drawdown will not affect most groundwater users. Mining related drawdown in these aquifers may affect a few domestic wells completed in the upper underburden north of the permit area. Since most domestic and stock wells produce from relatively deep sandstones (deep underburden aquifer) that are hydraulically isolated from mining by a relatively thick section of alternating shales and siltstones, no impact to these deeper wells is expected. SPE is committed to replacing any water supplies affected by mine related drawdown with a comparable permanent supply. CHIA p. 10-4
>
> . . .
>
> Post mining groundwater quality within the mined-out area (Caved Zone) is expected to degrade after coming into contact with fresh rock surfaces exposed in subsidence fractures and mineralized rubble or gob. Oxidizing conditions are anticipated until after mining is complete and resaturation of the collapsed material has occurred. These conditions may result in increased sulfide oxidation, cation exchange, leaching, and weathering, which together may cause an increase in the concentrations of calcium, magnesium, sulfate and sodium ions. Due to the buffering capacity of the alkaline mineralogy of the overburden and shallow underburden, development of acidic conditions in water present in the gob is extremely unlikely. As explained above at 9.5.2 [Impacts Due to Dewatering], any degradation of groundwater quality is not expected to render groundwaters unsuitable for current or anticipated use. Accordingly, because current mining methods are proposed throughout the expanded permit area, material damage to the quality or quantity of groundwater resources outside the proposed permit area is not expected from continued underground mining. Although presently there is no evidence of a general increase in any water quality parameters that can be attributed to mining, continued monitoring will provide additional insights of the potential effects on groundwater quality predicted to accrue over time as mining progresses. CHIA p. 10-4 (text in brackets added).

28. The CHIA summarized the obligations that MSUMRA places on coal mine to mitigate potential impacts to the environment including impairment of water resources as follows:

> Among these measures are requirements and performance standards [that] include requirements and standards for drainage control, pond design and maintenance, sediment control, road design and maintenance, reclamation, permitted discharges to surface waters, and protection of undisturbed drainages. In addition, adherence to Best Technology Currently Available (BTCA) and Best Management Practices (BMPs) in the design and implementation of equipment, devices, systems, methods, and techniques is required for the minimization of hydrologic disturbance. These requirements and performance standards established in ARM 17.24 subchapter 5 through subchapter 12 are incorporated into operation and reclamation plans included throughout the Bull Mountains Mine No. 1 surface mining permit (SMP C1993017), and have been reviewed and approved by DEQ.

CHIA p. 9-1 (text in bracket added).

29. As DEQ explains below, the Board should uphold DEQ's approval of the AM3 Application, deny MEIC's Motion for Summary Judgment and dismiss this administrative review action.

V. THE STANDARD OF REVIEW

30. The Board's jurisdiction includes administrative review of decisions on applications to increase permit area of a coal mine. § 82-4-206(1)(c), MCA. Board review under MSUMRA proceeds as a contested case hearing under the Montana Administrative Procedures Act ("MAPA"), §§ 2-4-601 through 631, MCA. § 82-4-206(2), MCA.

31. In accordance with MAPA, § 2-4-603, MCA, and the Order Adopting Stipulated Procedural Schedule for Administrative Review entered by the Hearing Examiner on January 7, 2014 ("the Procedural Order"), the parties agree that this matter be tried on the basis of briefing for summary judgment. Pursuant to the Procedural Order,

> 5. After considering the motion, supporting briefs, and evidence, the Hearing Examiner shall issue a preliminary decision: (i) invalidating Amendment No. 3 to permit No. C1993 017; (ii) upholding Amendment No. 3 to permit No. C1993 017; or in the case a decision cannot be made (iii) ordering that a hearing will be held and directing the parties to submit a pre-hearing schedule.

> Any such hearing schedule shall include deadlines for exchange of lists of witnesses and copies of documents that each party intends to offer at the hearing.
>
> 6. In the event that the Board disposes of this matter on summary judgment without an evidentiary hearing, the Board shall designate closure of the administrative record in its final order.

32. MEIC is mistaken when it proposes as the standard of review for this matter the standards for judicial review of final agency action set forth in the Montana Administrative Procedures Act ("MAPA") at § 2-4-704(2), MCA. MEIC Br. p. 20. Although the standards set forth in § 2-4-702, MCA, are appropriate for judicial review of a contested case such as this one, those standards do not apply when the Board acts as a finder of fact in a contested case proceeding under the MAPA. *See Mont. Envtl. Info. Ctr. v. Mont. Dep't of Envtl. Quality*, 2005 MT 96, ¶ 22 (in the context of review of an air quality permit by the Board of Environmental Review). Rather than the standards set forth in § 2-4-704(2), MCA, the requirements of § 2-4-623, MCA, apply to this contested case proceeding. *Id.* at ¶ 22. That provision currently describes the function of the Board in this contested case proceeding as follows:

> (1) (a) A final decision or order adverse to a party in a contested case must be in writing. A final decision must include findings of fact and conclusions of law, separately stated. Findings of fact, if set forth in statutory language, must be accompanied by a concise and explicit statement of the underlying facts supporting the findings. [A] final decision must be issued within 90 days after a contested case is considered to be submitted for a final decision unless, for good cause shown, the period is extended for an additional time not to exceed 30 days.
>
> . . .
>
> (2) Findings of fact must be based exclusively on the evidence and on matters officially noticed.
>
> (3) Each conclusion of law must be supported by authority or by a reasoned opinion.

> (4) If, in accordance with agency rules, a party submitted proposed findings of fact, the decision must include a ruling upon each proposed finding.
>
> . . .

§ 2-4-623, MCA. "Thus, the Board' s role in this contested case proceeding [is] to receive evidence from the parties, enter findings of fact based on the preponderance of the evidence presented and then enter conclusions of law based on those findings." *Mont. Envtl. Info. Ctr.*, 2005 MT 96, ¶ 22 . "The standards of clearly erroneous, arbitrary and capricious, and abuse of discretion are not available to an agency acting as a fact finder under the contested case provisions contained in part 6 of the MAPA." *Id* at ¶ 23.

33. DEQ and SPE acquiesced to MEIC's request that this administrative review proceed in accordance with of M. R. Civ. P. Rule 56 (decision on the basis of summary judgment briefing in lieu of an evidentiary hearing). Accordingly, the Board in its review of this matter must determine whether one of the parties, based on briefing alone, demonstrates as a matter of law and based on the undisputed evidence that they are entitled to the relief requested. Text, *supra,* ¶ 31.

34. For MEIC's first allegation of error, that DEQ failed to consider the applicable water quality standard when it prepared the CHIA, the question before the Board is whether the CHIA erroneously fails to assess all of the elements included in the material damage definition, which is a challenge to the legal sufficiency of the CHIA that does not turn on a finding of fact.

35. MEIC in its second allegation of error complains that the PHC is not sufficient, as a matter of law, to support the CHIA prepared by DEQ. If DEQ and SPE show through uncontested facts identified in their submittals to the Board, that the CHIA is supported by facts in the application and other hydrologic information available to DEQ, then the Board must conclude that MEIC's second allegation of error fails as a matter of law.

36. If genuine issues of material fact remain in dispute, then they must be decided by the Board based on the preponderance of the evidence in the record after an evidentiary hearing. *Mont. Envtl. Info. Ctr.*, 2005 MT 96, ¶ 22.

37. MAPA requires that an aggrieved party commence a contested case proceeding by providing reasonable notice of its grievance, including "a short and plain statement of the matters asserted." § 2-4-601(2)(d), MCA. Those short and plain statements relevant to this matter are set forth in MEIC's notice and request for hearing. Text, *supra*, ¶ 2. MEIC neither in the notice nor in its Brief challenges any of the baseline hydrologic facts set forth in the Application or the CHIA that form the basis of the material damage determination that is the subject of this administrative review proceeding. In addition, although MEIC asserts that the Groundwater Model is inadequate because it does not predict the concentration of groundwater in the Mammoth Coal outside the permit area, MEIC offers no argument or statement of fact challenging the sufficiency of the Groundwater Model as a predictor of the duration of drawdown in the Mammoth Coal and the process of migration of gob water down gradient from the mine area.

38. In this contested case proceeding, the Board must make "[f]indings of fact . . . based exclusively on the evidence and on matters officially noticed." § 2-4-623(2), MCA. Because MEIC failed to notify DEQ or SPE that it was challenging those facts and further failed to controvert those facts in any way in its Brief, the descriptions of the hydrologic regime contained in CHIA and the factual basis, scientific methodology, and conclusions of the Groundwater Model with regard to movement of gob water away from the mine area are undisputed facts or unchallenged conclusions of DEQ in this matter.

39. When it formulates its conclusions of law, the Board must keep in mind that Montana is a "primacy state" under SMCRA. This means that Montana has "exclusive jurisdiction over the

regulation of surface coal mining and reclamation operations" in the state. Accordingly, the rule of decision for granting the AM3 Application is MSUMRA, rather than SMCRA. See *Bragg v. West Virginia Coal Ass'n*, 248 F.3d 275, 296 (4th Cir. 2001); *Pennsylvania Fed. of Sportsmen's Clubs v. Hess*, 297 F.3d 310, 324 (3rd Circ. 2002) ("[A] court must initially look to state law, especially where there is an element of state program that mirrors and is thus clearly intended to conform to and/or implement the federal objective. Unless an element of an approved state program is inconsistent with -- i.e., less stringent than -- the federal objective it implements, the state law or regulation is intended to control, rather than the federal provision.").

40. Accordingly, the statement of uncontested facts set forth by DEQ in this Brief (text, *infra*, ¶¶ 41 to 84) and the provisions of MSUMRA for determining whether the proposed mining operation is designed to protect the hydrologic balance require the Board to uphold DEQ's approval of the AM3 Application.

VI. STATEMENT OF UNDISPUTED FACTS

41. "Coal at Bull Mountains Mine No. 1 is recovered using continuous mining and longwall mining methods. Continuous mining includes cutting parallel entries (main entries) approximately 8 to 10 feet high by about 20 feet wide intersected by regularly spaced tunnels or crosscuts." CHIA p. 3-2.

42. "Longwall mining is a method that removes all coal from each longwall panel, effectively achieving 100 percent coal extraction, and causes surface subsidence. Longwall mining uses a series of hydraulic supports, or shields, set up along the longwall face that function as temporary supports to protect workers and equipment. A cutting machine or shearer moves back and forth along the coal face and line of shields, cutting the coal in a series of passes. After the shearer completes a pass the entire system (shields, shearer, and face conveyor) advances (perpendicular

to the shearer) and unsupported overburden is allowed to collapse into the void formally occupied by coal." CHIA p. 3-2.

43. "[A]ccess to the longwall panels [is] via 'gate roads.' Gate roads are driven roughly perpendicular to the [main entries], and consist of three parallel entries. Besides providing worker access to the longwall panels, gate roads are vital for the installation of longwall equipment, ventilation of the working area, and transportation. Once gate roads have been developed around a panel, the longwall equipment can be installed." CHIA p. 3-2.

44. "Subsidence impacts include those hydrologic impacts introduced as a result of surface subsidence cracks or deformation of overlying strata as the coal is mined. Each longwall panel at the Bull Mountains Mine No. 1 consists of a large block of coal, approximately 1,250 feet in width by 15,000 to 23,300 feet in length. Surface depressions or subsidence troughs are expected to form as the overburden is undermined and coal is extracted. Overburden rocks are allowed to flex downward, fracture (creating a Fractured Zone) and collapse or cave into the void (forming a Caved Zone) causing immediate and progressive surface subsidence as the longwall system advances along the length of the panel." CHIA p. 9-5.

45. "The Mammoth Coal ranges in thickness from 8 to 12 feet in the permit area, so approximately seven to eight feet of surface subsidence is expected." CHIA p. 9-5

46. Longwall mining is a mechanical mining method that does not involve blasting and causes minimal disruption to geologic strata that underlies the coal.

47. "No significant changes to the [existing] reclamation plan are proposed since Amendment No. 3 only addresses expansion of the permit area to allow continuation of underground mining." CHIA p. 3-1.

48. The cumulative impact area described in the CHIA is based on drawdown in the upper underburden that has a greater areal extent than for the Mammoth Coal. CHIA p. 5-2.

49. The groundwater regime assessed in the CHIA, "occurs in the alluvial, overburden, Mammoth Coal, and underburden aquifers. Groundwater flow is generally toward the north-northwest except in the often dry alluvial aquifer system." CHIA p. 8-4.

50. "The alluvial hydrographs discussed [in section 9.5.2.2 (Impacts from Dewatering-Alluvium)] indicate that there is no evidence that mining and associated dewatering of the Mammoth Coal have affected water levels of the alluvial aquifer system. Because the alluvial aquifer is typically a perched aquifer supplied by recent precipitation or snow melt, additional mining is not expected to affect water levels in the alluvial aquifer." CHIA p. 9-9.

51. "The abrupt decline of water levels suggests that the relatively shallow overburden and perched aquifer system in the vicinity of these wells was partially drained via subsidence fractures that healed over the period between February and April 2012 leading to the water level rebound as seen in Figure 9-4. Well log data indicates that relatively impermeable gray shale occurs below the respective screened intervals. These rocks may have become fractured, allowing perched groundwater to drain into the mine workings, and then healed due to compression and settling. This data may illustrate that the various perched aquifers within the upper overburden may have become temporarily dewatered by subsidence fractures in the vicinity of BMP-60 and BMP-90 due to mining. . . . Similar temporary overburden dewatering may occur over all longwall mining areas as subsidence occurs, but these effects are expected limited in spatial and temporal extent. No long term effects on overburden water quantity are expected as a result of mining." CHIA p. 9-10.

52. "Domestic or private wells in the area generally produce water under confined conditions from relatively deep underburden sandstones that are hydrologically separated from the upper underburden aquifer and Mammoth Coal, although a few domestic wells are completed in the upper underburden." CHIA p. 6-1.

53. The CHIA describes sources of groundwater for livestock watering as follows:

> Water quality in surface water, springs, and shallow wells is variable and may change seasonally with the availability and use of the water source. Deeper wells provide a more consistent and reliable water source. CHIA p. 6-1.
>
> 60 wells that lie within the groundwater [cumulative impact area] are identified for stockwater use in the [Montana Groundwater Information Center] and [Department of Natural Resources and Conservation] databases. The completion depths listed for stockwater wells indicate that groundwater resources used for supply include alluvium, overburden, coal, and upper and deep underburden aquifers. CHIA p. 6-2.

54. "Beneficial uses of groundwater outside the permit boundary include livestock and domestic use. Wells completed in the alluvium, overburden, and underburden supply livestock water. Wells for domestic use typically have reported completion depths that suggest utilization of groundwater from the underburden." CHIA p. 2-4.

55. "Groundwater flow in [the Mammoth Coal] is toward the north-northwest, following the direction of synclinal plunge. Recharge reaches the Mammoth Coal via exposed outcrops, subcrops, and from infiltration through the overburden." CHIA p. 8-5.

56. "The geometric mean hydraulic conductivity of the Mammoth Coal is 0.16 ft./day. *Id.* (reference to table omitted).

57. "Although the hydraulic conductivities for the Mammoth Coal are relatively higher than the overburden, they are typically inadequate to provide a reliable source of well water and few production wells are completed in the coal." *Id.*

58. No wells located within the cumulative impact area produce water solely from the Mammoth Coal. Ex. D (Van Oort Aff. ¶ 11).

59. "Water levels in most Mammoth Coal wells showed little natural fluctuation and did not vary more than two feet over the period of baseline monitoring, except in one well near the

Mammoth coal outcrop which showed larger fluctuations apparently in response to precipitation." CHIA p. 8-5.

60. "Baseline water quality of the Mammoth Coal aquifer was determined from samples from 10 wells. Generally, sodium and sulfate are the dominant ions in groundwater collected from most Mammoth Coal monitoring wells. SC and sulfate baseline concentrations in the Mammoth Coal tend to be greater than in the overburden. SC ranged from 1,400 μS/cm to 3730 μS/cm with an average of 2,272 μS/cm. Sulfate concentrations ranged from 251 mg/L to 1,690 mg/L, with an average of 798 mg/L." CHIA p. 8-5 (reference to table omitted).

61. "[W]ater from most Mammoth Coal wells is Class II groundwater. Mammoth Coal groundwater is generally suitable for watering livestock." CHIA p. 8-6.

62. "The baseline water quality of the upper underburden is similar to that of the Mammoth Coal. Sulfate was the dominant anion and sodium tended to be the dominant cation. Underburden groundwater generally fell into Class II and III. Respective SC and sulfate concentrations of the upper underburden aquifer ranged from 1,440 μS/cm to 4,280 μS/cm and 216 mg/L to 2,680 mg/L. Average SC and sulfate concentrations were 2,721 μS/cm and 1,121 mg/L. Upper underburden wells are typically suitable for livestock use, and some are marginally suitable for domestic use." CHIA p. 8-6.

63. "Water quality analysis of a sample from the office well completed in the deeper underburden indicated Class I groundwater, and is suitable for the mine public water supply. Most deeper underburden wells are suitable for domestic and livestock use." *Id.*

64. "[T]he relatively deep sandstones of the lower underburden aquifer are hydraulically isolated from the Mammoth Coal and upper underburden aquifers." CHIA p. 9-12.

65. "Due to the buffering capacity of the alkaline mineralogy of the overburden and shallow underburden, development of acidic conditions in water present in the gob is extremely unlikely." CHIA p. 10-4.

66. The Groundwater Model:

> simulates flow in all aquifers of concern but is focused on the Mammoth Coal and upper underburden, as these aquifers are expected to experience the greatest effects from mining. The groundwater model is calibrated by comparing model results to measured water levels from monitoring wells and adjusting model parameters to achieve the best simulation of groundwater conditions. After calibration the model was run forward in time to predict water levels at the end of mining. In this predictive simulation, the mine tunnels are added to the model according to the proposed mine plan schedule as drains which simulate the dewatering associated with mine development. As mining progresses the material properties of the Mammoth Coal and overburden layers are also modified to simulate the collapse of material into the void left behind by longwall mining, and the subsidence and fracturing that occurs above the mined out areas. The results of this simulation are shown in Figure 9-7, which displays the predicted drawdown in the Mammoth Coal and upper underburden at the end of mining. In the Mammoth Coal, the area of the mine workings is completely dewatered, and an area of drawdown extends primarily to the north of the mine. A drawdown cone of depression is formed in the upper underburden, centered on the northern part of the mine workings and extending throughout the life of mine area and to the north. Drawdown to the south, east, and west in both the Mammoth Coal and the upper underburden is limited by the outcrops of the aquifers in those directions.

CHIA p. 9-8 (references to figures omitted).

67. "[P]article tracking does not account for potential influence of adsorption/desorption influences for given analytes. Rather, it simply simulates and tracks flow paths. Particle tracking also does not account for effects of dilution as other contributions to groundwater flow occur (e.g., recharge, etc.) In effect, particle tracking serves as very conservative predictor of the implications of solute transport." MEIC Ex. 6, Groundwater Model, p. 314-6-25.

68. "The [Groundwater Model] provides a conservative and consistent basis for comparing the hydrologic response and relative impacts to the ground water associated with mining in the proposed disturbance area." *Id.* at 314-6-26.

69. "The steady-state calibrated model utilizes hydraulic parameters that are consistent with baseline data." *Id.*

70. "The model produces simulated water levels that are in reasonable conformance with water level observations over time. In addition, the same transient simulations that had been conducted demonstrated that the model provided discharge rates reasonably consistent with observations." *Id.*

71. In its review of the PHC submitted by SPE, DEQ concluded that the Groundwater Model included in the PHC was based on generally accepted methodologies and that it provides a reasonable prediction of groundwater flow in the confined aquifers, such as the Mammoth Coal, at Bull Mountain Coal Mine #1. Ex. D (Van Oort Aff. ¶ 9).

72. DEQ also concluded that the particle tracking conducted using the results from the Groundwater Model provides a conservative prediction of the rate that gob water may migrate through the undisturbed Mammoth Coal. *Id.*

73. DEQ is not aware of a generally accepted groundwater model or modeling methodology capable of predicting, with a reasonable probability of certainty, the concentration of inorganic constituents at any time in a hydrologic unit subject to migration of groundwater from an area mined by underground methods that permit caving of overburden. Ex. D (Van Oort Aff. ¶ 10).

74. "The particle tracking results for Scenario 1 [gate roads collapse] show that given the limiting assumptions described in the flow modeling effort, and also in accordance with the limitations described above, it is projected that any inorganic constituents emanating from the

mine gob will be retained within the mine permit boundary." Groundwater Model, p. 314-6-25 (MEIC Ex. 6).

75. "The particle tracking results for Scenario 2 [gate roads remain intact] shows that with the same limiting/conservative assumptions described heretofore, that it is possible that some flow from the mine gob may flow just outside the permit boundary." Groundwater Model, p. 314-6-26 (MEIC Ex. 6).

76. "Because mine dewatering produces groundwater flow towards the mine working during mining, no water quality affects are expected during mining. After mining is completed, some of the mine gob will become saturated. Groundwater quality in the mine gob is expected to be degraded relative to natural water quality, however, due to the small quantity of gob influenced water and the slow water movement in the Mammoth Coal this poor quality water is not expected to migrate outside the permit boundaries within 50 years after mining." CHIA p. 9-11.

77. "The average specific conductivity of water produced by Mammoth Coal wells is higher relative to the alluvial and overburden aquifers due to relatively greater concentrations of sulfate and sodium. Approximately one-half of the Mammoth Coal wells produce Class II water and one-half produce Class III water. This data is consistent with Mammoth Coal baseline water quality (Class II to Class III). No exceedances of DEQ-7 standards were observed in any of the Mammoth Coal wells. CHIA p. 9-11.

78. "Based upon monitoring well information, there is no evidence of any mining related impacts to upper underburden or to the relatively deep upper underburden water quality in the vicinity of the Bull Mountains Mine No. 1 and no exceedances of DEQ-7 water quality standards have been reported in the wells." CHIA p. 9-13.

79. "Currently, there is no evidence that local and off permit groundwater quality of any of the hydrologic units has been degraded or impacted by mining. Groundwater quality of shallow

and deep aquifers (alluvium, overburden, coal, and underburden) is monitored regularly by a network of 105 monitoring wells to alert DEQ about the potential for material damage during or post mining." CHIA p. 10-2.

80. "The eventual groundwater quality within the mined-out area or Caved Zone may become similar to the groundwater quality within abandoned coal mines near Roundup, MT where the average TDS, sulfate, and specific conductance concentrations are 2,042 mg/L, 1,106 mg/L and 3,038 μS/cm, respectively. However, the groundwater quality within the Caved Zone may exceed these concentrations since the groundwater in the abandoned mines near Roundup does not come into contact with mineralized gob." CHIA, pp. 10-2, 10-3.

81. The CHIA recognized and explained measures taken by SPE to minimize adverse impacts to the hydrologic balance as follows:

a. measures to convey and treat mine and stormwater runoff within the disturbed area (CHIA p. 9-2);
b. each MPDES-permitted outfall at the facility is associated with a sediment pond designed to contain the runoff from a 10-year, 24-hour rainfall event (CHIA p. 9-3);
c. runoff controls at the waste disposal area (CHIA p. 9-4);
d. minimizing surface impacts to ephemeral watercourses throughout the mine area through best management practices (*Id.*);
e. post mining controls for portal discharge (*Id.*);
f. documentation of recovery of springs after undermining and subsidence (CHIA p. 9-7);
g. explanation of evidence of recovery of water in wells in overburden after undermining and subsidence (CHIA p. 9-10).

82. The CHIA also considered mitigation measures for water sources:

> Impacts to surface water supply and water rights are evaluated with respect to regional and local impacts to surface water resources and natural variations in seasonal and yearly runoff. Mitigation for the loss of a beneficial use of surface water or a water right requires provision of a dependable, long-term replacement water resource of acceptable quality for the designated use and adequate quantity to support the existing and/or planned future use [ARM 17.24.314(1)(c) and 17.24.648].

CHIA p. 2-3 (brackets in original). In addition:

> Mitigation of impacts from subsidence generally involves replacement of water supplies lost or diverted by subsidence-related processes with the purpose of maintaining premine land uses. Mitigation plans in the permit include restoring springs, stream reaches, and ponds by opportunistic development of springs where they appear, guzzler emplacements, horizontal wells, vertical wells, pipeline systems, deepening or rehabilitating existing wells, reclamation of stream reaches and function, water treatment where appropriate or necessary, and restoring premine land uses (MDSL, 1993). Detailed monitoring and mitigation plans are provided in Permit C1993017, Vol. 2, Section 313, Appendix 313-2 Spring/Seep Mitigation Plan.

CHIA p. 9-7 (reference to PHC in original). This conclusion is supported by the permit which provides:

> The permittee is committed to mitigating hydrologic impacts caused by mining by the measures approved in the permit, or, should these approved measures fall short, by alternative measures to be developed in consultation with the Department. To implement these measures, the permittee has developed a strategy for mitigation of any long-term hydrologic and wetlands impacts that occur due to mine development and operation. The goals of the permittee mitigation strategy are:
>
> • No net loss of wetlands (no decrease in total wetland area due to mining); and
>
> • Long-term maintenance by the permittee (until bond release) of adequate water supply in regards to quantity, quality and location for existing levels of wildlife and livestock.
>
> • After bond release, maintenance of the water replacement facilities is expected to be provided for by a trust fund established

> by Permittee and administered by its Department appointed trustees. -
>
> This strategy uses a phased approach that begins with planning, followed by implementation of the plan, and includes monitoring to ensure success. Successful mitigation is defined as the achievement through replacement or enhancement of resource which provides the potential for postmining land use equal to premine conditions. Success will be measured through appropriate testing and statistical comparison of data collected during baseline and postmining periods (see discussions of resources within the 17.24.313 RECLAMATION PLAN)

Permit: Vol. 3, Section 314-6.0 Hydrologic Balance, pp. 314-14, 314-15 (Ex. E).

83. The CHIA addresses mitigation of disruption of surface and groundwater rights:

> Likewise, the rights of present and future groundwater and surface water owners or users will be protected in accordance with ARM 17.24.314(1)(b) and 17.24.648. ARM 17.24.648 states that "the permittee will replace the water supply of any owner of interest in real property who obtains all or part of his supply of water for domestic, agricultural, industrial or other legitimate use from a surface or underground source if such supply has been affected by contamination, diminution, or interruption proximately resulting from strip or underground mining operation by the permittee". To protect uses replacement water must be of a quality and quantity sufficient to satisfy premining consumption requirements.

CHIA pp. 9-7, 9-8. This statement is supported by specific commitments by SPE, set forth in the permit, to protect water rights:

> The rights of present and future groundwater and surface water owners or users will be protected in accordance with Rules 17.24.314(1)(b) and 17.24.648. Existing groundwater and surface water rights within the Bull Mountains Mine No. 1 study area are listed in Addendum 1, Table 304(5)-10 and in Addendum 5, Table 304(6)-46.
>
> The permittee will replace the water supply of any owner of real property who obtains all or part of his supply of water for domestic, agricultural, industrial or other legitimate use from a surface or underground source if such supply has been affected by contamination, diminishment, or interruption proximately resulting from the underground mining operation of the permittee. Such replacement water shall be of a quality and quantity sufficient to satisfy premining consumptive requirements. Several possible

> sources of replacement water are being considered, including overburden and underburden wells, horizontal drains, surface water impoundments, precipitation collection devices, and the opportunistic development of existing unaffected or relocated springs.

Permit: Vol. 3, Section 314-2.2 Hydrologic Balance, p. 314-3 (Ex. E).

84. The CHIA describes how the monitoring plan will be revised in the event of potential damage to the hydrologic balance:

> As mining proceeds or potential impacts are anticipated, the monitoring plan is revised to accommodate changes, including replacement of monitoring sites or development of new sites. Monitoring is required to continue through the final phase of bond release. CHIA p. 7-1.
>
> . . .
>
> As longwall mining approaches monitored springs, the frequency of flow monitoring increases from monthly or quarterly to weekly so that any discernible impacts may be evaluated and mitigated in a timely manner and in accordance with the approved mitigation plan. CHIA pp. 9-6, 9-7.
>
> . . .
>
> As subsurface strata continues to deform and heal, it is anticipated that water levels will be reestablished at a stratigraphic level equivalent to pre-undermining. Continued monitoring of water levels will inform understanding of short and long-term response of underlying strata and consequent flow paths to undermining and subsequent recovery. CHIA p. 9-7.

These statements are supported by the detailed monitoring and mitigation plans described in the permit:

> In order to detect potential impacts to springs, weekly monitoring of flow/discharge and pond levels(where applicable) will be will be conducted for all springs identified in Appendix 314-3, Table 314-3.1. This weekly monitoring will commence two months prior to longwall mining beneath each identified spring and continue for twelve months after longwall undermining the same spring. This weekly monitoring will also be conducted for springs that are within 150 feet of the edge of a panel being mined. This weekly monitoring in addition to the monitoring conducted in accordance

> with Appendix 314-4 and associated data analysis will detect potential mining impacts. Permit, Vol. 2, Sec. 313, Appendix 313-2, p. 313-2-1 (Ex. F).
>
> . . .
>
> Weekly monitoring will be conducted during periods of anticipated potential impact (2 months before and 12 months after undermining). *Id.* p. 313-2-2.
>
> . . .
>
> As mining progresses, the Permittee will develop tentative mitigation plans for each of the springs that may be impacted by mining, as listed in Table 314-3-1, and the monitoring frequencies specified in Appendix 314-4 (MQAP) will be reviewed annually and necessary revisions will be proposed in conjunction with the Annual Hydrology Report. As the effects of mining approach more distant springs, (e.g., those in the eastern portions of the Permit Area and beyond), monitoring frequencies will be modified as necessary to ensure prompt detection of impacts and address monitoring of springs historically impacted and associated replacement water sources. Permit, Vol. 3, Sec. 314, Appendix 314-3, Spring Impact Detection and Mitigation, p. 314-3-1 (Ex. G)

VII. ARGUMENT

85. As a preliminary matter, although MEIC repeatedly characterizes the application as a proposal for a "massive" mine expansion, the AM3 Application proposes that mining continue using the current longwall system for an additional 10 years. SPE's proposal does not contemplate adding another longwall or substantially increasing annual production above the capacity of the mine at the time of submittal of the SPE-AM3 Application. Text, *supra*, ¶ 47 (CHIA p. 3-1).

86. MEIC limits its challenge to the legal adequacy of the CHIA and the sufficiency of information that DEQ used to prepare the CHIA. Text, *supra*, ¶ 2 (MEIC Notice). MEIC does not challenge findings relating to impact of mining on seep, springs, and other surface waters. Nor does MEIC argue that DEQ neglected to perform any required determination regarding alluvial valley floors. Furthermore, MEIC does not challenge the statement in the CHIA that

drawdown in the Mammoth Coal during mining will not impair any water right in the cumulative impact area.

87. MEIC only challenges the sufficiency of the CHIA relating to possible impacts due to salinity as measured by natural specific conductance[5] in the Mammoth Coal. MEIC does not challenge the sufficiency of the CHIA for any other parameter including any parameter that is subject to a numeric water quality standard in DEQ-7 or any parameter regulated as toxic.

88. As DEQ explains below, MEIC's contentions are without merit.

A. The Material Damage Determination Is Based on the Correct Water Quality Standard

89. MEIC's principal claim that the CHIA misapplies the material damage definition can be summarized as follows: 1) water in the Mammoth coal inside and outside the permit boundary naturally ranges from Class II to Class III groundwater; 2) some groundwater in the mined area will degrade from Class II to Class III groundwater; 3) migration of water from the mined area outside the permit boundary will cause Class II groundwater to degrade to Class III groundwater, thereby violating a water quality standard and resulting in material damage.

90. MEIC claims that DEQ's material damage determination ignored the component of the definition of material damage that provides "[v]iolation of a water quality standard, whether or not an existing water use is affected, is material damage." According to MEIC, material damage determination, articulated in terms of impacts on existing and anticipated beneficial uses, fails to consider whether the proposed operation will result in violation of a water quality standard.

91. MEIC does not contest the statement in the CHIA that exceedance of numeric DEQ-7 standards is not indicated in samples taken from the Mammoth Coal. Text, *supra*, ¶ 78 (CHIA p. 9-11). The CHIA calcium, magnesium, sulfate and sodium ions, parameters governed by

---

[5] "Natural specific conductance," the measure of total dissolved solids used to classify groundwaters in ARM 17.30.1006, is equivalent to "electrical conductivity" as defined in ARM 17.30.602(7). Ex. D (Van Oort Aff. ¶ 13).

narrative standards for the SPE Mine, as indicators of the quality of groundwater. Text, *supra*, ¶ 26 (CHIA pp. 2-3, 2-4). The only issue before the Board regarding legal sufficiency of the CHIA is whether the CHIA considered the appropriate narrative standard for total dissolved solids.

92. MEIC's principal challenge to the legal sufficiency of the CHIA fails because MEIC mistakes Montana's classification of groundwater for a groundwater quality standard. The material damage determination contained in the CHIA satisfies the requirements of MSUMRA because the applicable water quality standards for the only parameter of concern, total dissolved solids ("salinity"), are narrative standards set forth in terms of beneficial uses. CHIA, pp. 2-2 (generally), 2-3 (for ephemeral surface waters), 2-4 (for groundwater); *See* text, *supra*, ¶¶ 25, 26. In other words, by articulating the material damage determination in terms of beneficial uses, the CHIA evaluates whether the proposed mining operations at the SPE Mine protect the hydrologic balance in terms of the applicable groundwater quality standard. Text, *supra*, ¶ 24 (CHIA p. 2-1).

93. The Montana Ground Water Pollution Control System regulations define "Montana ground water quality standards" to mean "the standards for ground water quality set forth in ARM 17.30.1006." ARM 17.30.1001(8). ARM 17.30.1006 specifically identifies what provision of the classification serves as a groundwater quality standard. After classifying types of groundwater, the regulation specifies the water quality standard applicable to each groundwater classification. *See* ARM 17.30.1006(1)(b) (for Class I groundwaters); (2)(b) (for Class II groundwaters); and (3)(b) (for Class III groundwaters) (Ex. A, p. 1-2).

94. Accordingly, the following standard applies for Class II groundwater:

> (b) Except as provided in ARM 17.30.1005(2), a person may not cause a violation of the following specific water quality standards for Class II ground water:

> (i) the human health standards for ground water listed in DEQ-7;
>
> (ii) for concentrations of parameters for which human health standards are not listed in DEQ-7, no increase of a parameter to a level that renders the waters harmful, detrimental, or injurious to the beneficial uses listed for Class II water. The department may use any pertinent credible information to determine these levels; and
>
> (iii) no increase of a parameter that causes a violation of the nondegradation provisions of 75-5-303, MCA.

ARM 17.30.1006(2)(b). ARM 17.30.1005(2) applies to mixing zones and is not germane to this review. Because DEQ-7 lists no numerical standard for salinity, the sole parameter of concern for groundwater identified for the SPE Mine, the applicable standards are the narrative standard set forth in ARM 17.30.1006(2)(b)(ii) and the nondegradation provisions identified paragraph ARM 17.30.1006(2)(b)(iii).

95. According to its plain terms, ARM 17.30.1006(2)(b)(ii) prohibits an "increase of a parameter to a level that renders the waters harmful, detrimental, or injurious to the beneficial uses listed for Class II water." So, contrary to MEIC's assertions, because the groundwater standard for salinity is stated in terms of beneficial uses, DEQ correctly analyzed potential impacts to the current and anticipated beneficial uses of the water contained in the Mammoth Coal.

96. Turning now to the nondegradation protections for groundwater set forth in ARM 17.30.1006(2)(b)(iii), the relevant nondegradation requirement applicable to potential contamination of groundwater by salinity, is governed by the narrative standard set forth in ARM 17.30.705 which, in the context of groundwater, regulates in terms of beneficial uses:

> (g) changes in the quality of water for any parameter for which there are only narrative water quality standards if the changes will not have a measurable effect on any existing or anticipated use or cause measurable changes in aquatic life or ecological integrity.

97. Therefore, contrary to MEIC's claims, DEQ correctly based its material damage determination on the potential effect of mining operations on existing and anticipated beneficial uses. Because waters confined in the Mammoth Coal cannot cause measurable changes to aquatic life or ecological integrity, impact on a beneficial use is the applicable standard for salinity in Class II or Class III groundwater.

98. As DEQ explained in the CHIA, the only existing and anticipated use of groundwater in the cumulative impact area is for livestock watering or domestic use. Text, *supra* ¶ 54 (CHIA p. 2-4); *see* ARM 17.30.1006(2)(a), (3)(a). Wells completed in the alluvium, overburden, and underburden supply livestock water. Wells for domestic use typically have reported completion depths that suggest utilization of groundwater from the underburden. Text, *supra* ¶ 54 (CHIA p. 2-4).

99. The listed beneficial uses of Class II and Class III groundwater may be compared and contrasted in the following table:

Class II groundwater	Class III groundwater
public and private water supplies ARM 17.30.1006(2)(a)(i)	—
culinary and food processing purposes ARM 17.30.1006(2)(a)(ii)	drinking, culinary, and food processing purposes ARM 17.30.1006(3)(a)(iv)
irrigation of some agricultural crops ARM 17.30.1006(2)(a)(iii)	irrigation of some salt tolerant crops ARM 17.30.1006(3)(a)(i)
drinking water for livestock and wildlife ARM 17.30.1006(2)(a)(iv)	drinking water for some livestock and wildlife ARM 17.30.1006(3)(a)(iii)
most commercial and industrial purposes ARM 17.30.1006(2)(a)(v)	some commercial and industrial purposes ARM 17.30.1006(3)(a)(ii)

The Mammoth Coal, due to its low transmissivity, is not capable of use for a water supply or irrigation. Text, *supra*, ¶¶ 57 (CHIA p. 8-5), 58. Livestock watering, "drinking, culinary, and food," limited "irrigation" and "commercial and industrial purposes" (uses associated with low intensity domestic use) are listed beneficial uses for both Class II and Class III groundwater. Therefore, DEQ correctly concluded that continued operations at the SPE Mine were designed to prevent material damage to hydrologic balance outside the permit area because the worst-case increase in salinity would not render those waters "harmful, detrimental, or injurious" to livestock watering, or low intensity domestic use, the only existing or reasonably anticipated beneficial uses.

100. DEQ anticipates that MEIC may argue in its Reply Brief that migration of gob water outside the permit area which eliminates any listed beneficial use qualifies as material damage, even though the eliminated use is not feasible given the character of the resource. That anticipated argument would also fail because it relies on a construction of "prevent material damage" that is inconstant with the intent of MSUMRA.

101. Construing the definition of "material damage" to protect reasonable and feasible uses of a groundwater resource is supported by the intent of MSUMRA. The various provisions of MSUMRA were enacted together as comprehensive regulatory program for coal mining and they must be construed together and every part made operative and given meaning and no provision rendered meaningless. *See Angell v. Lewistown State Bank,* 72 Mont. 345, 353 (1925) (reasoning that "it is an elementary rule of statutory construction that the whole of any enactment on a given subject must be considered . . . every part of a statute must be made operative, if it is possible to do so, and no word in it must be deemed meaningless, if a construction can be adopted which will make it effective").

102. Accordingly, the requirement set forth in § 82-4-227(3)(a), MCA, (¶ 15 *supra*) that a proposed coal mine operation be designed to *prevent* material damage to the hydrologic balance, must be read in conjunction with the relevant performance standards set forth in § 82-4-231(10)(k), MCA, that require a permittee to conduct operations to "*minimize* the disturbances

to the prevailing hydrologic balance at the mine site and adjacent areas[6]" (¶ 19 *supra*) (emphasis added).

103. Protection of the hydrologic balance, properly understood in the context of the recovery of a hydrologic regime and preservation of beneficial uses, rather than protection of uses that that are not feasible for a given water resource, is a cardinal consideration of coal mine regulation. Congress enacted SMCRA with the understanding that:

> The total prevention of adverse hydrologic effects from mining is impossible and thus the bill sets attainable standards to protect the hydrologic balance of impacted areas within the limits of feasibility. For most critical areas [sic] uncertain fragile hydrologic settings, the bill sets standards that are imperative to begin to assure that adverse impacts to the hydrologic balance are not irreparable.
>
> . . .
>
> *The bill requires that the operator will take such measures as are necessary to minimize the disturbance to the hydrologic balance in the surrounding areas.*

H. Rpt. No. 95-218, p. 110 (Apr. 22, 1977) (excerpt attached as Ex. H)(emphasis added). The language quoted from House Report No. 95-218 explains SMCRA's protection of the hydrologic balance as it was enacted by Congress and as it still reads today, and demonstrates that by "designed to prevent material damage to the hydrologic balance outside the permit area" (see 30 U.S.C. § 1260(b)(3) (SMCRA § 510(b)(3)) Congress intended "that operator will take such measures as are necessary to minimize the disturbance to the hydrologic balance." Most importantly, SMCRA's provision for protection of the hydrologic balance is identical in all material respects to its MSUMRA counterpart. *See* § 82-4-227(3)(a), MCA, (¶ 15 *supra*,).

104. MEIC cannot argue that construing "designed to prevent material damage" under MSUMRA requires a stricter result than its SMCRA counterpart. First, the Montana Legislature

[6] "Adjacent areas" is a defined term under MSUMRA. In the context of impacts to the hydrologic balance "adjacent area" is synonymous with the cumulative impact area. *See* text, *supra*, ¶ 18.

unequivocally declared its intent that the MSUMRA protections of the hydrologic balance are part of "[a]n Act to make only those amendments necessary to bring Montana Strip and Underground Mine Reclamation Act into compliance with Public Law 95-87, the Surface Mining Control and Reclamation Act of 1977." 1979 Mont. Laws p. 1353 (Title to Ch. 550)(Ex. I). The 1979 amendments include the requirement that the reviewing agency assess the probable cumulative impact of mining on the hydrologic balance currently codified at § 82-4-227(3), MCA (*see* ¶ 15 *supra*) as well as the performance standards codified at § 82-4-231(10)(k), MCA[7].

105. Second, Montana's Constitutional guarantee of a clean and healthful environment (*see* Mont. Const. Art. II, § 3 and Art. IX) does not require that MSUMRA be construed to place unfeasible requirements on coal mine operations. The Legislature stated that it enacted MSUMRA to implement Montana's Constitutional guarantees:

> (1)(a) It is the declared policy of this state and its people to: (a) maintain and improve the state's clean and healthful environment for present and future generations.
>
> . . .
>
> (2) This legislature hereby finds and declares that:
>
> . . .
>
> (b) this part be deemed to be in exercise of the authority granted in the Montana constitution, as adopted June 6, 1972, and, in particular, a response to the mandate expressed in Article IX thereof . . ..

1979 Mont. Laws, p. 1353-1354 (Ch. 550, § 1, 82-4-202(1)(a), (2)(b), MCA)(Ex. I). This statement of intent, amended but not materially changed, accompanied the 2003 adoption of the definition of "material damage." *See* 2003 Mont. Laws p. 651, 655 (Ch. 204, § 2)(adopting definition for "material damage") 2003 Mont. Laws 361 (Ch. 361, § 1)(declaring that MSUMRA

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[7] Enacted as § 82-4-231(3)(k) in Chapter 550 (1979 Mont. Laws, 1370)(Ex. I, p. 1370)

among other acts is the legislative implementation of Mont. Const. Art. II, § 3 and Art. IX) (Ex. J). So, the provisions of MSUMRA that protect the hydrologic balance must be construed require only reasonable and feasible constraints on coal mine operations.

106. Construction of the MSUMRA's requirement to prevent material damage to listed beneficial uses that cannot be served by the resource in question fails because it relies on construction of a statute that would cause an absurd result or require an impossibility. See § 1-3-221, MCA; *Montco v. Simonich,* 285 MT 280, 947 P2d 1047 (1997) (the courts avoid "a literal application of that statute would cause an absurd result"). Because MSUMRA "sets attainable standards to protect the hydrologic balance of impacted areas within the limits of feasibility," (H. Rpt. 98-218 *supra*, ¶ 103) the requirement to protect the hydrologic balance outside the permit area should be not construed to protect listed uses that a particular water resource is incapable of serving. It would be nonsensical to require SPE to propose measures to mitigate "harm, detriment, or injury" (17.30.1006(2)(b)(ii)) to use of Mammoth Coal water as a water supply when that resource is only suitable for livestock watering. *See* text, *infra* ¶ 126.

B. DEQ's Material Damage Determination Is Supported by Available Hydrologic Information and Complies with the Requirements of MSUMRA

107. In its second point of error MEIC asserts that "the material damage determination is not supported by affirmative evidence demonstrating that the proposed mine will not harm water resources." MEIC Br. p. 24. MEIC asserts that "there was *no* evidence from which DEQ could have affirmatively determined that [the SPE Mine] was designed to prevent material damage outside the permit area." MEIC Br. p. 25 (emphasis added).

108. As a preliminary matter, MEIC only challenges the scope of information provided in the PHC and the Groundwater Model, rather than any specific statement contained in those

documents. Therefore, MEIC's claim fails if the information provided by SPE in the Application is sufficient to support the CHIA.

109. MEIC's contention here fails for the reasons explained above, text *supra* ¶¶ 101-106, as the AM3 Application and specifically the PHC along with the hydrologic record available to DEQ provide sufficient information to support the CHIA assessment. MEIC's criticism of the sufficiency of the Application and the PHC is the same as its criticism of the CHIA—that the application is defective because it does not foreclose an increase in salinity in any part of the Mammoth Coal outside the permit area. MEIC's argument that the CHIA is not supported by sufficient hydrologic information misses the mark because it relies on mischaracterization of the results of the Groundwater Model and an overly strict interpretation of the material damage determination.

110. According to MEIC, the Groundwater Model, and hence the PHC, is inadequate and is insufficient support for the CHIA assessment, because it does not eliminate the possibility that gob water will migrate outside the permit boundary and result in an increase in total dissolved solids sufficient to transform Class II groundwater to Class III groundwater in the Mammoth Coal.

111. As explained above, the Groundwater Model simulates particle movement through Mammoth Coal that is characterized by very low transmissivity, an average of 0.16 feet per day. Text, *supra*, ¶ 56. MEIC dismisses the Groundwater Model because it does not quantitatively predict the concentration of total dissolved solids in gob water migrating through the Mammoth Coal. MEIC Br., pp. 27-28. Here, MEIC ignores that the Model negates this criticism by predicting that gob water is unlikely migrate far from the mined area, if at all. Furthermore, MEIC offers no evidence to controvert the explanation of the scientific basis, methodology, and

consistency with observations that establish the predictive force of the Groundwater Model. *See* text, *supra*, ¶¶ 66-72.

112. The Groundwater Model predicts that gob water will migrate no further than a few hundred feet outside the permit boundary fifty years after mining, if the gate roads do not collapse, a worst-case scenario. Text, *supra* ¶ 75. If the gate roads collapse, then the Groundwater Model predicts that gob water will not migrate outside the permit area. Text *supra* at ¶ 74. Because gob water is unlikely to migrate beyond the permit boundary, modeling the concentration of total dissolved solids over time is not necessary for the material damage determination. Even if substantial contamination of the Mammoth Coal outside the permit boundary was indicated, DEQ is not aware of a generally accepted groundwater model or modeling methodology capable of predicting, with a reasonable probability of certainty, the concentration of inorganic constituents at any time in a hydrologic unit subject to migration of groundwater from an area mined by underground methods that permit caving of overburden. *See* Ex. D, Van Oort Aff. ¶ 10.

113. MEIC also suggests without evidence that the worst-case scenario, the gate roads remaining open long after mining stops, is the likely outcome. In fact, the gate roads are designed to collapse. *See* Ex. K (Permit-Appendix 901 (2006)) p. 3. The Groundwater Model analyzes the worst-case scenario of the gate roads remaining open in order to bracket likely outcomes. MEIC Ex. 6, Groundwater Model, p. 314-6-23. Although there is no guarantee that all of the gate roads will completely collapse, it is highly unlikely that all of the gate roads will remain open fifty years after mining stops. *Id.* This means that migration of gob water into the Mammoth Coal is likely to be far more limited than the worst-case scenario would suggest.

114. Although the CHIA evaluates potential impacts to specific aquifers, the focus of the material damage determination is not limited to only one aquifer, but the cumulative impacts of

the proposed operation on beneficial uses. Therefore, MEIC misses the mark when it focuses its challenge solely on the very limited, potential impacts of mining on the Mammoth Coal, a single, isolated component of the hydrologic regime that is incapable by itself of serving a listed, existing, or anticipated beneficial use of groundwater.

115. The CHIA assesses material damage by applying "attainable standards to protect the hydrologic balance of impacted areas within the limits of feasibility" (text, *supra*, ¶ 103) to determine that mine operations at the SPE Mine protect beneficial uses, rather than the character of water in a particular aquifer. The requirement to prevent material damage cannot be reasonably construed to prohibit proposed mining operations that may result in local contamination of an isolated, minimally productive aquifer that poses no reasonable threat to current or anticipated beneficial uses which predominantly rely on water from more productive aquifers than the Mammoth Coal.

116. Finally, MEIC criticizes the Groundwater Model and the PHC of which it is a part for saying nothing about migration of gob water more than 50 years after mining ceases. MEIC Br. pp. 27-29. In effect, MEIC argues that the PHC and the CHIA are inadequate because they do not foreclose the possibility of contamination of a hydrologic unit for all time, a misinterpretation of what "an assessment [that] the proposed operation of the mining operation has been designed to prevent material damage to the hydrologic balance outside the permit area" requires. *See* § 82-4-227(3)(a), MCA.

117. As DEQ argues above, MSUMRA "sets attainable standards to protect the hydrologic balance of impacted areas within the limits of feasibility." Text *supra*, ¶ 103. MEIC ignores that consistent with the legislative history of SMCRA, the provisions of MSUMRA that describe protections of the hydrologic balance do not require DEQ to deny a permit because a proposed

mining operation may result in some contamination of a single groundwater resource no matter how remote or unlikely.

118. Rather than establishing a prohibition, the administrative regulations that explain the protections for the hydrologic balance, describe a two-step process: 1) the department must "[determine whether] the probable hydrologic consequences of the proposed mining operation, on the proposed mine plan area and adjacent areas, with respect to the hydrologic balance" (ARM 17.24.314(3)) . . . "indicates that adverse impacts to the hydrologic balance on or off the permit area may occur" (ARM 17.24.314(4)); and if it does, then, 2) "the department shall require submission of supplemental information to evaluate such impacts and to evaluate plans for remedial and long-term reclamation activities" (*Id.*).

119. The provisions cited above are part of MSUMRA, approved by the Office of Surface Mining as meeting the minimum federal requirements of SMCRA. The CHIA, including the material damage determination, properly understood, is an information and analytical requirement to ensure that the consequences of the proposed mining operation are identified and that, if necessary, reasonable and feasible measures are proposed to minimize potential impacts.

120. DEQ's determination, set forth in the CHIA as described paragraph 27, above, that the SPE Mine is designed to prevent material damage cannot be dismissed, as MEIC would have it, as an unsupported conclusion. The material damage determination clearly satisfies the requirements of MSUMRA. The CHIA satisfies the first prong of the material damage determination by demonstrating, based on evidence that is not contested by MEIC, that the SPE Mine proposed to continue as an underground longwall operation, is designed to prevent material damage to the hydrologic balance outside the permit area, because feasible, existing, and anticipated uses, in the cumulative impact area are unlikely to be impaired by the mine operation.

121. First the CHIA explains, and MEIC does not contest, that mining operations at the SPE Mine will have no effect on the alluvial aquifers, overburden aquifers, or the deep underburden aquifers. Text, *supra*, ¶¶ 50, 51, 78 (respectively). MEIC does not dispute that the underground SPE Mine operation as designed will not impact ephemeral surface water bodies in the cumulative impact area. Text, *supra,* ¶ 27 (CHIA pp. 9-3, 10-3, 10-4). Also, MEIC does not dispute information in the PHC and referenced in the CHIA that the amount of gob water is relatively small and the hydrologic characteristics of the minimally dometransmissive, hydrologically isolated Mammoth Coal seam. Text, *supra*, ¶ 76. Nor does MEIC contest that the alkaline mineralogy of the overburden and shallow underburden render formation of acidic conditions unlikely. Text, *supra*, ¶ 27.

122. The CHIA supports the material damage determination by explaining that mineralized gob water in the Mammoth Coal seam is unlikely to move any significant distance away from the mined area. Text, *supra*, ¶¶ 74, 75.

123. The CHIA explains that water in the Mammoth Coal is isolated and does not contribute groundwater to other hydrologic units other than the upper underburden. Text, *supra*, ¶ 71. Importantly, DEQ's material damage determination explains that the Mammoth Coal is hydrologically isolated from and is not a likely source of contamination of the generally high quality waters of the prolific deep underburden aquifer. Text, *supra*, ¶¶ 46, 64 (CHIA p. 9-12). The CHIA explains that although the Mammoth Coal may locally gain water from overlying alluvial and overburden aquifers, it does not contribute water and therefore cannot serve as a source of contamination for those aquifers. Text, *supra* ¶¶ 55, 64. Contamination by higher salinity water migrating outside the permit area will only affect, if at all, water in the Mammoth Coal, and possibly the upper underburden units in hydraulic connection with the Mammoth Coal, directly adjacent to the permit area. Text, *infra,* ¶¶ 112, 113.

124. In the unlikely event that mineralized gob water moves beyond the permit boundary, the amount of gob water is relatively small in comparison to the amount of water remaining in the unmined coal. Text, *supra*, ¶ 27 (CHIA p. 9-11). The gob water during its slow and limited migration away from the mined area will be influenced by recharge by waters from above, and by natural water remaining in the Mammoth Coal. Text, *supra*, ¶ 55 (CHIA p. 8-5). Therefore, mining activities at the SPE Mine will not disrupt the hydrologic balance or otherwise prevent recharge that would render the hydrologic balance "irreparable."

125. Because no identified current or anticipated beneficial use of well water in the cumulative impact area relies solely on water within the Mammoth Coal, any increase in salinity in the Mammoth Coal, which would only occur in the unlikely event that the gate roads do not collapse, would be attenuated by less saline water produced from other more productive aquifers. Text, *supra*, ¶¶ 57, 58.

126. Even though the CHIA determines that the SPE Mine will not result in material damage, it satisfies the second prong of the material damage analysis set forth in ARM 17.24.314(4), as the CHIA identifies the practices described in the mine operation plan intended to prevent or mitigate material damage. Text, *supra*, ¶¶ 81-83. In the unlikely event that contamination of the Mammoth Coal by gob water threatens a beneficial use outside the permit area, the CHIA describes possible mitigation measures including "deepening or rehabilitating existing wells" (text, *supra*, ¶ 82 (CHIA p. 9-7)) and "provision of a dependable, long term replacement water resource of acceptable quality for the designated use and adequate quantity to support the existing use and/or planned future use" (text, *supra,* ¶ 82 (CHIA p. 2-3)). Furthermore, in accordance with MSUMRA, the CHIA explains that groundwater monitoring plans will be adjusted to identify any migration of saline gob water towards the permit boundary. Text, *supra* ¶ 84 (CHIA p. 7-1). In the event that monitoring detects an increase in salinity that may impair a

beneficial use outside the permit area, the CHIA explains that adverse impacts can be mitigated by diluting the gob water with water from the deep underburden, or by pumping and treating the contaminated waters from the Mammoth Coal. Text, *supra*, ¶ 82 (CHIA p. 9-7). MEIC offers no evidence that mine operation described in the AM3 Application fails to protect the hydrologic balance considering the current groundwater monitoring regime and the reasonable and feasible mitigating measures described in the Application and the existing permit.

127. Based on the foregoing, the CHIA meets all the requirements of MSUMRA for protection of the hydrologic balance. The CHIA sets forth DEQ's reasonable conclusion, based on the hydrologic information available, that the SPE Mine operation as described in the application is designed to prevent material damage outside the permit area because: (1) drawdown of groundwater in the Mammoth Coal related to mining operations will not affect the quantity of water necessary for any beneficial use; and (2) that gob water is unlikely to result in an "increase of a parameter to a level that renders the waters harmful, detrimental, or injurious to the beneficial uses listed for Class II [and Class III water]" or "have a measurable effect on an existing or anticipated use" of Class II groundwater.

C. The CHIA Evaluates Disturbance to the Hydrologic Balance in the Mine Area in Accordance with MSUMRA.

128. MEIC also argues that "the information provided by Signal Peak and used by DEQ affirmatively demonstrates that the operation will cause violation of water quality standards within the 7,000 acre mine area." MEIC Br. pp. 25-26. Here, MEIC ignores the rights of a MSUMRA permittee and the distinction between impacts within and outside the permit boundary. MEIC ignores that potential violation of a Montana groundwater quality standard within the permit area is not a ground for denial of a coal mine operating permit. *See* § 75-5-401(5)(j), MCA (exempting "mining operations subject to operating permits or exploration

licenses in compliance with [MSUMRA]" from groundwater permitting). Second, the material damage definition, including the provision that makes violation of a water quality standard material damage *per se*, applies only outside the permit boundary. *See* text, *supra* ¶ 17 (definition of material damage).

129. Within the permit boundary MSUMRA requires that the application contain "a detailed description . . . of the measures to be taken during and after the proposed mining activities to minimize disturbance of the hydrologic balance on . . . the mine plan area." ARM 17.24.314(1). The CHIA is sufficient if it determines, based on sufficient evidence, that the proposed mining operation is designed to minimize disturbance to the hydrologic balance on the mine plan area.

VIII. CONCLUSION

130. Based on the uncontested evidence submitted in this matter and construction of MSUMRA that recognizes the informational function of the material damage assessment in the context of "attainable standards to protect the hydrologic balance of impacted areas within the limits of feasibility," the Board should deny MEIC's challenge to the sufficiency of the material damage assessment and uphold DEQ's approval of the AM3 Amendment.

131. The CHIA as the decisional document for the material damage determination presents a comprehensive assessment that clearly explains the legal context and basis for DEQ's conclusion that continued mining operations at the SPE Mine are designed to protect the hydrologic balance inside and outside the permit area. The CHIA explains in detail the hydrologic information contained in the AM3 Application and the information available through years of regulatory oversight of the SPE Mine that are the basis of the assessment. The CHIA identifies applicable groundwater quality standards and explains the methodologies of how those standards were used. Finally, the CHIA explains that the SPE Mine is designed to protect the hydrologic balance

because mineralized gob water in the mined area is unlikely to move outside the permit boundary within 50 years after mining stops. This conclusion is based on the relatively low transmissivity of the Mammoth Coal. The CHIA also explains that in the unlikely event that contaminated water migrates outside the permit boundary, the likelihood of impairment of an existing or anticipated beneficial use is remote because the Mammoth Coal is confined and is not a significant source of water for other aquifers in the cumulative impact area.

132. On the basis of the foregoing, the Department respectfully requests that the Board deny MEIC's claims of error and uphold Amendment No. 3 to permit no. C1993017.

Respectfully submitted, this 30th day of May, 2014.

STATE OF MONTANA, DEPARTMENT OF ENVIRONMENTAL QUALITY

By Dana David

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CERTIFICATE OF SERVICE

The undersigned certifies that on May 30, 2014, he caused the original or a copy of the foregoing Department of Environmental Quality Response Brief to be delivered or transmitted to the persons named below as follows:

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**BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA**

IN THE MATTER OF: THE NOTICE OF APPEAL AND REQUEST FOR HEARING BY MONTANA ENVIRONMENTAL INFORMATION CENTER REGARDING DEQ 'S APPROVAL OF COAL MINE PERMIT NO. C1993 017 ISSUED TO SIGNAL PEAK ENERGY LLC FOR BULL MOUNTAIN MINE NO. 1 IN ROUNDUP, MT.	**CASE NO. BER 2013-07 SM**

DEPARTMENT OF ENVIRONMENTAL QUALITY'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

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I. INTRODUCTION

1. The State of Montana, Department of Environmental Quality ("DEQ" or "the Department"), in accordance with the Contested Case Hearing Order entered July 29, 2015, and oral argument in this matter on July 31, 2015, proposes Findings of Fact and Conclusions of Law for decision in this matter.

2. In its notice and request for hearing Montana Environmental Information Center ("MEIC") raised two points of error:

> 1) DEQ's determination that the proposed mine expansion was designed to prevent material damage to the hydrologic balance outside the permit area was arbitrary and capricious and not in accordance with the law because the assessment employed the incorrect legal standard.
>
> 2) DEQ's determination that the proposed mine expansion was designed to prevent material damage to the hydrologic balance outside the permit area was arbitrary and capricious and not in accordance with the law because the permit application did not affirmatively demonstrate and DEQ could not, therefore, rationally conclude that the proposed mine expansion was designed to prevent material damage to the hydrologic balance.

MEIC Notice of Appeal[1] ("the MEIC Request") (DEQ Ex. B).

3. The focus of MEIC's challenge is the Cumulative Hydrologic Impact Assessment ("CHIA") that is a part of the written finding supporting approval of Amendment No. 3 to Signal Peak Energy, L.L.C.'s ("SPE's") underground mine operating permit (permit number C1993017) ("the AM3 Application" or "the Application") for its Bull Mountain No. 1 Mine ("the SPE Mine") located near Roundup, Montana,. As explained in this proposal, the CHIA is an

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[1] Although MEIC styled its administrative challenge to the approval of the AM3 application as a "Notice of Appeal," it is in fact a request for a hearing before the Board. *See* 82-4-206(1), MCA. A contested case proceeding under the Montana Administrative Procedures Act is not an appeal, rather it is a de novo proceeding in which "[o]pportunity shall be afforded all parties to respond and present evidence and argument on all issues involved." § 2-4-612, MCA.

assessment of whether the proposed continuation of mining operations at the SPE Mine is designed to minimize disturbance to the hydrologic balance in areas inside and adjacent to the mine area. The CHIA is a thorough and comprehensive assessment that explains the legal requirements for the assessment, provides a detailed explanation of the hydrologic setting for surface and groundwater, assesses potential impacts of proposed mining operations on the hydrologic balance, and assesses disturbance of the hydrologic balance by examining current and anticipated beneficial uses and applicable water quality standards. The uncontested evidence clearly demonstrates that DEQ's determination, set forth in the CHIA, that the SPE Mine is designed to prevent material damage outside the permit area, executes the applicable requirements of Montana Strip and Underground Mine Reclamation Act ("MSUMRA") and is supported by the hydrologic information provided by SPE in the AM3 Application and information available to DEQ.

4. On the basis of the following Findings of Facts and Conclusions of Law proposed by DEQ, the Board should uphold DEQ's approval of the AM3 permit application and dismiss this contested case hearing.

II. PROPOSED FINDINGS OF FACT

A. Procedural History and Issues Presented for Review

5. On October 5, 2012, SPE submitted the AM3 Application to DEQ to "increase the mine permit area of [the SPE Mine] by adding 7,161 acres and expanding the mine from five longwall panels . . . to fourteen longwall panels", and "approximately 176 million tons of in-place coal reserves or 110 million tons of mineable coal." DEQ Ex. C-0, CHIA p. 3-1.

6. In the AM3 Application, SPE proposed to continue longwall coal mining beyond the boundaries of the current permit. Accordingly, DEQ reviewed the AM3 Application as a

proposed amendment the existing permit. *See* Administrative Code of Montana ("ARM") 17.24.301(12).

7. On December 14, 2012, DEQ notified SPE that the AM3 Application was complete. After three rounds of notice and response to technical deficiencies, DEQ notified SPE that the Application was technically acceptable on September 13, 2013. Written Findings, p. 4.

8. On October 18, 2013, after public notice and receipt of public comment required by MSUMRA, DEQ approved the Application, and issued an amendment to the permit along with the written findings as required by ARM 17.24.405(6). Written Findings, p. 4, 5.

9. MEIC does not allege that DEQ violated any of the public notice requirements of MSUMRA.

10. On November 11, 2013, MEIC timely filed its request for hearing. DEQ Ex. B.

11. DEQ reviewed the Application for compliance with the requirements of MSUMRA which are set forth in §§ 82-4-201 through 254, Montana Code Annotated ("MCA"), along with its implementing rules in ARM 17.24.301 through 17.24.1826.

12. MEIC limits its challenge to the legal sufficiency of the CHIA and the information that DEQ used to prepare the CHIA. *See* MEIC Request. MEIC does not challenge findings relating to impact of mining on seeps, springs, and other surface waters. Nor does MEIC argue that DEQ neglected to perform any required determination regarding alluvial valley floors. *Id.* Furthermore, MEIC does not challenge the statement in the CHIA that drawdown in the Mammoth Coal during mining will not impair any water right in the cumulative impact area. *Id.*

13. MEIC challenges only the legal sufficiency of the CHIA and the Probable Hydrologic Consequences ("PHC") evaluation, upon which the CHIA is based, relating to possible impacts

due to salinity as measured by natural specific conductance[2] in the Mammoth Coal. Although MEIC argues that the CHIA is legally insufficient because it analysizes only one water quality standard for one parameter (MEIC Reply Br. 6), the CHIA does indeed address multiple parameters of concern, including toxic parameters listed in DEQ-7. *See* DEQ Ex. C-0, CHIA p. 8-3 (DEQ-7[3] standards do not apply to sampling events from stormwater events and on ephemeral streams); p. 9-10 ("arsenic concentrations in overburden are located up gradient from the mine and have declined below detection limits"); 9-11 ("[n]o exceedances of DEQ-7 standards were observed in any of the Mammoth Coal wells"); 9-13 ("[b]ased upon monitoring well information, there is no evidence of any mining related impacts to upper underburden or to the relatively deep upper underburden water quality in the vicinity of the Bull Mountains Mine No. 1 and no exceedances of DEQ-7 water quality standards have been reported in the wells."). No evidence in the record before the Board controverts the baseline information in the PHC and the analysis in the CHIA eliminating parameters of concern other than salinity, as measured by EC, from the material damage determination.

B. The SPE Mine Operation

14. The AM3 Application proposes that mining continue at the SPE Mine using the current longwall system for an additional 10 years. SPE's proposal does not contemplate adding another longwall or substantially increasing annual production above the capacity of the mine at the time of submittal of the SPE-AM3 Application. DEQ Ex. C-0, CHIA p. 3-1.

15. "Coal at [SPE Mine] is recovered using continuous mining and longwall mining methods. Continuous mining includes cutting parallel entries (main entries) approximately 8 to

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[2] "Natural specific conductance," the measure of total dissolved solids used to classify groundwaters in ARM 17.30.1006, is equivalent to "electrical conductivity" as defined in ARM 17.30.602(7). Ex. D (Van Oort Aff. ¶ 13).
[3] DEQ-7 sets forth numeric standards for metals including arsenic and lead and other toxic parameters.

10 feet high by about 20 feet wide intersected by regularly spaced tunnels or crosscuts." DEQ Ex. C-0, CHIA p. 3-2.

16. Longwall mining is a mechanical mining method that does not involve blasting. MEIC Ex. 1, BLM EA p. 2-4 to 2-6.

17. "Longwall mining is a method that removes all coal from each longwall panel, effectively achieving 100 percent coal extraction, and causes surface subsidence. Longwall mining uses a series of hydraulic supports, or shields, set up along the longwall face that function as temporary supports to protect workers and equipment. A cutting machine or shearer moves back and forth along the coal face and line of shields, cutting the coal in a series of passes. After the shearer completes a pass the entire system (shields, shearer, and face conveyor) advances (perpendicular to the shearer) and unsupported overburden is allowed to collapse into the void formally occupied by coal." DEQ Ex. C-0, CHIA p. 3-2.

18. "[A]ccess to the longwall panels [is] via 'gate roads.' Gate roads are driven roughly perpendicular to the [main entries], and consist of three parallel entries. Besides providing worker access to the longwall panels, gate roads are vital for the installation of longwall equipment, ventilation of the working area, and transportation. Once gate roads have been developed around a panel, the longwall equipment can be installed." DEQ Ex. C-0, CHIA p. 3-2.

19. "Subsidence impacts include those hydrologic impacts introduced as a result of surface subsidence cracks or deformation of overlying strata as the coal is mined. Each longwall panel at the Bull Mountains Mine No. 1 consists of a large block of coal, approximately 1,250 feet in width by 15,000 to 23,300 feet in length. Surface depressions or subsidence troughs are expected to form as the overburden is undermined and coal is extracted. Overburden rocks are allowed to flex downward, fracture (creating a Fractured Zone) and collapse or cave into the void (forming

a Caved Zone) causing immediate and progressive surface subsidence as the longwall system advances along the length of the panel." DEQ Ex. C-0, CHIA p. 9-5.

20. "No significant changes to the [existing] reclamation plan are proposed since Amendment No. 3 only addresses expansion of the permit area to allow continuation of underground mining." DEQ Ex. C-0, CHIA p. 3-1.

C. The Hydrologic Setting of the SPE Mine

21. "The Mammoth Coal seam ranges in thickness from 8 to 12 feet in the permit area, so approximately seven to eight feet of surface subsidence is expected." DEQ Ex. C-0, CHIA p. 9-5.

22. "Groundwater flow in [the Mammoth Coal] is toward the north-northwest, following the direction of synclinal plunge. Recharge reaches the Mammoth Coal via exposed outcrops, subcrops, and from infiltration through the overburden." DEQ Ex. C-0, CHIA p. 8-5. "Water levels indicate that the Mammoth Coal aquifer is isolated from overlying overburden aquifers." DEQ Ex. C-0, CHIA p. 8-5.

23. "The geometric mean hydraulic conductivity of the Mammoth Coal is 0.16 ft./day." DEQ Ex. C-0, CHIA p. 8-5. (reference to table omitted).

24. "Although the hydraulic conductivities for the Mammoth Coal are relatively higher than the overburden, they are typically inadequate to provide a reliable source of well water and few production wells are completed in the coal." DEQ Ex. C-0, CHIA p. 8-5.

25. No wells located within the cumulative impact area produce water solely from the Mammoth Coal. Ex. D (Van Oort Aff. ¶ 11).

26. "Water levels in most Mammoth Coal wells showed little natural fluctuation and did not vary more than two feet over the period of baseline monitoring, except in one well near the

Mammoth coal outcrop which showed larger fluctuations apparently in response to precipitation." DEQ Ex. C-0, CHIA p. 8-5.

27. "Baseline water quality of the Mammoth Coal aquifer was determined from samples from 10 wells. Generally, sodium and sulfate are the dominant ions in groundwater collected from most Mammoth Coal monitoring wells. SC and sulfate baseline concentrations in the Mammoth Coal tend to be greater than in the overburden. SC ranged from 1,400 µS/cm to 3730 µS/cm with an average of 2,272 µS/cm. Sulfate concentrations ranged from 251 mg/L to 1,690 mg/L, with an average of 798 mg/L." DEQ Ex. C-0, CHIA p. 8-5 (reference to table omitted).

28. "Approximately one-half of the Mammoth Coal wells produce Class II water and one-half produce Class III water. This data is consistent with Mammoth Coal baseline water quality (Class II to Class III)." DEQ Ex. C-0, CHIA p. 9-11.

29. "Mammoth Coal groundwater is generally suitable for watering livestock." DEQ Ex. C-0, CHIA p. 8-6.

30. "The baseline water quality of the upper underburden is similar to that of the Mammoth Coal. Sulfate was the dominant anion and sodium tended to be the dominant cation. Underburden groundwater generally fell into Class II and III. Respective SC and sulfate concentrations of the upper underburden aquifer ranged from 1,440 µS/cm to 4,280 µS/cm and 216 mg/L to 2,680 mg/L. Average SC and sulfate concentrations were 2,721 µS/cm and 1,121 mg/L. Upper underburden wells are typically suitable for livestock use, and some are marginally suitable for domestic use." DEQ Ex. C-0, CHIA p. 8-6. The hydraulic conductivity of the upper underburden is similar to the Mammoth Coal. *Id.*

31. "[T]he relatively deep sandstones of the lower underburden aquifer are hydraulically isolated from the Mammoth Coal and upper underburden aquifers." DEQ Ex. C-0, CHIA p. 9-12.

32. "The hydraulic conductivity of this 50-foot thick sandstone [encountered in the underburden approximately 350 feet below the Mammoth Coal] is relatively high and a pumping test showed that [a test well] is capable of sustaining a yield of more than 10 [gallons per minute]." MEIC Ex. 1, BLM EA, p. 3-42.

33. "Water quality analysis of a sample from the [mine] office well completed in the deeper underburden indicated Class I groundwater, and is suitable for the mine public water supply. Most deeper underburden wells are suitable for domestic and livestock use." DEQ Ex. C-0, CHIA p. 8-6.

D. Review of the AM3 Application and Assessment of Material Damage

34. When DEQ reviewed the SPE application for an amendment to its existing coal mine operating permit, DEQ prepared an assessment of the cumulative impacts of the proposed mine operation on the hydrologic balance outside the permit area by preparing a CHIA. DEQ Ex. C-0, CHIA, p. 1-1. DEQ adopted the CHIA as part of its written findings supporting issuance of the Amendment. *See* Written Findings, p. 11 (Finding E).

35. When it prepared the CHIA, DEQ looked in part to information that MSUMRA requires applicants such as SPE to provide in an application to amend a coal mine operating permit, including the PHC. DEQ Ex. C-0, CHIA, p. 2-1, 2-4.

36. The PHC submitted by SPE is identified as MEIC Exhibit No. 5. The PHC includes a Groundwater Model. *See* MEIC Ex. 6. The Groundwater Model is described in the CHIA as a "transient flow [particle tracking] model." CHIA p. 5-2. The material damage determination set forth in the CHIA is based in part on the results of the Groundwater Model. DEQ Ex. C-0, CHIA p. 2-4.

37. The CHIA describes the "cumulative impact area" that is the areal limit for the hydrologic information that is evaluated in the DEQ Ex. C-0, CHIA. p. 5-1.

38. The cumulative impact area described in the CHIA is based on drawdown in the upper underburden that has a greater areal extent than for the Mammoth Coal. DEQ Ex. C-0, CHIA p. 5-2.

39. The CHIA summarizes MSUMRA's requirements for assessing potential material damage to the hydrologic balance in and adjacent to the SPE Mine site as follows:

> Administrative Rule of Montana (ARM) 17.24.314(1) requires that DEQ determine that a given proposed mining and reclamation operation has been designed to minimize disturbance to the hydrologic balance on and off the mine plan area, and prevent material damage to the hydrologic balance outside the permit area. In order to evaluate whether the proposed mining and reclamation plan has been designed to prevent material damage, a Cumulative Hydrologic Impact Assessment (CHIA) is prepared by DEQ. Prior to making a permitting decision, DEQ makes an assessment of cumulative hydrologic impacts of all existing and anticipated mining operations. The CHIA analysis must be sufficient to determine whether mining impacts to the hydrologic balance on and off the permit area have been minimized and material damage outside the permit area has been prevented.

DEQ Ex. C-0, CHIA, p. 2-1 (footnote references and citations omitted).

40. The CHIA explains the methodology for the material damage assessment of the SPE Mine operation proposed in the AM3 Application:

> Following the definition of material damage in [§ 82-4-203(32), MCA], material damage criteria are established for the evaluation of both groundwater and surface water quality and quantity, and are used to determine whether water quality standards and beneficial uses of water, including water rights, outside the permit boundary have been or are expected to be impacted by mining activities. The interruption or diminution of a surface water or groundwater supply to the extent that an existing use is precluded is considered to be material damage. When material damage occurs mitigation is required; mitigation would include dependable, long-term replacement of a resource acceptable for the designated use [ARM 17.24.314(1)(c) and 17.24.648] or treatment to return water quality to state standards. Material damage criteria include applicable numeric and narrative water quality standards, and criteria established to protect existing beneficial uses of water.

DEQ Ex. C-0, CHIA p. 2-1 (brackets added for citation to § 82-4-203(32), MCA).

41. The CHIA described how surface water quality standards inform the material damage determination. CHIA pp. 2-2, 2-3.

42. The CHIA identifies the indicators of material damage to groundwater and the applicable groundwater quality standard:

> Groundwater material damage occurs when, as a result of mining, any of the following circumstances occur:
>
> • Groundwater quality standards outside of the permit area are violated
>
> • Land uses or beneficial uses of groundwater outside of the permit area are adversely affected to the extent that an existing use is precluded
>
> • A groundwater right is adversely impacted
>
> Protection of groundwater quality for beneficial uses is based on narrative standards established by ARM 17.30.1006 (Table 2-4) and numeric standards for individual parameters in Circular DEQ-7 (Table 2-2). Water quality guidelines established for livestock use are shown in Table 2-3. Groundwater quality in the area may naturally exceed these livestock water quality guidelines. Groundwater released from the mine is not required to be purer than natural, background conditions [75-5-306, MCA and ARM 17.30.629(2)(k)].

DEQ Ex. C-0, CHIA pp. 2-3, 2-4. (brackets and parentheses in original).

43. The groundwater regime assessed in the CHIA, "occurs in the alluvial, overburden, Mammoth Coal, and underburden aquifers. Groundwater flow is generally toward the north-northwest except in the often dry alluvial aquifer system." DEQ Ex. C-0, CHIA p. 8-4.

44. The CHIA describes sources of groundwater for livestock watering as follows:

> Water quality in surface water, springs, and shallow wells is variable and may change seasonally with the availability and use of the water source. Deeper wells provide a more consistent and reliable water source. DEQ Ex. C-0, CHIA p. 6-1.

> 60 wells that lie within the groundwater [cumulative impact area] are identified for stockwater use in the [Montana Groundwater Information Center] and [Department of Natural Resources and Conservation] databases. The completion depths listed for stockwater wells indicate that groundwater resources used for supply include alluvium, overburden, coal, and upper and deep underburden aquifers. DEQ Ex. C-0, CHIA p. 6-2.

45. "Beneficial uses of groundwater outside the permit boundary include livestock and domestic use. Wells completed in the alluvium, overburden, and underburden supply livestock water. Wells for domestic use typically have reported completion depths that suggest utilization of groundwater from the underburden." DEQ Ex. C-0, CHIA p. 2-4.

46. "The alluvial hydrographs discussed [in section 9.5.2.2 (Impacts from Dewatering-Alluvium)] indicate that there is no evidence that mining and associated dewatering of the Mammoth Coal have affected water levels of the alluvial aquifer system. Because the alluvial aquifer is typically a perched aquifer supplied by recent precipitation or snow melt, additional mining is not expected to affect water levels in the alluvial aquifer." DEQ Ex. C-0, CHIA p. 9-9.

47. For water resources in the overburden:

> The abrupt decline of water levels [in two shallow overburden wells] suggests that the relatively shallow overburden and perched aquifer system in the vicinity of wells was partially drained via subsidence fractures that healed over the period between February and April 2012 leading to the water level rebound as seen in Figure 9-4. Well log data indicates that relatively impermeable gray shale occurs below the respective screened intervals. These rocks may have become fractured, allowing perched groundwater to drain into the mine workings, and then healed due to compression and settling. This data may illustrate that the various perched aquifers within the upper overburden may have become temporarily dewatered by subsidence fractures in the vicinity of BMP-60 and BMP-90 due to mining. . . . Similar temporary overburden dewatering may occur over all longwall mining areas as subsidence occurs, but these effects are expected [to be] limited in spatial and temporal extent. No long term effects on overburden water quantity are expected as a result of mining.

DEQ Ex. C-0, CHIA p. 9-10.

48. No exceedances of DEQ-7 standards were observed in any of the Mammoth Coal wells. DEQ Ex. C-0, CHIA p. 9-11.

49. "Domestic or private wells in the area generally produce water under confined conditions from relatively deep underburden sandstones that are hydrologically separated from the upper underburden aquifer and Mammoth Coal, although a few domestic wells are completed in the upper underburden." DEQ Ex. C-0, CHIA p. 6-1.

50. The Groundwater Model:

> simulates flow in all aquifers of concern but is focused on the Mammoth Coal and upper underburden, as these aquifers are expected to experience the greatest effects from mining. The groundwater model is calibrated by comparing model results to measured water levels from monitoring wells and adjusting model parameters to achieve the best simulation of groundwater conditions. After calibration the model was run forward in time to predict water levels at the end of mining. In this predictive simulation, the mine tunnels are added to the model according to the proposed mine plan schedule as drains which simulate the dewatering associated with mine development. As mining progresses the material properties of the Mammoth Coal and overburden layers are also modified to simulate the collapse of material into the void left behind by longwall mining, and the subsidence and fracturing that occurs above the mined out areas. The results of this simulation are shown in Figure 9-7, which displays the predicted drawdown in the Mammoth Coal and upper underburden at the end of mining. In the Mammoth Coal, the area of the mine workings is completely dewatered, and an area of drawdown extends primarily to the north of the mine. A drawdown cone of depression is formed in the upper underburden, centered on the northern part of the mine workings and extending throughout the life of mine area and to the north. Drawdown to the south, east, and west in both the Mammoth Coal and the upper underburden is limited by the outcrops of the aquifers in those directions.

DEQ Ex. C-0, CHIA p. 9-8 (references to figures omitted).

51. "[P]article tracking [using the Groundwater Model] does not account for potential influence of adsorption/desorption influences for given analytes. Rather, it simply simulates and

tracks flow paths. Particle tracking also does not account for effects of dilution as other contributions to groundwater flow occur (e.g., recharge, etc.) In effect, particle tracking serves as a very conservative predictor of the implications of solute transport." MEIC Ex. 6, Groundwater Model, p. 314-6-25.

52. "The [Groundwater Model] provides a conservative [i.e., overestimates the potential impacts] and consistent basis for comparing the hydrologic response and relative impacts to the ground water associated with mining in the proposed disturbance area." *Id.* at 314-6-26.

53. "The steady-state calibrated model utilizes hydraulic parameters that are consistent with baseline data." *Id.*

54. "The [Groundwater Model] produces simulated water levels that are in reasonable conformance with water level observations over time. In addition, the same transient simulations that had been conducted demonstrated that the model provided discharge rates reasonably consistent with observations." *Id.*

55. In its review of the PHC submitted by SPE, DEQ concluded that the Groundwater Model included in the PHC was based on generally accepted methodologies and that it provides a reasonable prediction of groundwater flow in the confined aquifers, such as the Mammoth Coal, at Bull Mountain Coal Mine #1. Ex. D (Van Oort Aff. ¶ 9).

56. DEQ also concluded that the particle-tracking analysis applied by the Groundwater Model provides a conservative prediction [i.e., overestimates the potential impacts] of the rate that gob water may migrate through the undisturbed Mammoth Coal. *Id.* MEIC offered no evidence of any other model or methodology.

57. DEQ states that it is not aware of a generally accepted groundwater model or modeling methodology capable of predicting, with a reasonable probability of certainty, the concentration of inorganic constituents at any time in a hydrologic unit subject to migration of groundwater

from an area mined by underground methods that permit caving of overburden. Ex. D (Van Oort Aff. ¶ 10). MEIC did not offer any evidence of the availability of a groundwater model with superior predictive capability to the model provided by SPE.

58. The uncontroverted evidence in the record is that the source of recharge water for the Mammoth Coal outside the permit area and the mine pool will be from above rather than from lateral migration through the Mammoth coal. MEIC Ex. 6 (Groundwater Model, p. 314-6-4); CHIA p. 8-5.

59. The Groundwater Model analyzes two scenarios: Scenario 1, the movement of particles if the gate roads collapse, and Scenario 2, the movement of particles if the gate roads remain open. MEIC Ex. 6 (Groundwater Model), p. 314-6-25. Scenario 1 analyzes potential impacts of the SPE Mine as it was designed, while Scenario 2 was established "to 'bound' the range of uncertainty for the simulations." MEIC Ex. 6 (Groundwater Model, p. 314-6-23).

60. "The two post-mine scenario simulations were run to 50 years in the future to evaluate the long-term response to mining at [the SPE Mine]." *Id.* at 314-6-19. "The [Groundwater Model] prediction in the PHC indicates that groundwater associated with the Mammoth Coal and the upper underburden aquifers will recover to near premining levels approximately 50 years after the cessation of mining." CHIA p. 10-1.

61. The uncontroverted evidence in the record is that the results for Scenario 1 of the Groundwater Model, which simulates the resaturation of the Mammoth Coal inside and outside the mined area if the gate roads collapse, predicts recovery to a uniform hydraulic gradient to the northwest across the northern permit boundary within 50 years after mining stops. (*See* MEIC Ex. 6 (Groundwater Model, p. 314-6-23, Fig. 12M, p. 1). This condition represents the long-term ground-water level response at the end of mining and for a time period extending up to 50 years after mining. *Id.* p. 314-6-12.

62. The uncontroverted evidence in the record is that the results for Scenario 2 of the Groundwater Model, which simulates the resaturation of the Mammoth Coal inside and outside the mined area if the gate roads remain open, predicts recovery to steeper hydraulic gradient to the northwest across the northern permit boundary and a constant mine pool elevation of 3850 feet, within 50 years after mining stops. (*See* MEIC Ex. 6 (Groundwater Model, p. 314-6-23, Fig. 12M, p. 2). This condition represents the worst-case, long-term ground-water response at the end of mining and for a time period extending up to 50 years after mining. *Id.* p. 314-6-12.

63. "The particle tracking results for Scenario 1 [gate roads collapse] show that given the limiting assumptions described in the flow modeling effort, and also in accordance with the [described limitations], it is projected that any inorganic constituents emanating from the mine gob will be retained within the mine permit boundary." Groundwater Model, p. 314-6-25 (MEIC Ex. 6).

64. The gate roads in the Bull Mountains Mine are designed to collapse over time. DEQ Ex. K-AM3-Permit_Appendix_901 (Agapito Letter).

65. The United States Department of Interior, Bureau of Land Management reported in its environmental assessment for the SPE Mine also explained that the gate roads are designed to collapse with time:

> [T]the pillars supporting the gateroad openings have been designed to slowly fail as the longwall panel progresses. Failure of the gateroad pillars would result in partial subsidence over the gateroads. In longwall mining, surface subsidence typically occurs as a series of troughs over the longwall panels. But *because the gateroads are designed to yield under the stress of the mined-out panels*, the expected result is less extreme transitions between each trough. The expected outcome is that the surface subsidence would be uniform and less surface cracking would occur.

MEIC Exhibit 1 (BLM EA at p. 2-6) (emphasis added).

66. "The particle tracking results for Scenario 2 [gate roads remain intact] shows that with the same limiting/conservative assumptions described heretofore, that it is possible that some flow from the mine gob may flow just outside the permit boundary." MEIC Ex. 6 (Groundwater Model, p. 314-6-26).

67. The CHIA concludes that the SPE mine as designed will not cause material damage by reducing the quantity of water in the alluvial, overburden, Mammoth Coal, or underburden aquifers:

> Mining is not expected to affect the alluvial aquifer beyond the permit boundary. The alluvial section within the boundary is generally dry. Groundwater levels in the overburden, Mammoth Coal and upper underburden near the western permit boundary have been lowered as a result of mining and drawdown in these aquifers will continue as mining advances. Mining proposed in Amendment 3 will result in continued drawdown to the east, south and north of the mine but is expected to remain largely within the mine permit boundary and drawdown will not affect most groundwater users. Mining related drawdown in these aquifers may affect a few domestic wells completed in the upper underburden north of the permit area. Since most domestic and stock wells produce from relatively deep sandstones (deep underburden aquifer) that are hydraulically isolated from mining by a relatively thick section of alternating shales and siltstones, no impact to these deeper wells is expected. SPE is committed to replacing any water supplies affected by mine related drawdown with a comparable permanent supply. DEQ Ex. C-0, CHIA p. 10-4

68. The CHIA concludes that the SPE mine as designed will not cause material damage to the quality or quantity of surface water:

> To date, no material damage to surface waters is evident. Narrative standards for surface waters have not been violated or exceeded, and the quantity of surface waters (springs and ephemeral runoff) has not been impacted due to mining activity, and surface water rights have not been impacted. Accordingly, because current mining activities are proposed throughout the expanded permit area, disturbance of the hydrologic balance on and off the permit area and material damage to surface waters outside the permit area are not expected from continued underground mining. DEQ Ex. C-0, CHIA p. 10-3, 10-4.

69. The CHIA paraphrases the Groundwater Model and concludes that the SPE mine as designed will not cause material damage to water quality in the Mammoth Coal:

> Because mine dewatering produces groundwater flow towards the mine working during mining, no water quality affects are expected during mining. After mining is completed, some of the mine gob will become saturated. Groundwater quality in the mine gob is expected to be degraded relative to natural water quality, however, due to the small quantity of gob influenced water and the slow water movement in the Mammoth Coal this poor quality water is not expected to migrate outside the permit boundaries within 50 years after mining. DEQ Ex. C-0, CHIA p. 9-11.

70. The CHIA concludes that the SPE mine as designed will not cause material damage by producing acid mine drainage in the mined area:

> Post mining groundwater quality within the mined-out area (Caved Zone) is expected to degrade after coming into contact with fresh rock surfaces exposed in subsidence fractures and mineralized rubble or gob. . . . Due to the buffering capacity of the alkaline mineralogy of the overburden and shallow underburden, development of acidic conditions in water present in the gob is extremely unlikely. DEQ Ex. C-0, CHIA p. 10-4.

71. The CHIA concludes that the SPE mine as designed will not cause material damage to water quality in the upper underburden immediately below the Mammoth Coal:

> Similar to the Mammoth Coal, water quality in the upper underburden aquifer may be locally affected by poor quality water from the mine gob after mining is completed and water levels in the mine area recover. No water quality effects on the deeper underburden aquifer are expected due to the hydraulic separation between this aquifer and the mine. DEQ Ex. C-0, CHIA p. 9-13.

72. "Based upon monitoring well information, there is no evidence of any mining related impacts to upper underburden or to the relatively deep upper underburden water quality in the vicinity of the Bull Mountains Mine No. 1 and no exceedances of DEQ-7 water quality standards have been reported in the wells." DEQ Ex. C-0, CHIA p. 9-13.

73. "Currently, there is no evidence that local and off permit groundwater quality of any of the hydrologic units has been degraded or impacted by mining. Groundwater quality of shallow and deep aquifers (alluvium, overburden, coal, and underburden) is monitored regularly by a network of 105 monitoring wells to alert DEQ about the potential for material damage during or post mining." DEQ Ex. C-0, CHIA p. 10-2.

74. The CHIA summarized the obligations that MSUMRA places on the operator to mitigate potential impacts to the environment including impairment of water resources as follows:

> Among these measures are requirements and performance standards [that] include requirements and standards for drainage control, pond design and maintenance, sediment control, road design and maintenance, reclamation, permitted discharges to surface waters, and protection of undisturbed drainages. In addition, adherence to Best Technology Currently Available (BTCA) and Best Management Practices (BMPs) in the design and implementation of equipment, devices, systems, methods, and techniques is required for the minimization of hydrologic disturbance. These requirements and performance standards established in ARM 17.24 subchapter 5 through subchapter 12 are incorporated into operation and reclamation plans included throughout the Bull Mountains Mine No. 1 surface mining permit (SMP C1993017), and have been reviewed and approved by DEQ.

DEQ Ex. C-0, CHIA p. 9-1 (text in bracket added).

75. The CHIA recognized and explained measures taken by SPE to minimize adverse impacts to the hydrologic balance as follows:

a. measures to convey and treat mine and stormwater runoff within the disturbed area (DEQ Ex. C-0, CHIA p. 9-2);

b. each MPDES-permitted outfall at the facility is associated with a sediment pond designed to contain the runoff from a 10-year, 24-hour rainfall event (DEQ Ex. C-0, CHIA p. 9-3);

c. runoff controls at the waste disposal area (DEQ Ex. C-0, CHIA p. 9-4);

d. minimizing surface impacts to ephemeral watercourses throughout the mine area through best management practices (*Id.*);

e. post mining controls for portal discharge (*Id.*);

f. documentation of recovery of springs after undermining and subsidence (DEQ Ex. C-0, CHIA p. 9-7);

g. explanation of evidence of recovery of water in wells in overburden after undermining and subsidence (DEQ Ex. C-0, CHIA p. 9-10).

76. The CHIA also considered mitigation measures for water sources:

> Impacts to surface water supply and water rights are evaluated with respect to regional and local impacts to surface water resources and natural variations in seasonal and yearly runoff. Mitigation for the loss of a beneficial use of surface water or a water right requires provision of a dependable, long-term replacement water resource of acceptable quality for the designated use and adequate quantity to support the existing and/or planned future use [ARM 17.24.314(1)(c) and 17.24.648].

DEQ Ex. C-0, CHIA p. 2-3 (brackets in original). In addition:

> Mitigation of impacts from subsidence generally involves replacement of water supplies lost or diverted by subsidence-related processes with the purpose of maintaining premine land uses. Mitigation plans in the permit include restoring springs, stream reaches, and ponds by opportunistic development of springs where they appear, guzzler emplacements, horizontal wells, vertical wells, pipeline systems, deepening or rehabilitating existing wells, reclamation of stream reaches and function, water treatment where appropriate or necessary, and restoring premine land uses (MDSL, 1993). Detailed monitoring and mitigation plans are provided in Permit C1993017, Vol. 2, Section 313, Appendix 313-2 Spring/Seep Mitigation Plan.

DEQ Ex. C-0, CHIA p. 9-7 (reference to PHC in original). This conclusion is supported by the permit which provides:

> The permittee is committed to mitigating hydrologic impacts caused by mining by the measures approved in the permit, or, should these approved measures fall short, by alternative measures

to be developed in consultation with the Department. To implement these measures, the permittee has developed a strategy for mitigation of any long-term hydrologic and wetlands impacts that occur due to mine development and operation. The goals of the permittee mitigation strategy are:

> • No net loss of wetlands (no decrease in total wetland area due to mining); and
>
> • Long-term maintenance by the permittee (until bond release) of adequate water supply in regards to quantity, quality and location for existing levels of wildlife and livestock.
>
> • After bond release, maintenance of the water replacement facilities is expected to be provided for by a trust fund established by Permittee and administered by its Department appointed trustees. -
>
> This strategy uses a phased approach that begins with planning, followed by implementation of the plan, and includes monitoring to ensure success. Successful mitigation is defined as the achievement through replacement or enhancement of resource which provides the potential for postmining land use equal to premine conditions. Success will be measured through appropriate testing and statistical comparison of data collected during baseline and postmining periods (see discussions of resources within the 17.24.313 RECLAMATION PLAN)

Permit: Vol. 3, Section 314-6.0 Hydrologic Balance, pp. 314-14, 314-15 (Ex. E).

77. The CHIA addresses mitigation of disruption of surface and groundwater rights:

> Likewise, the rights of present and future groundwater and surface water owners or users will be protected in accordance with ARM 17.24.314(1)(b) and 17.24.648. ARM 17.24.648 states that "the permittee will replace the water supply of any owner of interest in real property who obtains all or part of his supply of water for domestic, agricultural, industrial or other legitimate use from a surface or underground source if such supply has been affected by contamination, diminution, or interruption proximately resulting from strip or underground mining operation by the permittee". To protect uses replacement water must be of a quality and quantity sufficient to satisfy premining consumption requirements.

DEQ Ex. C-0, CHIA pp. 9-7, 9-8. This statement is supported by specific commitments by SPE, set forth in the permit, to protect water rights:

> The rights of present and future groundwater and surface water owners or users will be protected in accordance with Rules 17.24.314(1)(b) and 17.24.648. Existing groundwater and surface water rights within the Bull Mountains Mine No. 1 study area are listed in Addendum 1, Table 304 (5)-10 and in Addendum 5, Table 304 (6)-46.
>
> The permittee will replace the water supply of any owner of real property who obtains all or part of his supply of water for domestic, agricultural, industrial or other legitimate use from a surface or underground source if such supply has been affected by contamination, diminishment, or interruption proximately resulting from the underground mining operation of the permittee. Such replacement water shall be of a quality and quantity sufficient to satisfy premining consumptive requirements. Several possible sources of replacement water are being considered, including overburden and underburden wells, horizontal drains, surface water impoundments, precipitation collection devices, and the opportunistic development of existing unaffected or relocated springs.

Permit: Vol. 3, Section 314-2.2 Hydrologic Balance, p. 314-3 (Ex. E).

78. The CHIA describes how the monitoring plan will be revised in the event of potential damage to the hydrologic balance:

> As mining proceeds or potential impacts are anticipated, the monitoring plan is revised to accommodate changes, including replacement of monitoring sites or development of new sites. Monitoring is required to continue through the final phase of bond release. DEQ Ex. C-0, CHIA p. 7-1.
>
> . . .
>
> As longwall mining approaches monitored springs, the frequency of flow monitoring increases from monthly or quarterly to weekly so that any discernible impacts may be evaluated and mitigated in a timely manner and in accordance with the approved mitigation plan. DEQ Ex. C-0, CHIA pp. 9-6, 9-7.
>
> . . .
>
> As subsurface strata continues to deform and heal, it is anticipated that water levels will be reestablished at a stratigraphic level equivalent to pre-undermining. Continued monitoring of water levels will inform understanding of short and long-term response

> of underlying strata and consequent flow paths to undermining and subsequent recovery. DEQ Ex. C-0, CHIA p. 9-7.

These statements are supported by the detailed monitoring and mitigation plans described in the permit:

> In order to detect potential impacts to springs, weekly monitoring of flow/discharge and pond levels(where applicable) will be will be conducted for all springs identified in Appendix 314-3, Table 314-3.1. This weekly monitoring will commence two months prior to longwall mining beneath each identified spring and continue for twelve months after longwall undermining the same spring. This weekly monitoring will also be conducted for springs that are within 150 feet of the edge of a panel being mined. This weekly monitoring in addition to the monitoring conducted in accordance with Appendix 314-4 and associated data analysis will detect potential mining impacts. Permit, Vol. 2, Sec. 313, Appendix 313-2, p. 313-2-1 (Ex. F).
>
> . . .
>
> Weekly monitoring will be conducted during periods of anticipated potential impact (2 months before and 12 months after undermining). *Id.* p. 313-2-2.
>
> . . .
>
> As mining progresses, the Permittee will develop tentative mitigation plans for each of the springs that may be impacted by mining, as listed in Table 314-3-1, and the monitoring frequencies specified in Appendix 314-4 (MQAP) will be reviewed annually and necessary revisions will be proposed in conjunction with the Annual Hydrology Report. As the effects of mining approach more distant springs, (e.g., those in the eastern portions of the Permit Area and beyond), monitoring frequencies will be modified as necessary to ensure prompt detection of impacts and address monitoring of springs historically impacted and associated replacement water sources. Permit, Vol. 3, Sec. 314, Appendix 314-3, Spring Impact Detection and Mitigation, p. 314-3-1 (Ex. G)

III. PROPOSED CONCLUSIONS OF LAW

A. The Applicable Standard of Review and MAPA Requirements

79. The Board's jurisdiction includes administrative review of decisions on applications to increase permit area of a coal mine. § 82-4-206(1)(c), MCA. Board review under MSUMRA

proceeds as a contested case proceeding under the Montana Administrative Procedure Act ("MAPA"), §§ 2-4-601 through 631, MCA. § 82-4-206(2), MCA.

80. In accordance with MAPA, § 2-4-603, MCA, and the Order Adopting Stipulated Procedural Schedule for Administrative Review entered by the Hearing Examiner on January 7, 2014 ("the Procedural Order"), the parties agreed that "this matter [shall] be resolved as a matter of law" (MEIC Reply Br. p. 3), and tried on the basis of briefing for summary judgment. Pursuant to the Procedural Order,

> 5. After considering the motion, supporting briefs, and evidence, the Hearing Examiner shall issue a preliminary decision: (i) invalidating Amendment No. 3 to permit No. C1993 017; (ii) upholding Amendment No. 3 to permit No. C1993 017; or in the case a decision cannot be made (iii) ordering that a hearing will be held and directing the parties to submit a pre-hearing schedule. Any such hearing schedule shall include deadlines for exchange of lists of witnesses and copies of documents that each party intends to offer at the hearing.
>
> 6. In the event that the Board disposes of this matter on summary judgment without an evidentiary hearing, the Board shall designate closure of the administrative record in its final order.

81. The requirements of § 2-4-623, MCA, apply to this contested case proceeding. That provision currently describes the function of the Board in this contested case proceeding as follows:

> (1)(a) A final decision or order adverse to a party in a contested case must be in writing. A final decision must include findings of fact and conclusions of law, separately stated. Findings of fact, if set forth in statutory language, must be accompanied by a concise and explicit statement of the underlying facts supporting the findings. [A] final decision must be issued within 90 days after a contested case is considered to be submitted for a final decision unless, for good cause shown, the period is extended for an additional time not to exceed 30 days.
>
> . . .
>
> (2) Findings of fact must be based exclusively on the evidence and on matters officially noticed.

> (3) Each conclusion of law must be supported by authority or by a reasoned opinion.
>
> (4) If, in accordance with agency rules, a party submitted proposed findings of fact, the decision must include a ruling upon each proposed finding.
>
> . . .

§ 2-4-623, MCA.

82. "Thus, the Board's role in this contested case proceeding [is] to receive evidence from the parties, enter findings of fact based on the preponderance of the evidence presented and then enter conclusions of law based on those findings." *Mont. Envtl. Info. Ctr.*, 2005 MT 96, ¶ 22 . "The standards of clearly erroneous, arbitrary and capricious, and abuse of discretion are not available to an agency acting as a fact finder under the contested case provisions contained in part 6 of the MAPA." *Id* at ¶ 23.

83. In a contested case proceeding, "[o]pportunity shall be afforded all parties to respond and present evidence and argument on all issues involved." § 2-4-612(1), MCA. Accordingly, the Board has authority under MAPA to consider legal principles asserted by the parties in briefing and oral argument even though those principles may not have been expressly set forth in the record.

84. MEIC argues that legal argument offered by DEQ and SPE to buttress the CHIA constitutes impermissible post hoc rationalizations that must be rejected by the Board in deference to MEIC's due process rights. MEIC Reply Br. p. 13; Hrg. Trans. 14:20-17:1. Impermissible post hoc rationalization is not a principle of law that is recognized under MAPA. As explained above, under MAPA, a contested case proceeds as de novo review of an agency decision where "[o]pportunity shall be afforded all parties to respond and present evidence and argument on all issues involved." § 2-4-612(1), MCA.

85. To ignore the requirements of MAPA and deny DEQ and SPE the opportunity to make legal arguments that are not contained in the CHIA will not protect any due process interest of MEIC. Although MSUMRA provides for public comment on the PHC at the time DEQ determines the application to be technically acceptable (*see* ARM 17.24.404(3)) it does not provide for public comment on the written findings, including the CHIA, before they issue (*see* ARM 17.24.405). To deny DEQ and SPE its full right of participation in this contested case proceeding would result in endless remands and renewed contested case proceedings that could not provide any additional opportunity for an interested party such as MEIC to participate in permit review process.

86. In addition, the issue of whether conduct of this proceeding in accordance with MSUMRA and MAPA constitutes a violation of MEIC's due process rights is a constitutional issue that is not within the power of the Board to decide. *See Merlin Meyers Revocable Trust v. Yellowstone County*, 2002 MT 201, ¶ 21, 311 Mont. 194, 53 P.3d 1268, (action of the Yellowstone County Commissioners construing a statute to "essentially deny neighboring residents a clean and healthful environment in violation of the Montana Constitution" intrudes on "the exclusive power of the courts to determine if an act of the legislature is unconstitutional").

87. In this contested case proceeding, the Board must make "[f]indings of fact . . . based exclusively on the evidence and on matters officially noticed." § 2-4-623(2), MCA. Because MEIC did not oppose facts asserted by DEQ and SPE by submitting evidence of any kind in this matter, the descriptions of the hydrologic regime and formation of the mine pool contained in the CHIA and the factual basis, scientific methodology, and conclusions of the Groundwater Model with regard to movement of mine pool water away from the mine area are undisputed facts before the Board.

B. MSUMRA Requirements for Protection of the Hydrologic Balance

88. MSUMRA describes the comprehensive coal mine regulation and permitting program that Montana adopted pursuant to the requirements of the Surface Mining Control and Reclamation Act, ("SMCRA"), 30 U.S.C. §§ 1201-1328. The Secretary of the U. S. Department of the Interior approved Montana's permanent regulatory program, effective February 10, 1982, making Montana a "primacy state" under SMCRA with exclusive jurisdiction over regulation and permitting of coal mines in Montana. 30 U.S.C. § 1253(a); 30 C.F.R. § 926.10.

89. As a "primacy state," Montana has "exclusive jurisdiction over the regulation of surface coal mining and reclamation operations" in the state. Accordingly, the rule of decision for granting the AM3 Application is MSUMRA, rather than SMCRA. See *Bragg v. West Virginia Coal Ass'n*, 248 F.3d 275, 296 (4th Cir. 2001); *Pennsylvania Fed. of Sportsmen's Clubs v. Hess*, 297 F.3d 310, 324 (3rd Circ. 2002) ("[A] court must initially look to state law, especially where there is an element of state program that mirrors and is thus clearly intended to conform to and/or implement the federal objective. Unless an element of an approved state program is inconsistent with -- i.e., less stringent than -- the federal objective it implements, the state law or regulation is intended to control, rather than the federal provision.").

90. The CHIA is part of the written findings DEQ must issue when it approves a permit or an amended permit. *See* ARM 17.24.314(5); 17.24.405(1). The CHIA serves as DEQ's findings and determination whether the proposed mine operation is designed to prevent material damage to the hydrologic balance outside the mine permit area. *See* ARM 17.24.405(6)(c); *see* Written Findings, p. 11 (Finding E).

91. MSUMRA conditions approval of a coal mine operating permit on preparation of the CHIA:

> (3) The department may not approve an application for a strip- or underground-coal-mining permit or major revision unless the application affirmatively demonstrates that: (a) the assessment of the probable cumulative impact of all anticipated mining in the area on the hydrologic balance has been made by the department and the proposed operation of the mining operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

Section 82-4-227(3)(a), MCA.

92. ARM 17.24.314 sets forth the factors that DEQ must consider when it reviews an application such as the AM3 Application to determine whether the proposed mine operation is designed to protect the hydrologic balance. That rule explains the CHIA requirement as follows:

> (5) The department shall provide an assessment of the cumulative hydrologic impacts of the proposed operation and all anticipated mining upon surface and ground water systems in the cumulative impact area. The cumulative hydrologic impact assessment must be sufficient to determine, for purposes of a permit decision, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The department may allow the applicant to submit data and analyses relevant to the cumulative hydrologic impact assessment with the permit application.

ARM 17.24.314(5).

93. The CHIA is an assessment of the information that must be provided by the applicant in the PHC under MSUMRA. The PHC is:

> a determination of the probable hydrologic consequences of coal mining and reclamation operations, both on and off the mine site, with respect to the hydrologic regime and quantity and quality of water in surface water and ground water systems, including the dissolved and suspended solids under seasonal flow conditions and the collection of sufficient data for the mine site and surrounding areas, so that cumulative impacts of all anticipated mining in the area upon the hydrology of the area and particularly upon water availability can be made. However, this determination is not required until hydrologic information on the general area prior to mining is made available from an appropriate federal or state agency. The permit may not be approved until the information is available and is incorporated into the application.

. . .

Section 82-4-222(1)(m), MCA.

94. MSUMRA's implementing rules define "probable hydrologic consequences":

> "Probable hydrologic consequences" means the projected results of proposed strip or underground mining operations that may reasonably be expected to alter, interrupt, or otherwise affect the hydrologic balance. The consequences may include, but are not limited to, effects on stream channel conditions and the aquatic habitat on the permit area and adjacent areas.

ARM 17.24.301(93).

95. MSUMRA defines "material damage" as follows:

> With respect to the protection of the hydrologic balance, degradation or reduction by coal mining and reclamation operations of the quality or quantity of water outside of the permit area in a manner or to an extent that land uses or beneficial uses of water are adversely affected, water quality standards are violated, or water rights are impacted. Violation of a water quality standard, whether or not an existing water use is affected, is material damage.

Section 82-4-203(32), MCA.

96. MSUMRA defines "hydrologic balance" as follows:

> "Hydrologic balance" means the relationship between the quality and quantity of water inflow to, water outflow from, and water storage in a hydrologic unit, such as a drainage basin, aquifer, soil zone, lake, or reservoir, and encompasses the dynamic relationships among precipitation, runoff, evaporation, and changes in ground water and surface water storage.

Section 82-4-203(25), MCA.

97. MSUMRA also defines "adjacent area" as:

> the area outside the permit area where a resource or resources, determined in the context in which the term is used, are or could reasonably be expected to be adversely affected by proposed mining operations, including probable impacts from underground workings.

Section 82-4-203(2), MCA.

98. In addition to serving as a design criterion, protection of the hydrologic balance inside and in areas adjacent to the permit area is also a performance standard for coal mining operations under MSUMRA. § 82-4-231(10)(k), MCA. Specifically, an operator such as SPE must conduct operations to:

> *minimize* the disturbances to the prevailing hydrologic balance at the mine site *and in adjacent areas* and to the quality and quantity of water in surface water and ground water systems both during and after strip- or underground-coal-mining operations and during reclamation by:
>
> (i) avoiding acid or other toxic mine drainage . . .
>
> (ii) (A) conducting strip- or underground-mining operations so as to prevent, to the extent possible using the best technology currently available, additional contributions of suspended solids to streamflow or runoff outside the permit area, but the contributions may not be in excess of requirements set by applicable state or federal law;
>
> . . .
>
> (iv) restoring recharge capacity of the mined area to approximate premining conditions;
>
> . . .

Section 82-4-231(10)(k), MCA (emphasis added).

C. Assessment of Material Damage Based on the Groundwater Model

99. The CHIA passes legal muster because it reasonably concludes, based on information contained in the PHC including the Groundwater Model, that the SPE Mine is designed to prevent material damage to the hydrologic balance because the volume of mineralized mine pool water will be small and particles of mine pool water are not expected to migrate outside the permit area over the long term. Findings ¶ 69. In addition, in the event that mineralized mine pool water unexpectedly migrates outside the permit area, any such migration will be in close proximity to the permit boundary (Findings ¶ 66), confined to the Mammoth Coal (Findings ¶

49, 69; *see* Text, *infra,* Conclusions ¶ 100), and therefore, readily mitigated (Findings ¶¶ 32, 76, 77).

100. As a preliminary matter, the CHIA explains, and there is no evidence in the record to contest, that mining operations at the SPE Mine will have no effect on the alluvial aquifers, overburden aquifers, or the deep underburden aquifers. Findings ¶¶ 46, 47, 63 (respectively). The uncontroverted evidence in the record submitted to the Board demonstrates that the underground SPE Mine operation, as designed, will not impact ephemeral surface water bodies in the cumulative impact area. Findings ¶ 68 (CHIA pp. 10-3, 10-4). Nor is there any dispute that the information reported in the PHC and referenced in the CHIA that the volume of the mine pool (also referred to as gob water) is relatively small and that the Mammoth Coal is minimally transmissive and hydrologically isolated from other aquifers. Findings ¶ 69 (CHIA p. 9-11). MEIC does not contest facts submitted to the Board in the record that the alkaline mineralogy of the overburden and shallow underburden render formation of acidic conditions unlikely. Findings ¶ 70.

101. The CHIA relies on the Groundwater Model's particle-tracking analysis prepared by SPE and incorporated into the PHC. Findings ¶ 36. The particle tracking-model simulates particle movement through Mammoth Coal that is characterized by very low transmissivity, an average of 0.16 feet per day. Findings ¶¶ 23, 24. The particle-tracking model predicts that particles of mineralized mine-pool water are unlikely to migrate from mined areas and cross the permit boundary after the unmined Mammoth Coal and the mine pool recover—which is predicted to occur within a period of fifty years after mining ceases, if the gate roads collapse. Finding ¶¶ 60, 61.

102. The uncontroverted evidence in the record is that the gate roads are designed to collapse with time. Finding ¶¶ 64, 65.

103. There is no evidence in the record contradicting that "[t]he [Groundwater Model] provides a conservative [i.e., overstates potential impacts] and consistent basis for comparing the hydrologic response and relative impacts to the ground water associated with mining in the proposed disturbance area." Finding ¶¶ 51, 52. Nor is there any evidence in the record that contradicts or creates a dispute of fact about the explanation of the scientific basis, methodology, and consistency with observations that establish the predictive force of the particle-tracking model. *See* Findings ¶¶ 50-56.

104. MEIC dismisses the Groundwater Model because it does not quantitatively predict the concentration of total dissolved solids in gob (mine pool) water migrating through the Mammoth Coal. MEIC Br. pp. 27-28. MEIC also argued to the Board (Hrg. Trans. 87:16) that the particle-tracking model and hence the PHC are deficient because they do not address "geochemistry." Changes in "geochemistry," (i.e., whether the model predicts potential changes concentrations of parameters for salinity that would result in a violation of a water quality standard outside the permit area), however, is not a concern because the mine is designed such that particles of mineralized mine pool water are not predicted to pass across the permit boundary. Hrg. Trans. 97:15-98:2.

105. Even if migration of mineralized mine pool water outside the permit boundary was predicted, it is undisputed that there is no generally accepted groundwater model or modeling methodology capable of predicting, with a reasonable probability of certainty, the concentration of inorganic constituents at any time in a hydrologic unit subject to migration of groundwater from an area mined by underground methods that permit caving of overburden. Findings ¶¶ 55, 57. To the extent that MEIC suggests that MSUMRA should be construed to require the operator make demonstrations that are beyond available scientific tools and methodologies, that

proposition is not supported by the legislative history of SMCRA. *See* Conclusion ¶¶ 110-116, *infra*.

106. There is no evidence in the record that another model is capable as serving as a superior predictive tool for determination of the consequences of the proposed mining operation on groundwater outside the permit area. Findings ¶ 57.

107. MEIC also contends that the particle-tracking model and hence the PHC are insufficient because MSUMRA does not provide for a 50-year limit on the amount of time for which an applicant must demonstrate that the operation is designed to prevent material damage. MEIC Reply Br. pp. 34-39; Hrg. Trans. 38:1-22; 89:20-91:18.

108. MEIC's objection is based on a misreading of the record. Nothing in the record suggests that mineralized mine pool water will migrate outside the permit area 50-years after mining stops. Rather, "the simulations were run to 50 years in the future to evaluate the long-term response to mining at [the SPE Mine]." Findings ¶ 60. Also, the 50-year period represents the time after the hydrologic gradient recovers to the premine condition. Findings ¶ 61. Accordingly, the only conclusion that may be drawn from the facts in the record is that the Groundwater Model demonstrates that the SPE Mine is designed to prevent material damage through the time that recovery of water in the unmined Mammoth Coal and in the mined area are complete, because no particle of mine pool water will migrate outside the permit boundary. To require a higher level of scientific certainty would not be supported by MSUMRA.

109. The various provisions of MSUMRA were enacted together as a comprehensive regulatory program for coal mining and they must be construed together and every part made operative and given meaning and no provision rendered meaningless. *See Angell v. Lewistown State Bank,* 72 Mont. 345, 353 (1925) (reasoning that "it is an elementary rule of statutory construction that the whole of any enactment on a given subject must be considered . . . every

part of a statute must be made operative, if it is possible to do so, and no word in it must be deemed meaningless, if a construction can be adopted which will make it effective").

110. Accordingly, the requirement set forth in § 82-4-227(3)(a), MCA, that a proposed coal mine operation be *designed to prevent* material damage to the hydrologic balance, must be read in conjunction with the relevant performance standards set forth in § 82-4-231(10)(k), MCA, that require a permittee to conduct operations to "*minimize* the disturbances to the prevailing hydrologic balance at the mine site and adjacent areas" (emphasis added).

111. "Adjacent area" in turn means:

> [T]he area outside the permit area where a resource or resources, determined in the context in which the term is used, are or could reasonably be expected to be adversely affected by proposed mining operations, including probable impacts from underground workings.

Section 82-4-203(2), MCA. According to its plain terms "adjacent area" includes the Cumulative Impact Area that defines the geographical limit of the CHIA assessment.

112. Therefore, the design of the mine is not insufficient solely because it comprehends the possibility of minimal disturbances as long as those disturbances do not result in material damage.

113. In order to construe the design review requirement "to prevent material damage" together with the operational standard "to minimize disturbance", consideration of the legislative history of SMCRA is instructive.

114. Congress enacted SMCRA with the understanding that:

> The total prevention of adverse hydrologic effects from mining is impossible and thus the bill sets attainable standards to protect the hydrologic balance of impacted areas *within the limits of feasibility.* For most critical areas [sic] uncertain fragile hydrologic settings, the bill *sets standards that are imperative to begin to assure that adverse impacts to the hydrologic balance are not irreparable.*

. . .

> *The bill requires that the operator will take such measures as are necessary to minimize the disturbance to the hydrologic balance in the surrounding areas.*

H. Rpt. No. 95-218, p. 110 (Apr. 22, 1977) (excerpt attached as DEQ Ex. H) (emphasis added). The language quoted from House Report No. 95-218 explains SMCRA's protection of the hydrologic balance under 30 U.S.C. § 1260(b)(3) (*see* SMCRA § 510(b)(3) (1977), as it was enacted by Congress and as it still reads today, and demonstrates that by "designed to prevent material damage to the hydrologic balance outside the permit area," Congress did not intend to require an applicant to justify the mine design through means that provide a greater level of certainty than currently available scientific tools and methodologies.

115. SMCRA's provision for protection of the hydrologic balance is identical in all material respects to its MSUMRA counterpart. *Compare* Sec. 9, Ch. 550, Laws 1979 (amending § 82-4-227(3)(a)), MCA, to conform to SMCRA); and, 30 U.S.C. § 1260(b)(3) (1977). When it enacted MSUMRA, the legislature did not intend that "designed to prevent material damage" under MSUMRA mandate a stricter result than its SMCRA counterpart. First, the Montana Legislature unequivocally declared its intent that the MSUMRA protections of the hydrologic balance are part of "[a]n Act to make only those amendments necessary to bring Montana Strip and Underground Mine Reclamation Act into compliance with Public Law 95-87, the Surface Mining Control and Reclamation Act of 1977." DEQ Ex. I (Title to Ch. 550, Laws 1979, at p. 1353). The 1979 amendments to MSUMRA include the requirement that the reviewing agency assess the probable cumulative impact of mining on the hydrologic balance currently codified at § 82-4-227(3), MCA, as well as the performance standards codified at § 82-4-231(10)(k), MCA[4].

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[4] Enacted as § 82-4-231(3)(k) in Chapter 550 (1979 Mont. Laws, 1370) (DEQ Ex. I, p. 1370)

116. Second, Montana's Constitutional guarantee of a clean and healthful environment (*see* Mont. Const. Art. II, § 3 and Art. IX) does not require that MSUMRA be construed to require a permit application to describe a mine designed to prevent any disturbance to the hydrologic balance. The Legislature stated that it enacted MSUMRA to implement Montana's Constitutional guarantees:

> (1)(a) It is the declared policy of this state and its people to: (a) maintain and improve the state's clean and healthful environment for present and future generations.
>
> . . .
>
> (2) This legislature hereby finds and declares that:
>
> . . .
>
> (b) this part be deemed to be in exercise of the authority granted in the Montana constitution, as adopted June 6, 1972, and, in particular, a response to the mandate expressed in Article IX thereof . . ..

DEQ Ex. I (Sec. 1, Ch. 550, Laws 1979 at p. 1353-1354; codified at § 82-4-202(1)(a), (2)(b), MCA). This statement of intent, amended but not materially changed, accompanied the 2003 adoption of the definition of "material damage." *See* 2003 Mont. Laws p. 651, 655 (Ch. 204, § 2) (adopting definition for "material damage"); 2003 Mont. Laws 361 (Ch. 361, § 1) (declaring that MSUMRA among other acts is the legislative implementation of Mont. Const. Art. II, § 3 and Art. IX) (DEQ Ex. J).

117. So, MSUMRA must be construed to allow approval of a permit application even though the design of the proposed mine does not preclude the possibility of minimal disturbance to the hydrologic balance, as long as the disturbance does not result in material damage to the hydrologic balance. In addition, MSUMRA must be construed to allow an applicant to demonstrate that the mine is designed to prevent material damage to the hydrologic balance outside the permit area based on available scientific tools and methodologies.

118. Accordingly, for this contested case proceeding, the CHIA and the PHC that support approval of AM3 Permit are not deficient because the material damage determination predicts no migration of mine pool water outside the permit area based on simulations of hydrologic consequences that cover the predicted recovery time of the hydrologic balance. For this reason, the CHIA and by extension the PHC and the AM3 permit satisfy the requirements of § 82-4-227(3)(a), MCA.

D. Other Issues Raised to the Board

119. Argument was made to the Board at length that the CHIA, and by extension the PHC, are legally insufficient, because they fail to assess material damage based on the applicable water quality standards in the event that mineralized mine pool water migrates outside the permit boundary.

120. The conclusions of the Board, stated above, that the SPE Mine is designed to prevent movement of mineralized mine pool water outside the permit area, resolves this and the other issues raised by MEIC.

121. Because the mine is designed to prevent movement of mineralized mine pool water outside the permit area, the concern that groundwater in the deep overburden, the Mammoth Coal, and the underburden immediately under the Coal will change from Class II groundwater to Class III groundwater is hypothetical and unsupported by the record.

122. Because continued operation of the SPE Mine is not expected to result in contamination of either surface or groundwater outside the permit area, the CHIA is not legally insufficient because it did apply water quality standards to listed and beneficial uses of surface and groundwaters.

123. Because continued operation of the SPE Mine is not expected to result in contamination of either surface or groundwater outside the permit area, the CHIA is not legally insufficient

because it did not address Montana's nondegradation policy, because no degradation is predicted outside the permit boundary.

124. The Board's conclusions are supported by the record. The CHIA explains that water in the Mammoth Coal is isolated and does not contribute groundwater to other hydrologic units other than the upper underburden. Findings ¶¶ 22, 31, 49, 50, 67. The CHIA explains that the Mammoth Coal is hydrologically isolated from and is not a likely source of contamination of the generally high quality waters of the prolific deep underburden aquifer. Findings ¶ 31. The CHIA also explains that although the Mammoth Coal may locally gain water from overlying alluvial and overburden aquifers, it does not contribute water and therefore cannot serve as a source of contamination for those aquifers. Findings ¶ 22. Contamination by higher salinity mine pool water migrating outside the permit area will only affect, if at all, water in the Mammoth Coal, and possibly the upper underburden units in hydraulic connection with the Mammoth Coal, directly adjacent to the permit area. Findings ¶ 67.

125. The material damage determination is a two-step process: (1) the department must "[determine whether] the probable hydrologic consequences of the proposed mining operation, on the proposed mine plan area and adjacent areas, with respect to the hydrologic balance" (ARM 17.24.314(3)) . . . "indicates that adverse impacts to the hydrologic balance on or off the permit area may occur" (ARM 17.24.314(4)); and if it does, then, (2) "the department shall require submission of supplemental information to evaluate such impacts and to evaluate plans for remedial and long-term reclamation activities" (*Id.*). Therefore, the proposed mine operation is designed to prevent material damage if the operation is capable of mitigating any event that would cause material damage to the hydrologic balance outside the permit area.

126. Considering the very low transmissivity of the Mammoth Coal, the overburden strata immediately above the Mammoth Coal, and the underburden strata immediately below the

Mammoth Coal, and the projected small volume of the mineralized mine pool, an unpredicted migration of mineralized mine pool water beyond the permit boundary after mining stops would be local and readily mitigatable by replacing the resource. Findings ¶¶ 22, 25, 67, 69.

127. The hydrologic characteristics of the Mammoth Coal outside the permit area support the reasonable prediction that any contamination by mineralized mine pool water will be isolated to that geologic unit and will not spread to other sources of existing, anticipated, or feasible listed beneficial uses. Findings ¶¶ 22, 31, 46, 49, 67, 69.

128. The Mammoth Coal is a marginal aquifer that is incapable, by itself, of supporting any existing, anticipated or feasible listed use. Findings ¶¶ 24, 25. Because wells within the cumulative hydrologic impact area produce water from multiple strata, rather than solely from the Mammoth Coal (Findings ¶ 25, 45, 49), contamination of the Mammoth Coal outside the permit boundary, unlikely as it may be, may not result in contamination of the resource that would result in material damage. Even if it did, replacement water is available within the hydrologic regime. *See* text, *infra*, Conclusions ¶ 129.

129. A prolific source of high quality replacement water is available in the underburden sandstones. Findings ¶¶ 32, 33, 45. The underburden sandstones are unlikely to be affected by mining. Findings ¶¶ 13, 71. Therefore, any potential contamination of groundwater outside the permit area can be mitigated by providing a replacement well. Findings ¶¶ 32, 33, 68.

130. Because potential contamination outside the permit area, if it occurs at all, is projected to be restricted to the immediate vicinity of the permit boundary and limited in volume, mitigation measures are readily available and the SPE mine is designed to prevent material damage to the hydrologic balance outside the permit area.

IV. PROPOSED DECISON

131. The CHIA demonstrates, based on uncontroverted evidence in the record, specifically the PHC and the included Groundwater Model, that continued operations at the SPE Mine are designed to prevent material damage to the hydrologic balance outside the permit area because mineralized mine pool waters are not projected to migrate outside the permit area. In the event that mineralized mine pool water unexpectedly migrates beyond the permit boundary, the affected area will be local to the permit boundary, limited to the Mammoth Coal, readily mitigatable using available resources. Accordingly, MEIC's Motion for Summary Judgment is denied, SPE's Motion for Summary Judgment is granted, and this Board upholds Amendment No. 3 to Permit No. C1993017.

Respectfully submitted, this 11th day of September 2015.

STATE OF MONTANA, DEPARTMENT OF ENVIRONMENTAL QUALITY

By Dana David

Dana David
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CERTIFICATE OF SERVICE

The undersigned certifies that on September 11, 2015, he caused the original or a copy of the foregoing Department of Environmental Quality Proposed Findings of Fact and Conclusions of Law to be delivered or transmitted to the persons named below as follows:

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September 11, 2015

Hand-Delivered

Joyce Wittenberg
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RE: ***In the Matter of Amendment No. 3 to the Mining Permit for Bull Mountain***
Cause No. BER 2013-07 SM

Dear Joyce:

Enclosed for filing in the above-referenced matter please find the original and one copy of Signal Peak Energy, LLC's Proposed Findings of Fact and Conclusions of Law. Please advise me of the filing of this document by date-stamping the attached copy and returning it with our staff courier.

Should you have any questions regarding this filing, please do not hesitate to contact me. Thank you for your assistance.

Sincerely,

BROWNING, KALECZYC, BERRY & HOVEN, P.C.

By: Patricia Collver
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Legal Assistant

Enclosures

1502809/3914.003

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Filed with the
MONTANA BOARD OF
ENVIRONMENTAL REVIEW
This 11 day of September, 2015
at 4:18 o'clock P .m.
By: Hillary Houle

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

IN THE MATTER OF AMENDMENT NO. 3 TO THE MINING PERMIT FOR BULL MOUNTAIN COAL MINE NO. 1 (PERMIT ID: SMP C1993017).	**CASE NO. BER 2013-07 SM** **SIGNAL PEAK ENERGY, LLC'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW**

Intervenor Signal Peak Energy, LLC ("SPE"), through counsel, respectfully submits its Proposed Findings of Fact and Conclusions of Law.

INTRODUCTION

1. In accordance with the Contested Case Hearing Orders entered on July 16 and 29, 2015, Intervenor Signal Peak Energy, LLC, ("SPE"), submits these Proposed Findings of Fact and Conclusions of Law.

2. The Montana Environmental Information Center ("MEIC") has raised two points of error to the Board for its determination. MEIC argues:

> 1) DEQ's determination that the proposed mine expansion was designed to prevent material damage to the hydrologic balance outside the permit area was arbitrary and capricious and not in accordance with the law because DEQ employed the incorrect legal standard; and
>
> 2) DEQ's determination that the proposed mine expansion was designed to prevent material damage to the hydrologic balance outside the permit area was arbitrary and capricious and not in accordance with the law because the permit application did not affirmatively demonstrate, and DEQ could not, therefore, rationally conclude, that the proposed mine expansion was designed to prevent material damage to the hydrologic balance.

MEIC Notice of Appeal.

3. SPE and DEQ disagree with MEIC's points of error and submit the undisputed facts contained in the record establish that DEQ used the correct legal standard and rationally determined the proposed mine expansion was designed to prevent material damage to the hydrologic balance outside the permit area.

STANDARD OF REVIEW

4. This is a contested case governed by the Montana Administrative Procedure Act ("MAPA"). *See MEIC v. Montana Dep't of Envtl. Quality*, 2005 MT 96, ¶ 22, 326 Mont. 502, 112 P.3d 964. Under the MAPA contested case provisions, "all parties shall be given opportunity to appear and present evidence and argument regarding all the issues raised in the proceeding." *Id.* (citing Mont. Code Ann. § 2-4-612(1)).

5. Section 2-4-623, Mont. Code Ann., further provides:

> (1) A final decision or order adverse to a party in a contested case shall be in writing or stated in the record. A final decision shall include findings of fact and conclusions of law, separately stated. Findings of fact, if set forth in statutory language, shall be accompanied by a concise and explicit statement of the underlying facts supporting the findings.
>
> (2) Findings of fact shall be based exclusively on the evidence and on matters officially noticed.
>
> (3) Each conclusion of law shall be supported by authority or by a reasoned opinion.

Id. (quoting Mont. Code Ann. § 2-4-623).

6. Findings of fact in this matter must also be based on a preponderance of the evidence. *Id.* (citing Mont. Code Ann. § 26-1-403(1)).

7. Accordingly, "the Board's role in the contested case proceeding [i]s to receive evidence from the parties, enter findings of fact based on the preponderance of the evidence presented and then enter conclusions of law based on those findings." *Id.*

8. Because MEIC challenged DEQ's decision to approve SPE's mine expansion application by requesting a contested case hearing before the Board, MEIC has the burden of presenting the evidence necessary to establish the facts essential to a determination that DEQ's decision violated the law. *Id.*, ¶ 16 (citing Mont. Code Ann. §§ 26-1-401 and -402).

9. In this contested case proceeding, the parties agreed the matter was capable of determination via summary judgment motions. *See* Order Adopting Joint Stipulated Procedural Schedule for Administrative Review (Jan. 6, 2014).

10. For summary judgment to be appropriate, there must be no genuine issue of material fact, and the moving party must be entitled to judgment as a matter of law. *See* Mont. R. Civ. P. 56(c)(3). The Board may either grant MEIC's motion, grant SPE's motion, or deny both motions and set the matter for hearing. *See id.*, ¶ 5.

PROPOSED FINDINGS OF FACT

11. MEIC challenges the legal standards used in and the sufficiency of DEQ's written findings supporting approval of Amendment No. 3 to SPE's underground mine operating permit (Permit No. C1993017) (the "Application") for SPE's Bull Mountain No. 1 Mine. MEIC Notice of Appeal.

12. MEIC challenges the sufficiency of a specific portion of DEQ's approval of SPE's Application: the Cumulative Hydrologic Impact Assessment ("CHIA").[1] The CHIA contains DEQ's assessment of whether the proposed mine expansion is designed to minimize disturbance to the hydrologic balance in areas inside and adjacent to the mine area, including whether the proposed amendment is designed to prevent material damage to the hydrologic balance outside the permit area. *See generally*, CHIA.

13. MEIC provided no evidence or facts outside of the CHIA and other parts of the administrative record for the Board's consideration in this matter. *See generally* MEIC's Mot. for Summ. J. In particular, MEIC provided no expert opinion contradicting or otherwise calling

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[1] The CHIA is appended to MEIC's Brief in Support of Motion for Summary Judgment as Exhibit 10 and to DEQ's Response in Opposition to that motion as Exhibit C. SPE will cite to the CHIA here simply as the "CHIA," and the Board may find it in either location in the record.

into question the conclusions of the Groundwater Model included in the Application. *Id.* Therefore, the CHIA, including its descriptions of the hydrologic regime and formation of the mine pool, and the factual basis, scientific methodology, and conclusions reached in the Groundwater Model regarding movement of mine pool water away from the mine area, supply all of the undisputed and undisputable facts necessary for the Board's consideration of MEIC's challenge.

14. By this reference, SPE explicitly adopts and incorporates the proposed findings of fact submitted by DEQ, as though they were fully set forth herein. SPE furthermore emphasizes the following facts supported by the record:

15. The CHIA summarizes statutory requirements for assessing whether the Application was designed to prevent material damage to the hydrologic balance in and adjacent to the permit area. CHIA, p. 2-1. The CHIA also includes a Groundwater Model, described as a "transient flow [particle tracking] model." CHIA, p. 5-2. The material damage determination as stated in the CHIA is based in part on the conclusions of the Groundwater Model. CHIA, p. 2-4.

16. The CHIA explains the methodology DEQ used for its material damage assessment. CHIA, p. 2-1, 10-1. Specifically, the CHIA discusses changes DEQ observed to the hydrologic balance resulting from the current mining procedures, and it uses the Groundwater Model to evaluate whether the proposed mine expansion was designed to prevent material damage to the hydrologic balance outside the permit area. CHIA, p. 10-1–10-4, 9-8–9-13.

17. In its material damage assessment, the CHIA notes that a violation of water quality standards would constitute material damage under the statute. CHIA, p. 10-1.

18. However, the CHIA concludes that "[t]here is no evidence from monitoring data to suggest a change in predictions made in the PHC with regard to potential impacts to water quality and levels." CHIA, p. 10-4.

19. The CHIA notes that the Probable Hydrologic Consequences ("PHC"), including those set forth in the Groundwater Model, predict the proposed expansion will not cause material damage to the quality of the groundwater in various aquifers, including the alluvial, the

overburden, the Mammoth Coal, the upper underburden, and the deeper underburden. CHIA, p. 9-9 ("The additional proposed mining is not expected to have any effects on alluvial water quality."); *id.*, p. 9-10 ("Because overburden groundwater does not flow through the mine workings, or come into contact with the mine gob, mining is not expected to affect overburden groundwater quality."); *id.*, p. 9-11 ("Groundwater quality in the mine gob is expected to be degraded relative to natural water quality, however, due to the small quantity of gob influenced water and the slow water movement in the Mammoth Coal this poor quality water is not expected to migrate outside the permit boundaries within 50 years after mining."); *id.*, p. 9-13 ("Similar to the Mammoth Coal, water quality in the upper underburden aquifer may be locally affected by poor quality water from the mine gob after mining is completed and water levels in the mine area recover. No water quality effects on the deeper underburden aquifer are expected due to the hydraulic separation between this aquifer and the mine.").

20. DEQ concluded the Groundwater Model was based on generally accepted methodologies and provides a reasonable prediction of groundwater flow in the confined aquifers, including the Mammoth Coal. DEQ Ex. D (Van Oort Aff., ¶ 9). DEQ also concluded the particle tracking analysis applied in the Groundwater Model provides a conservative prediction of the rate that gob water may migrate through the undisturbed Mammoth Coal. *Id.* MEIC has not presented any evidence contradicting the findings and predictions of the Groundwater Model.

21. The Groundwater Model predicts that particles of mineralized gob water are unlikely to migrate from the mined areas and cross the permit boundary within a period of fifty years after mining ceases, assuming the gate roads collapse. CHIA, p. 9-11.

22. The proposed mine expansion is designed so that the gate roads will collapse over time. MEIC Ex. 1 (BLM Envtl. Assessment), at 2-6.

23. In its Material Damage Assessment, the CHIA concludes the following:

> Post mining groundwater quality within the mined-out area (Caved Zone) is expected to degrade after coming into contact with fresh rock surfaces exposed in subsidence fractures and mineralized rubble or gob. Oxidizing conditions are anticipated until after mining is complete and resaturation of the collapsed material has occurred. These conditions may result in

> increased sulfide oxidation, cation exchange, leaching, and weathering, which together may cause an increase in the concentrations of calcium, magnesium, sulfate and sodium ions. Due to the buffering capacity of the alkaline mineralogy of the overburden and shallow underburden, development of acidic conditions in water present in the gob is extremely unlikely. As explained above at 9.5.2, any degradation of groundwater quality is not expected to render groundwaters unsuitable for current or anticipated use. Accordingly, because current mining methods are proposed throughout the expanded permit area, material damage to the quality or quantity of groundwater resources outside the proposed permit area is not expected from continued underground mining.

CHIA, p. 10-4.

PROPOSED CONCLUSIONS OF LAW

24. By this reference, SPE explicitly adopts and incorporates the proposed conclusions of law submitted by DEQ, as though they were fully set forth herein. SPE furthermore emphasizes the following conclusions of law supported by the record and by Montana law:

25. The Montana Strip and Underground Mine Reclamation Act ("MSUMRA") conditions approval of a coal mine operating permit on preparation of the CHIA:

> (3) The department may not approve an application for a strip- or underground-coal-mining permit or major revision unless the application affirmatively demonstrates that: (a) the assessment of the probable cumulative impact of all anticipated mining in the area on the hydrologic balance has been made by the department and the proposed operation of the mining operation has been designed to prevent material damage to the hydrologic balance outside the permit area.

Mont. Code Ann. § 82-4-227(3)(a).

26. MSUMRA defines "material damage" as follows:

> With respect to the protection of the hydrologic balance, degradation or reduction by coal mining and reclamation operations of the quality or quantity of water outside of the permit area in a manner or to an extent that land uses or beneficial uses of water are adversely affected, water quality standards are violated, or water rights are impacted. Violation of a water quality standard, whether or not an existing water use is affected, is material damage.

Mont. Code Ann. § 82-4-203(32).

27. MSUMRA defines "hydrologic balance" as follows:

> "Hydrologic balance" means the relationship between the quality and quantity of water inflow to, water outflow from, and water storage in a hydrologic unit, such as a drainage basin, aquifer, soil zone, lake, or reservoir, and encompasses the dynamic relationships among precipitation, reunoff, evaporation, and changes in ground water and surface water storage.

Mont. Code Ann. § 82-4-203(25).

28. Regulations require DEQ to consider certain factors to determine whether the proposed mine operation is designed to protect the hydrologic balance outside the permit area:

> (5) The department shall provide an assessment of the cumulative hydrologic impacts of the proposed operation and all anticipated mining upon surface and ground water systems in the cumulative impact area. The cumulative hydrologic impact assessment must be sufficient to determine, for purposes of a permit decision, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. The department may allow the applicant to submit data and analyses relevant to the cumulative hydrologic impact assessment with the permit application.

ARM 17.24.314(5).

29. Because the CHIA reports there is no evidence from monitoring data that suggests any change in water quality levels resulting from current mining practices, the CHIA establishes DEQ employed the correct "material damage" legal standard in this portion of its analysis of the proposed mine expansion's potential effects on the hydrologic balance outside the permit area. *See* SPE's PSOF #17, #18.

30. Likewise, the CHIA concludes two of the five groundwater aquifers will experience absolutely no effects from the proposed mine expansion. SPE's PSOF #19. The remaining two aquifers, the Mammoth Coal and the upper underburden aquifers, are predicted to experience some water quality degradation within the permit area, but the proposed expansion is designed such that those degraded waters will not exit the permit area for upwards of 50 years, if at all. *Id.*; *see also* SPE's PFOF #21-22. Accordingly, DEQ's assessment of material damage of the hydrologic balance <u>outside</u> the permit area, where no mining-affected water is expected to travel within a reasonable time frame, employed the correct legal standard.

31. For these reasons, the CHIA correctly concludes the proposed mine expansion is designed to prevent material damage to the hydrologic balance outside the permit area. The proposed expansion is designed such that the gate roads will collapse over time. SPE's PFOF #22. The Groundwater Model establishes that, assuming the gate roads collapse, no groundwater affected by mining activity will exit the permit area until at least 50 years after mining ceases. SPE's PFOF #21. Therefore, it was reasonable and proper for the DEQ to conclude the proposed mine expansion is designed to prevent material damage to the hydrologic balance outside the permit area.

32. This 50-year time period is an appropriate period of time for the material damage assessment considering the reliability and availability of the scientific data and methodology used in the Groundwater Model, and MEIC has not offered any evidence contradicting its conclusions or demonstrating a more accurate, effective, or longer-term model or system to predict groundwater movement exists. *See* Hrg. Trans., at 103:22-104:1.

33. There are therefore no disputed issues of fact material to whether DEQ used the correct legal standard when conducting its material damage assessment.

34. Nor are there disputed issues of fact material to whether the Application demonstrated, and DEQ properly concluded, that the proposed mine expansion is designed to prevent material damage to the hydrologic balance outside the permit area.

35. The undisputed facts, as stated above and in DEQ's Proposed Findings of Fact and Conclusions of Law, establish DEQ and SPE are entitled to judgment as a matter of law.

PROPOSED DECISION

36. The CHIA establishes that DEQ correctly concluded the continued operations and proposed mine expansion, as set forth in the Application, are designed to prevent material damage to the hydrologic balance outside the permit area because none of the groundwater that could potentially make contact with the gob water is projected to migrate outside the permit area. Therefore, SPE's Motion for Summary Judgment is granted, MEIC's Motion for Summary

Judgment is denied, and this Board upholds DEQ's approval of Amendment No. 3 to Permit No. C1993017.

DATED this 11th day of September, 2015.

BROWNING, KALECZYC, BERRY & HOVEN, P.C.

By ______________________
Steven T. Wade
Sara S. Berg
Christy S. McCann

Attorneys for Signal Peak Energy LLC

CERTIFICATE OF SERVICE

I hereby certify that on the 11th day of September, 2015, a true copy of the foregoing was mailed by first-class mail, postage prepaid, addressed as follows:

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REQUESTED BY
APPROVAL DATE

Filed with the
MONTANA BOARD OF
ENVIRONMENTAL REVIEW
This 11 day of September, 2015
at 4:50 o'clock P .m.
By: Hillary Houle

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

IN THE MATTER OF AMENDMENT NO. 3 TO THE MINING PERMIT FOR BULL MOUNTAIN COAL MINE NO. 1 (PERMIT ID: SMP C1993017).	Case No. BER 2013-07 SM **APPELLANT MONTANA ENVIRONMENTAL INFORMATION CENTER'S PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND FINAL ORDER**

Pursuant to the Contested Case Hearing Order of July 16, 2015, and the Contested Case Hearing Order of July 29, 2015, and consistent with §§ 2-4-621(3), 623(1)(a), MCA, Appellant Montana Environmental Information Center submits its Proposed Findings of Fact, Conclusions of Law, and Final Order, which are attached hereto as Exhibit 1.

Respectfully submitted this 11th day of September 2015,

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BEFORE THE BOARD OF ENVIRONMENTAL REVIEW OF THE STATE OF MONTANA

IN THE MATTER OF AMENDMENT NO. 3 TO THE MINING PERMIT FOR BULL MOUNTAIN COAL MINE NO. 1 (PERMIT ID: SMP C1993017).	Case No. BER 2013-07 SM **APPELLANT MONTANA ENVIRONMENTAL INFORMATION CENTER'S PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND FINAL ORDER**

FINDINGS OF FACT

The Board of Environmental Review (Board) makes the following findings of fact, including any findings of fact found in the Conclusions of Law.

Introduction

1. In this case, Appellants Montana Environmental Information Center and the Sierra Club (collectively, "MEIC") challenge the Montana Department of Environmental Quality's (DEQ) approval of a large expansion of the Bull Mountain Mine No. 1, alleging inadequate assessment of the proposed expansion's impact to groundwater resources. DEQ Ex. B at 1.

Factual Setting

2. The Bull Mountains, where the proposed mine expansion is located, are arid eastern foothills of the Rocky Mountains on the edge of the Great Plains.

EXHIBIT
1

MEIC Ex. 1 at 3-3 [hereinafter Lease EA]. "Topography varies from uplands, rock outcrops, and ravines forested with ponderosa pine and Rocky Mountain juniper at higher elevations, to adjoining sagebrush and mixed prairie grassland communities on benches, slopes, and drainages where soils are deeper." MEIC Ex. 12 at III-18 [hereinafter 1992 EIS]. From the summit of Dunn Mountain, the highest point in the Bull Mountains, an observer can view the distant peaks of the Snowy, Big Horn, Pryor, Beartooth, and Crazy Mountains. Lease EA at 3-80.

3. The Bull Mountains form the hydrologic divide between the Musselshell River to the north and the Yellowstone River to the south. MEIC Ex. 10 at 3-3 [hereinafter CHIA]. The area to be undermined by the proposed mine expansion forms the headwaters of numerous tributary streams of both rivers, including Rehder Creek and Fattig Creek, which flow north, and Pompey's Pillar Creek and Railroad Creek, which flow south. *Id.* at 4-1; 1992 EIS at III-11 to -12. These creeks are mostly ephemeral, flowing only in response to precipitation, though there are intermittent portions, fed by springs or seeps associated with base groundwater flow. CHIA 4-1; 1992 EIS at III-11.

4. Approximately 15 acres of wetlands dot the mine area. 1992 EIS at III-22. Because the Bull Mountains are so arid, the limited water resources are extremely important. *See* 1992 EIS at III-19 ("The wetland vegetation community accounts for less than 0.1 percent of the Bull Mountains and surrounding

communities but plays an important role in local ecosystems."); *id.* at III-22 ("All animals found in the mine plan area use the streams, ponds, and springs, and related habitat to a greater or lesser degree."). Wetlands throughout the Bull Mountains are fed by groundwater springs, including springs originating in the Mammoth Coal aquifer. 1992 EIS at III-13, -19 to -20, -23; CHIA tbl. 8-1. The proposed mine expansion would remove the Mammoth Coal aquifer throughout the 7,161-acre mine expansion area of the Bull Mountains. MEIC Ex. 2 at 5 [hereinafter 2013 EA].

5. The varied vegetative communities of the Bull Mountains support a wide variety of wildlife, including elk, deer, antelope, coyotes, cottontails, turkeys, sharp-tailed grouse, bluebirds, wrens, and a great variety of raptors. 1992 EIS at III-20 to -23. Aquatic and semi-aquatic life, including waterfowl, tiger salamanders, chorus frogs, northern leopard frogs, and painted turtles, inhabit the groundwater-fed stream segments and wetlands in the Bull Mountains. *Id.* at III-22 to -23. All wildlife in the Bull Mountains depends on the area's sparse water resources. *Id.* at III-23.

6. The dominant historical land use in the Bull Mountains is ranching. Lease EA at 4-55; 1992 EIS at III-42. The limited water resources in the Bull Mountains, in particular groundwater-fed springs, are critical for stock watering

and ranching operations. 1992 EIS at III-19, -42. A small portion of surface water in the general mine area is used for irrigation. CHIA at 5-1, 6-2.

7. The Bull Mountains and Roundup area also have a long history of coal mining. 1992 EIS at III-38; Lease EA at 2-1. This history "has followed a 'boom-and-bust' pattern" with "good economic times followed by economic recession." 1992 EIS at III-38.

8. The Montana Department of State Lands (MDSL) concluded that the development of the Bull Mountains Mine would follow this same historical boom-and-bust pattern. *Id.* at iv. After short-term benefits to public revenue and employment and income in Musselshell County, "over the long term" there would be "major and negative impacts" to public revenues and "moderate and negative impacts" to employment and income due to inevitable mine closure. *Id.*

Permitting Proceedings

9. On October 5, 2015, Signal Peak Energy, LLC, (SPE) submitted its Permit Amendment Application No. 3 to DEQ to "increase the mine permit area of their underground coal mine (Bull Mountain Mine No. 1) by adding 7,161 acres and expanding the mine from five longwall panels (approved under Amendment 00187) to fourteen longwall panels." CHIA at 3-1.

10. The expanded mining operation would "add approximately 176 million tons of in-place coal reserves or 110 million tons of mineable coal." 2013 EA at 1.

11. SPE's application included a Probable Hydrologic Consequences assessment (PHC) and a Groundwater Model. MEIC Ex. 5 [hereinafter PHC]; MEIC Ex. 6 [hereinafter Groundwater Model].

12. MEIC submitted public comments on SPE's application. MEIC Ex. 7 [hereinafter MEIC Comments]. Among other issues, MEIC raised concerns that the mine expansion could cause material damage to the hydrologic balance outside the permit area. *Id.* at 4-7.

13. On October 18, 2013, DEQ approved SPE's application. MEIC Ex. 8. Along with the approval, DEQ issued a final Checklist Environmental Assessment (2013 EA) and a Cumulative Hydrologic Impact Assessment or "CHIA." 2013 EA; CHIA.

14. DEQ's CHIA determined that the 7,161-acre mine expansion would not cause material damage to the hydrologic balance outside the mine permit area because "any degradation of groundwater is not expected to render groundwaters unsuitable for current or anticipated use." CHIA at 10-4.

15. On November 18, 2013, MEIC filed its Notice of Appeal and Request for Hearing with the Board of Environmental Review. DEQ Ex. B at 1.

Hydrologic Overview

16. The coal seam SPE seeks to remove is saturated with water and functions as an aquifer, the Mammoth Coal aquifer. 2013 EA at 5.

17. The Mammoth Coal aquifer is the water source for domestic wells in the Bull Mountains. PHC at 314-5-12 ("[A] few domestic wells tap the Mammoth Coal as a water supply."); CHIA at 8-5 ("[F]ew production wells are completed in the coal.") & tbl. 6-1 (identifying domestic wells 168805 and 167885 drawing water in part from Mammoth Coal aquifer). The Mammoth Coal aquifer is also a source of wells used for watering livestock. CHIA tbl. 6-1. The "geometric mean hydraulic conductivity of the Mammoth Coal is 0.16 ft/day," which is an order of magnitude higher than the hydraulic conductivity of the overburden or underburden. *Id.* at 8-5 & tbl. 8-5. One of the highest yielding wells in the area is sourced in the Mammoth Coal aquifer, as are some of the highest yielding springs, including one spring (spring 53475) that yields approximately 10 gallons per minute (gpm). *Id.* tbl. 6-1 (well 19944) & tbl. 8-1 (springs 53455, 53485, 53475).

18. The Mammoth Coal aquifer is not isolated. There are "hydraulic connections between the Mammoth Coal aquifer and the upper underburden." *Id.* at 9-12. Some of the highest yielding wells in the area are sourced in the upper underburden. *Id.* tbl. 6-1 (wells 161859, 40C 30009594). Domestic wells are also sourced in the upper underburden. *Id.* (wells 18164, 18167, 18213, 40C 83115 00).

Degradation of water quality in the Mammoth Coal aquifer could cause degradation of water in the upper underburden. *Id.* at 9-12 to -13. Additionally, polluted water from mining may also occur in the "highly fractured zones immediately above the mined out area." PHC at 314-5-47.

19. SPE proposed to remove the 110 million tons of coal from the 7,161-acre expansion using a method known as longwall mining. CHIA at 3-2. Longwall mining "removes all coal from each longwall panel, effectively achieving 100 percent coal extraction, and causes surface subsidence." *Id.* When the coal is removed, the "[u]nsupported overburden rocks flex (subside), fracture (fracture zone), and begin to collapse into the void formerly occupied by the coal. The collapsed material in the mine voids is known as gob." 2013 EA at 5.

20. To mine a longwall panel, the mine operators first excavate a set of parallel entries or "mains" on either side of the panel. CHIA at 3-2. The mains are designed to remain intact and allow access to the coal panel via gate roads. *Id.* "Gate roads are driven roughly perpendicular to the mains and consist of three parallel entries." *Id.* The gate roads allow the mine operator to install their cutting machine, called a "shearer." *Id.* "After the shearer completes a pass the entire system (shields, shearer, and face conveyor) advances (perpendicular to the shearer) and unsupported overburden is allowed to collapse in the void formerly

occupied by the coal." *Id.* "Each gate road is designed to stay open for the first panel, but yield as the adjacent panel is mined-out . . . ." *Id.*

21. The proposed mine expansion will "lead to transitions in both groundwater quality and quantity," particularly in the Mammoth Coal aquifer. PHC at 314-5-44. The removal of the coal seam and Mammoth Coal aquifer will create a "cone-of-depression" causing groundwater from areas adjacent to the mine to flow toward and into the mine void. CHIA at 9-10 to -11; PHC at 314-5-63 to -64; Groundwater Model 314-6-22 to -24. This will lead to drawdown, i.e., lowering of groundwater levels, in areas around the mine, including areas up to three miles outside the mine permit boundary. CHIA at 5-2, 9-10 to -11; PHC 314-5-63 to -64; Groundwater Model 314-6-22 to -24. The water draining into the mine during mining operations will be pumped out and discharged via settling ponds into surface waters. 2013 EA at 5.

22. When mining ends, the mine void will begin to fill with water, which will eventually flow out of the mine void and into the drawndown area adjacent to the mine. CHIA at 9-11 ("Following the completion of mining, water levels will begin to recover, and are expected to reach a post-mine equilibrium within 50 years."); *id.* 9-13 ("Similar to the Mammoth Coal, water quality in the upper underburden may be locally affected by poor quality water from the mine gob after mining is completed and water levels in the mine area recover."); PHC at 314-5-53

("[A]s this groundwater [in the gob] reaches the native strata at the mine boundary, groundwater will tend to seep very slowly outside the mine area . . . ."); *see also* 2013 EA at 6-8; PHC 314-5-56 to -58, -63 to -64; Groundwater Model 314-6-22 to -24.

Degradation of Groundwater

23. The water that collects in the mine void after mining "is expected to be degraded relative to natural water quality." CHIA at 9-11; PHC at 314-5-47 ("A general increase in total dissolved solids, sodium, and sulfate concentration is anticipated in the groundwater that flows through the gob and potentially in the highly fractured zones immediately above the mined out area . . . .").

24. Most of the groundwater in the mine area, including the Mammoth Coal aquifer, is high-quality Class II groundwater. CHIA at 8-5 ("[W]ater from most Mammoth Coal wells is Class II groundwater."); 2013 EA at 7 (indicating that average quality of groundwater in Mammoth Coal aquifer is 2,272 microSiemens/cm or Class II); *see also* CHIA at 9-11 ("[A]pproximately one-half of the Mammoth Coal wells produce Class II water and one-half produce Class III water."); PHC at 314-5-28 ("Generally, groundwater in the vicinity of LOM [life of mine] area is either Class II or Class III."); 1992 EIS at III-18 ("Using State of Montana classification, spring and ground water in the Bull Mountains are Class II

waters, suitable for wildlife and livestock use, and marginally suitable for public and private water supplies.").

25. Class II goundwaters "are those ground waters with a natural specific conductance that is greater than 1,000 and less than or equal to 2,500 microSiemens/cm at 25°C." ARM 17.30.1006(2). Class II groundwater is considered "[h]igh quality water[]." § 75-5-103(13), MCA. Beneficial uses of Class II groundwater are: "(i) public and private water supplies; (ii) culinary and food processing purposes; (iii) irrigation of some agricultural crops; (iv) drinking water for most livestock and wildlife; and (v) most commercial and industrial purposes." ARM 17.30.1006(2)(a).

26. Class III groundwaters "are those ground waters with a natural specific conductance that is greater than 2,500 and less than or equal to 15,000 microSiemens/cm at 25°C." ARM 17.30.1006(3)(a). Class III groundwater is not considered high-quality water. § 75-3-103(13)(a), MCA. Beneficial uses of Class III groundwater are "(i) irrigation of some salt tolerant crops; (ii) some commercial and industrial purposes; (iii) drinking water for some livestock and wildlife; and (iv) drinking, culinary, and food processing purposes where the specific conductance is less than 7,000 microSiemens at 25°C." ARM 17.30.1006(3)(a).

27. DEQ projects that the water that collects in the gob material in the mine void following mining will degrade to Class III groundwater:

> The eventual groundwater quality within the mined-out area or Caved Zone may become similar to the groundwater quality within abandoned coal mines near Roundup, MT where the average TDS, sulfate, and specific conductance concentrations are 2,042 mg/L, 1,106 mg/L and 3,038 μS/cm, respectively. However, the groundwater quality within the Caved Zone may exceed these concentrations since the groundwater in the abandoned mines near Roundup does not come into contact with mineralized gob.

CHIA at 10-2 to -3; *accord* 2013 EA at 7. SPE also determined that "there is potential that some of this groundwater will change from a Class II to a Class III designation." PHC at 314-5-52; *accord id.* 314-5-48 to -50.

Groundwater Migration

28. SPE submitted a Groundwater Model with its application for the mine expansion. *See generally* Groundwater Model. The Groundwater Model partially evaluated the migration of degraded gob water after the cessation of mining. *Id.* at 314-6-23 to -26. The model developed two scenarios to establish bounds for its analysis. *Id.* at 314-6-23. In Scenario 1 the mine's gate roads collapse. *Id.* In Scenario 2 the gate roads remain intact. *Id.*

29. The Groundwater Model explained the significance of whether the gate roads collapse:

> In the event that the gate roads remain intact, they will serve as long term sinks. The gate roads would then convey groundwater northward where it would "pool" in northern portions of the mine. On the other hand, if the gate roads collapse, the fragmentation zone would be more uniform, the groundwater flow would be more uniform, and the tendency to pool would be less significant as well. Presently, the gate

> roads are remaining intact. However, this does not necessarily confirm that the gate roads will remain intact in the future.

Groundwater Model at 314-6-23.

30. Both DEQ and SPE stated that it was uncertain whether the gate roads would collapse. DEQ wrote: "After the conclusion of mining, the gate roads may remain intact or may collapse, thus each scenario was tested using the groundwater model." CHIA at 10-2. SPE wrote: "It may well be that some gate roads remain intact yet others collapse into the future. It is also possible that gate road collapsing will occur gradually over time." PHC at 314-5-54; *id.* at 314-5-64 (noting possibility that "gate road integrity [may] persist[] far into the future after the Amendment 3 mining ceases"). "Presently, the mine gate roads have tended to remain intact." *Id.* at 314-5-54; *accord* Groundwater Model at 314-6-23.

31. The Groundwater Model conducted a particle tracking evaluation for each scenario "using a 50 year time frame simulation." Groundwater Model at 314-6-25. The "particle tracking [did] not account for potential influence of adsorption/desorption influences for given analytes" and it did "not account for effects of dilution as other contributions to groundwater flow occur." *Id.* The particle tracking evaluation only "simulate[d] and track[ed] flow paths." *Id.*

32. In Scenario 2, in which the gate roads remain intact, the gob water would migrate beyond the mine permit boundary in numerous locations within 50

years. *Id.* at 314-6-26 & fig. 14M (bottom frame). In Scenario 1, in which the gate roads collapse, the gob water would migrate away from the mine, but would not move past the mine boundary within 50 years. *Id.* at 314-6-25 & fig. 14M (top frame). Within the 50 year timeframe, the gob water in Scenario 1 would migrate approximately half the distance it would in Scenario 2. 2013 EA at 7-8 (water would migrate approximately 2,000 feet in Scenario 2 and 1,000 feet in Scenario 1).

33. Summarizing the particle tracking analysis from the Groundwater Model, the PHC concluded: "[I]t is considered highly unlikely that groundwater quality will be degraded outside the mine permit boundary *within the next 50 years*. Any issues that may occur at some time in the distant future are likely to be limited to groundwater in the Mammoth Coal as it is relatively more permeable than either the Overburden or Underburden." PHC at 314-5-57 (emphasis added).

34. While Groundwater Model and PHC limited their analysis of impacts to groundwater *quality* to 50 years, their analysis of groundwater *quantity* turned on water levels outside the mine permit boundary recovering "at 50 years," meaning that *after* 50 years the same quantity of water would be available as was available at the inception of mining. Groundwater Model at 314-6-24; *id.*at 314-6-26 to -27 ("Much of the drawdown to the north/northwest of the LOM boundary will dissipate with time [i.e., after 50 years]."); PHC at 314-5-63 to-64 (noting that

drawdown "is predicted to recede following cessation of mining" and referencing 50-year timeframe from Groundwater Model). SPE discounted drawdown for 50 years because it will only be "temporal." PHC at 314-5-44. The CHIA adopted the same analysis, discounting impacts to water quantity from drawdown on the basis that water levels will "recover to near pre-mining levels approximately *50 years after* the cessation of mining." CHIA at 10-2 (emphasis added); *see also id.* 9-11 (same). Thus, for DEQ and SPE, the relevant time frame for water *quality* was the short-term, up to 50 years, and the relevant time frame for water *quantity* was the long-term, 50 years and beyond.

Mitigation

35. DEQ's CHIA states that "SPE is committed to replacing any waters affected by mine-related drawdown with a comparable permanent supply." *Id.* at 10-4. DEQ and SPE identified "relatively deep underburden sandstones" "as a source of replacement water if shallower supplies are impacted and must be replaced." 2013 EA at 6; PHC at 314-5-41 (noting "plans to use [deep Underburden] aquifer as a primary mitigation source").

36. SPE was uncertain whether the deep underburden aquifer has the capacity to support all potential mitigation needs. SPE wrote: "[I]f this aquifer is to be used to serve the existing uses, and also serve potentially as a mitigation sources [sic], a better understanding of its overall capacity to meet existing and potential

future demands is necessary." PHC at 314-5-42. SPE further cautioned, "While the evidence to date suggests that the deeper Underburden aquifer has the characteristics to meet existing demands, *what is not so clear is does that aquifer have the capacity to provide full-scale mitigation water* for wetlands and stream reaches." *Id.* at 314-5-35 (emphasis added). Underscoring this uncertainty, SPE concluded, "If significant mitigation flow from the Underburden either evolves, or becomes necessary, additional hydrogeologic evaluations will be necessary to ensure that existing groundwater users dependent upon the deeper Underburden are not adversely affected." *Id.* at 314-5-66. Accordingly, the PHC suggested a "supplemental investigation to assist in defining the capability of this aquifer to provide sufficient water for the present and future demands that could ensue if significant volumes of water were required for mitigation purposes." *Id.*

37. The Groundwater Model provided additional explanation about the multiple uncertainties that could limit or preclude use of the deep underburden aquifer as the primary source of mitigation water:

> One of the potentially more significant uses that has been proposed is to use this same source as a mitigation source for flowing springs, and for stream reaches in the Bull Mountain area. Some of the springs flow at very significant rates. For instance, spring 52455 (near northeastern corner of LOM) flows at rates commonly exceeding 10 gallons per minute. Such a flow rate exceeds the typical demands at the mine public water supply well (projected at 6 gpm). Given that there are a large overall number of springs, ponds, and identified

> stream reaches, seasonal flow rates could substantially exceed 100 gpm.
>
> Using the deep Underburden aquifer may have other issues as well, including differences in water quality between native spring/stream sources compared to the water quality of the deeper Underburden. There are likely to be issues related to the Beneficial Use application process of the Montana Department of Natural Resources and Conservation. Demonstration of a beneficial use is required before a permit will be issued by the DNRC. Such applications routinely receive objections so that in the event a permit is issued, the process can be rather lengthy. In the event the aforementioned hurdles could be overcome, it would still be necessary to convince the DNRC that the aquifer system has the capacity to meet all the existing uses plus intended uses before a permit could be obtained.

Groundwater Model, Attachment 3M (pdf. 85). SPE's existing public water supply well sourced in the deep underburden has a daily average pumping rate of 6 gpm. PHC at 314-5-34.

DEQ's Material Damage Assessment and Determination

38. The CHIA explained that by law DEQ must "determine whether . . . material damage outside the permit area has been prevented." CHIA at 2-1. The CHIA further explained that the "CHIA analysis" itself "must be sufficient" to make this determination. *Id.* Citing § 82-4-203(31), MCA, the CHIA acknowledged that "[v]iolation of a water quality standard, whether or not an existing water use is effected, is material damage." CHIA at 2-1 n.1. Thus, "material damage criteria include applicable numeric and narrative water quality

standards, and criteria established to protect existing beneficial uses of water." *Id.* at 2-1.

39. The CHIA then laid out the threshold and limits that should guide the material damage analysis and determination. *Id.* tbl. 2-1. The CHIA identified the following threshold indication of potential for material damage:

> Observation of persistent or long-term change in water quality within the permit boundary that is associated with mining and is approaching or commonly exceeds narrative or numeric (Circular DEQ-7) limits, may be expected to extend to areas outside the permit area with time and cannot be mitigated, treated, or replaced by alternate water supply.

Id.

40. The CHIA further established the following limit, at which material damage would occur:

> Degradation or reduction by coal mining and reclamation operations of water quality outside the permit area in a manner or to an extent that land uses or beneficial uses of water are adversely affected, or *violation of water quality standard occurs outside the permit area*.

Id. (emphasis added).

41. After describing relevant background and hydrology of the area, the CHIA considered probable effects of mining to groundwater, including the Mammoth Coal aquifer and the underburden. *Id.* at 9-10 to -13. The CHIA noted that while groundwater would flow toward the mine during mining, temporarily obviating pollution of groundwater outside the mine area, upon cessation of

mining, the mine would fill with water, which would become polluted and begin to migrate away from the mine:

> Because mine dewatering produces groundwater flow toward the mine working during mining, no water quality effects are expected during mining. After mining is completed, some of the mine gob will become saturated. Groundwater quality in the mine gob is expected to be degraded relative to the natural water quality, however, due to the small quantity of gob influenced water and the slow water movement in the Mammoth Coal this poor quality water is not expected to migrate outside the permit boundaries within 50 years after mining.

Id. 9-11. In response to discovery propounded by MEIC, DEQ refused to state how long the degraded gob water would continue to migrate away from the mine area. MEIC Ex. 11 at 20 [hereinafter DEQ Discovery Response].

42. Regarding the underburden, the CHIA found: "Similar to the Mammoth Coal, water quality in the upper underburden aquifer may be locally affected by poor water quality water from the mine gob after mining is completed and water levels in the mine recover." *Id.* 9-13.

43. The CHIA further noted that the decline in groundwater quality in the Mammoth Coal aquifer would be enough to require the water to be reclassified from high-quality Class II water to low-quality Class III groundwater:

> A decline of groundwater quality is expected as longwall mining and subsidence continue to produce additional panels of collapsed and mineralized rubble in the Caved Zone (gob). . . . The eventual groundwater quality within the mined-out or Caved Zone may become similar to the groundwater quality within abandoned coal mines near Roundup, MT where the average TDS, sulfate, and specific

> conductance concentrations are 2,042 mg/L, 1,106 mg/L, and 3,038 μS/cm, respectively. However, the groundwater quality within the Caved Zone may exceed these concentrations since the groundwater in the abandoned mines near Roundup does not come into contact with mineralized gob.

Id. 10-2; *see also* 2013 EA at 7 (anticipating change in specific conductance that would cause transition from Class II to Class III groundwater).

44. The CHIA did not state how long the degradation of water in the mine void would persist. In its response to discovery from MEIC, DEQ refused to state whether or when the water in the mine void would cease to have elevated levels of total dissolved solids (TDS), sulfate, or specific conductance (SC). DEQ Discovery Response at 21-22.

45. After setting out the relevant information about the effects of the mine expansion on water resources, the CHIA made its material damage assessment and determination:

> Post mining groundwater quality within the mined-out area (Caved Area) is expected to degrade after coming into contact with fresh rock surfaces exposed in subsidence fractures and mineralized rubble or gob. Oxidizing conditions are anticipated until after mining is complete and resaturation of the collapsed material has occurred. These conditions may result in sulfide oxidation, cation exchange, leaching, and weathering, which together may cause an increase in the concentrations of calcium, magnesium, sulfate, and sodium ions. . . . As explained above at 9.5.2, *any degradation of groundwater quality is not expected to render groundwaters unsuitable for current or anticipated use*. Accordingly, because current mining methods are proposed throughout the expanded permit area, material damage to the

> quality or quantity of groundwater resources outside the proposed permit area is not expected from continued underground mining.

CHIA at 10-4 (emphasis added). The CHIA's material damage assessment and determination did not address the material damage threshold or limit laid out earlier in the CHIA in Table 2-1. *Cf. id.* tbl. 2-1; *see supra* ¶¶ 39-40. The material damage assessment and determination did not address whether the 7,161-acre mine expansion would cause violations of water quality standards outside the permit area. *Cf. id.* at 10-4.

46. In its final EA, DEQ presented a different basis for concluding that there would be no degradation of groundwater outside the permit area. DEQ reasoned that various factors that the Groundwater Model expressly did not evaluate would limit the concentration of pollutants in the gob water as it migrates away from the mine:

> Particle tracking was conducted using the groundwater model to estimate the rate of movement of lower quality groundwater away from the mine in the Mammoth coal aquifer after mining ceases. The results of this modeling showed that particles placed near the edge of the mine voids traveled less than 2,000 feet in 50 years for the scenario where the gate roads remained intact forming a mine pool. Particle transport in the scenario where gate roads collapsed was less than 1,000 feet in 50 years. Because the particle tracking model uses conservative assumptions which increase particle transport rates, the actual distance of movement of lower quality water from the mine pool should be less than these estimates. Particle tracking also does not consider dilution or attenuation of lower quality groundwater which would occur during transport away from the mine. Because of

> these factors, no degradation of groundwater quality outside the permit area is expected to occur after mining.

2013 EA at 7-8.

Administrative Proceedings

47. MEIC appealed DEQ's approval of the mine expansion on two bases: first, DEQ's material damage assessment and determination "employed the incorrect legal standard"; and second, the record before the agency did not "affirmatively demonstrate" that the "mine expansion was designed to prevent material damage to the hydrologic balance." DEQ Ex. B at 1.

48. SPE subsequently moved to intervene in the appeal. On December 9, 2013, the hearing examiner granted SPE's motion to intervene pursuant to Montana Rule of Civil Procedure 24(a). Or. on Mot. to Intervene at 3 (Dec. 9, 2013).

49. On January 6, 2014, pursuant to an agreement among all parties, the hearing examiner adopted a procedural schedule for administrative review of the appeal. Or. Adopting Joint Stipulated Procedural Schedule for Administrative Review (Jan. 6, 2014).

50. The parties engaged in discovery. In its discovery requests, MEIC asked DEQ to "state how long, in years, DEQ anticipates that low-quality water

from the mine will continue to migrate away from the mine into downgradient portions of the Mammoth Coal aquifer." DEQ Discovery Resp. at 20.

51. DEQ's response simply directed MEIC to the administrative record and DEQ's decision documents:

> In this appeal, MEIC charges that DEQ's approval of SPE Amendment No. 3 violates the requirements of MSUMRA. The issuance of the permit is supported by the Written Findings, information provided in the application, including the PHC, and other information available to DEQ. All information, analyses, determination and conclusions by DEQ regarding impacts from activities described in the Amendment No. 3 application on water quality are set forth in those documents. These documents speak for themselves and specifically address the likelihood that groundwater with significantly higher TDS than normal condition will transport outside the life of mine boundary. To the extent that Interrogatory No. 1 calls on DEQ to speculate beyond information, analyses, determinations, and conclusions set forth in the documents described in this Answer, DEQ is unable to do so.

Id.

52. MEIC further asked DEQ to "state whether, regardless of whether the mine gate roads remain intact, groundwater from within the mine will migrate downgradient to areas beyond the mine permit boundary at some point in the future." *Id.* at 21.

53. DEQ again limited its response to the administrative record at the time of its permitting decision, stating that all relevant information was in the permitting

documents and that the agency was "unable" to "speculate beyond the information, analyses, determinations, and conclusions" in those documents. *Id.*

54. MEIC asked DEQ to state "when, in DEQ's estimation, water in the mine void will cease to have elevated levels of total dissolved solids, sulfate, and specific conductance." *Id.*

55. DEQ again limited its response to citing information in the administrative record at the time of the agency's permitting decision. DEQ stated that "[a]ll information, analyses, determination, and conclusion by DEQ regarding impacts" from the mine expansion "are set forth in those documents" and that the agency was "unable" to "speculate" beyond that information. *Id.* at 22.

56. On April 1, 2014, MEIC moved to amend its appeal to join the Sierra Club as a co-appellant. Appellant Mont. Envtl. Info. Ctr.'s Mot. to Amend & Join Sierra Club as Co-Appellant & Br. in Spt. (Apr. 1, 2014). DEQ did not oppose the motion, but SPE did. *Id.* at 2. The Board has not yet ruled on that motion.

57. On April 11, 2014, MEIC moved for summary judgment. DEQ filed a response brief. SPE filed a response and cross-motion for summary judgment. MEIC filed a reply. DEQ filed a surreply. SPE filed a reply in support of its motion for summary judgment. MEIC then filed a surreply.

58. On July 31, 2015, the Board heard oral arguments from the parties on the competing motions for summary judgment and ordered the parties to submit

proposed findings of fact and conclusions of law by September 11, 2015. Contested Case Hrg. Or. (July 29, 2015).

59. The Board finds that there are no genuine issues of material fact and that resolution of this matter is appropriate via summary judgment, based on the undisputed record evidence presented by the parties.

CONCLUSIONS OF LAW

The Board makes the following conclusions of law, including any conclusions of law found in the Findings of Fact.

A. Standard of Review

60. The Board reviews DEQ's decision to approve a coal mine expansion de novo, with no deference accorded to the agency. *Mont. Envtl. Info. Ctr. v. DEQ*, 2005 MT 96, ¶¶ 18, 26, 326 Mont. 502, 112 P.3d 964.

61. Under the Montana Strip and Underground Mine Reclamation Act (MSUMRA), any person adversely affected by DEQ's approval of an application to increase a mine's permit area "may request a hearing before the board." § 82-4-206(1)(c), MCA. "The contested case provisions of the Montana Administrative Procedure Act, Title 2, chapter 4, part 6, apply to a hearing before the board under subsection (1)." *Id.* § 82-4-206(2).

62. Under the Montana Administrative Procedure Act (MAPA), the Board may "receive evidence from the parties, enter findings of fact based on the

preponderance of the evidence presented and then enter conclusions of law based on those findings." *Mont. Envtl. Info. Ctr.*, ¶ 22 (citing §§ 2-4-612(1), 623, MCA).

63. Under MSUMRA, DEQ must withhold approval of a permit application unless and until the applicant demonstrates and DEQ finds in writing that the "proposed operation of the mining operation has been designed to prevent material damage to the hydrologic balance outside the permit area." § 82-4-227(3)(a), MCA. This analysis must be set forth in writing in a cumulative hydrologic impact assessment (CHIA). ARM 17.24.314(5). By law, the CHIA, itself, "must be sufficient to determine, for purposes of a permit decision, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area." *Id.*

64. Summary judgment is proper when the available evidence shows that "there is no general issue as to any material fact and that the movant is entitled to judgment as a matter of law." M.R.Civ.P. 56(c)(3).

65. In their briefs and statements at oral argument, the parties agreed that there are no disputed issues of fact and that all relevant facts are those compiled in the administrative record when DEQ's approved SPE's application, including the PHC, Groundwater Model, CHIA, and 2013 EA. Consequently, all parties agree that this matter is appropriate for resolution by summary judgment.

66. DEQ and SPE contend that DEQ should be permitted to support the adequacy of its CHIA and permitting decision with extra-record evidence, as well as with arguments and analyses that were never articulated in the CHIA. As support for its position, DEQ cites *Montana Environmental Information Center v. DEQ*, 2005 MT 96, 326 Mont. 502, 112 P.3d 964, and § 2-4-623(1), MCA.

67. The Board disagrees that DEQ should be allowed to raise new facts, argument, and analysis at this stage to support the adequacy of its CHIA and permitting decision. It is correct that in a contested case proceeding, the parties are entitled to present evidence and the Board is required to make findings of fact and conclusions of law. *Mont. Envtl. Info. Ctr.*, ¶¶ 22 (citing §§ 2-4-612(1), -623(1)-(3), MCA). However, the most basic requirement of evidence is that it must be relevant to be admissible. M.R.Evid. 402; § 2-4-612(2), MCA (contested case proceedings governed by rules of evidence). Under MSUMRA, DEQ's CHIA alone "must be sufficient to determine, for purposes of a permit decision, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area." ARM 17.24.314(5). Thus, the only relevant analysis is that contained within the four corners of the CHIA and the only relevant facts are those before the agency at the time of its permitting decision.

68. Further support for the Board's conclusion is found in ARM 17.24.405(6), which requires DEQ issue written findings based on record evidence

to support its permitting decision. The written findings must be shared with the interested public. *Id.* 17.24.405(5). These provisions, which require DEQ to provide specific reasons for its permitting decision (including those in the CHIA) based on evidence "compiled by the department," would be rendered a dead letter or hollow formality if, in a contested case proceeding, DEQ were permitted to present all new evidence, analysis, and argument to support its permitting decision that was never compiled in the record, articulated in its CHIA, or made available to the public. § 1-2-101, MCA (laws should not be construed in a way that renders other provisions meaningless); s*ee also NRDC v. OSM*, 89 I.B.L.A. 1, 29 (1985) ("The recitation of statutory findings is insufficient if the permit record does not affirmatively demonstrate that OSM [U.S. Office of Surface Mining] made a [CHIA] of all anticipated mining in the area and the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area."); *id.* at 32 (stating that only the regulatory authority's CHIA may satisfy the CHIA requirement).

69. Allowing DEQ to present new evidence, analysis, and argument to support its CHIA and permitting decision would also negate MSUMRA's goals of public participation. As noted, DEQ must provide the interested public with written findings based on record evidence demonstrating, among other things, that "cumulative hydrologic impacts will not result in material damage to the

hydrologic balance outside the permit area." ARM 17.24.405(5), (6)(c). These provisions allow the public to oversee DEQ's permitting decision and decide, in turn, whether to pursue an appeal and contested case. *Id.* 17.24.425(1). The public's ability to rely on DEQ's express written findings and analysis supporting its permitting decision is for naught if at the contested case stage, the agency is permitted to present extra-record evidence and manufacture novel analysis and argument. *See Friends of the Wild Swan v. DNRC*, 2000 MT 209, ¶ 35, 301 Mont. 1, 6 P.3d 972 ("The public is not benefited by reviewing an EIS [environmental impact statement] which does not explicitly set forth the actual cumulative impacts analysis and the facts which form the basis for the analysis."); *cf. NRDC*, 89 I.B.L.A. at 96-97 (Frazier, Admin. J, concurring) ("Like an environmental impact statement (and for similar reasons), the [CHIA] must 'explain fully its course of inquiry, analysis, and reasoning,' . . . ." (quoting *Minn. Pub. Interest Research Group v. Butz*, 541 F.2d 1292, 1299-300 (9th Cir. 1976))). In effect, DEQ's position would allow the agency to conceal its actual analysis and evidence until a member of the public makes the significant investment necessary to engage in extensive litigation in a contested case proceeding with the agency.

70. The Board notes that while DEQ asserts the right to provide new evidence, analysis, and argument to support its CHIA, in response to MEIC's discovery requests about the persistence and expected extent of groundwater

pollution, DEQ repeatedly stated that the relevant information was limited to the administrative record existing at the time of the permitting decision and that DEQ was "unable" to provide any information about anticipated groundwater pollution impacts beyond that contained in the record documents. DEQ Discovery Resp. at 20-22. If, as DEQ asserted in its discovery responses, the only relevant evidence is that contained in the permitting record, then extra-record evidence and novel analyses are also not relevant to the determination of the validity of DEQ's CHIA.

71. This is not to say that DEQ is limited in its permitting defense to presenting the administrative record to the Board and saying no more. DEQ's counsel may surely present argument to explain and demonstrate that the evidence before the agency at the time of its permitting decision and the analysis within the CHIA satisfy applicable legal standards. What the agency may not do is present newly developed evidence that was not before the agency at the time of its decision or analysis that was not contained within the CHIA. *See* ARM 17.24.314(5) (stating that the CHIA "must be sufficient" for the material damage determination); *id.* 17.24.405(6)(c) (stating that the permitting decision must be based on findings "on the basis of information set forth in the application or information otherwise available that is compiled by the department").

B. Statutory and Regulatory Background

72. Strip and underground coal mining is governed nationally by the Surface Mining Control and Reclamation Act (SMCRA), 30 U.S.C. §§ 1201-1328. Congress enacted SMCRA in response to widespread social and environmental abuse from the coal mining industry. *Id.* § 1201(c), (h), (k); *e.g.*, *Hodel v. Va. Surface Mining & Reclamation Ass'n, Inc.*, 452 U.S. 264, 277-80 (1981). Prior to the enactment of SMCRA, individual states had proven unwilling or unable to police the coal mining industry to prevent such abuse. *In re Permanent Surface Mining Regulation Litig.* (*In re Permanent*), 653 F.2d 514, 520 (D.C. Cir. 1981); *Hodel*, 452 U.S. at 280; John D. Edgcomb, Comment, *Cooperative Federalism and Environmental Protection: The Surface Mining Control and Reclamation Act of 1977*, 58 Tulane L. Rev. 299, 305-11 (1983).

73. The principle purpose of SMCRA is to "protect society and the environment from the adverse effects of surface coal mining." 30 U.S.C. § 1202(a). Under SMCRA, "[s]urface mining" includes "surface impacts incident to an underground coal mine." *Id.* § 1291(28)(A).

74. SMCRA establishes a system of cooperative-federalism in which states can assume responsibility for day-to-day regulation of coal mining operations, subject to federal oversight. *See In re Permanent*, 653 F.2d at 521 ("[C]ongress was not interested in perpetuating the existing tradition of state

mining regulation, and . . . Congress saw the need for both federal standards and federal oversight to guarantee an effective change.").

75. Under SMCRA, the U.S. Secretary of the Interior may grant a state regulatory authority over coal mining if the state establishes and demonstrates that it has the capacity to implement a program that meets minimum federal requirements. 30 U.S.C. § 1253(a)-(b). States are free to develop standards that exceed the minimum requirements of SMCRA. *Id.* § 1255(b). The State of Montana oversees an approved state regulatory program, though it remains subject to continuing federal oversight. *See generally* 30 C.F.R. Part 926.

76. As a safeguard against ineffective state regulation of coal mining operations, SMCRA contains important provisions for federal oversight and citizen participation in permitting decisions and enforcement. *In re Permanent*, 653 F.2d at 520-21; 30 U.S.C. §§ 1254(a)-(b), 1267(a), 1270(a)(2), 1271(a)-(b), 1276(e). Citizens are entitled to inspect permit applications, object to permit applications, administratively appeal permitting decisions, seek judicial review of administrative decisions, and bring citizen suits in state or federal court against state regulatory authorities and mine operators. 30 U.S.C. §§ 1257(e), 1263(b), 1264(c), (f), 1270(a), 1276(a)(2), (e).

77. A central purpose of SMCRA is to protect water resources from coal mine development. *Id.* § 1201(c). Citizens may petition regulators for a blanket

prohibition of coal mining that affects "aquifers and aquifer recharge areas" where mining will cause "substantial loss or reduction of *long-range productivity* of water supply." *Id.* § 1272(a)(3)(C) (emphasis added).

78. On lands where coal mining has not been prohibited outright, multiple provisions of SMCRA assure that mining may not proceed if it will cause undue damage to water resources. Any application for mining must include extensive and detailed information about the "hydrologic regime," including surface and groundwater that may be affected. *Id.* § 1257(b)(10)-(11). This information must be made available for public inspection. *Id.* § 1257(e).

79. The regulatory authority is prohibited from approving any mine permit application unless the "application affirmatively demonstrates" and the "regulatory authority finds in writing" that "the proposed operation . . . has been designed to prevent material damage to [the] hydrologic balance outside [the] permit area." *Id.* 1260(b)(3).

80. Under Montana's delegated program, DEQ regulates coal mining pursuant to the provisions of MSUMRA, §§ 82-4-201 to -254, MCA, and its implementing regulations ARM 17.24.301 to 1309. DEQ's regulation of coal mining is also subject to Montana's constitutional environmental protections. § 82-4-202(1), MCA; Mont. Const. art. II, § 3, art. IX, §§ 1-3.

81. Like SMCRA, MSUMRA requires DEQ to withhold approval of a mining permit application unless the applicant "affirmatively demonstrates" and the agency determines in writing based on record evidence that "the mining operation has been designed to prevent material damage to the hydrologic balance outside the permit area." § 82-4-227(3)(a), MCA; ARM 17.24.405(6) (agency may not issue permit unless and until agency finds in writing based on record evidence that the "cumulative hydrologic impacts will not result in material damage to the hydrologic balance outside the permit area").

82. In making any decision on a permit application, DEQ must prepare a cumulative hydrologic impact assessment, or "CHIA." ARM 17.24.314(5). The CHIA "must be sufficient to determine, for purposes of a permit decision, whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area." *Id.*

83. MSUMRA defines "material damage":

> "Material damage" means, with respect to the protection of the hydrologic balance, degradation or reduction by coal mining and reclamation operations of the quality and quantity of water outside of the permit area in a manner or to an extent that land uses or beneficial uses of water are adversely affected, water quality standards are violated, or water rights are impacted. *Violation of a water quality standard, whether or not an existing use is affected, is material damage.*

§ 82-4-203(31) (emphasis added).

84. The U.S. Secretary of the Interior struck down amendments to MSUMRA by the 2003 Montana Legislature that attempted to limit consideration of impacts on water resources to only those impacts that would affect "uses of land and water within the area affected by mining and the adjacent area." 70 Fed. Reg. 8002, 8004-05 (Feb. 16, 2005).

C. DEQ's CHIA Employed an Incorrect Material Damage Standard

85. As a matter of law, DEQ's CHIA employed an incorrect legal standard in its material damage assessment and determination. Thus, the CHIA was not "sufficient to determine . . . whether the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area." ARM 17.24.314(5).

86. MSUMRA specifically requires DEQ to assess whether a proposed mining operation has been designed to prevent material damage to the hydrologic balance outside the permit area. § 82-4-227(3)(a), MCA; ARM 17.24.314(5), 405(6)(c). Material damage is statutorily defined to include "[v]iolation of a water quality standard, whether or not an existing use is affected." § 82-4-203(31), MCA.

87. The material damage assessment and determination in DEQ's CHIA failed entirely to assess whether the proposed mining operation will cause violation of water quality standards outside the permit area. Instead, the CHIA determined that no material damage was expected because "any degradation of groundwater

quality is not expected to *render groundwaters unsuitable for current or anticipated use*." CHIA at 10-4.

88. DEQ's material damage assessment and determination failed to address either the threshold or limit for material damage to groundwater quality that the CHIA itself laid out in Table 2-1. *Id.* tbl. 2-1. The material damage determination failed to assess, as a threshold, whether there may be any "persistent or long-term change in water quality within the permit area" that "is approaching or commonly exceed[ing] narrative or numeric limits" and "may be expected to extend to areas outside the permit area with time." *Compare id.* tbl. 2-1, *with id.* at 10-4. The CHIA's material damage assessment did not address the limit of whether "violation of water quality standard [would occur] outside the permit area." *Compare id.* tbl. 2-1, *with id.* at 10-4.

89. The CHIA's complete failure to address applicable water quality standards when making the material damage assessment and determination was unlawful and in violation of §§ 82-4-203(31), 227(3)(a), MCA, and ARM 17.24.314(5), 405(6)(c). *See NRDC v. OSM*, 89 I.B.L.A. at 28-33 (finding CHIA unlawful because it failed to adequately address impacts to groundwater).

90. DEQ contends that the standard employed in the material damage assessment and determination in the CHIA—that no material damage is expected because "any degradation of groundwater quality is not expected to render

groundwaters unsuitable for current or anticipated use," CHIA at 10-4—is equivalent to applicable narrative and nondegradation standards for salinity, which, DEQ contends, is the "sole parameter of concern." DEQ Resp. Br. at 29-31 (May 30, 2014).

91. DEQ's argument is mistaken. First, DEQ is wrong that MEIC's sole concern is with DEQ's failure to consider potential water quality violations of narrative and nondegradation standards for salinity. MEIC's appeal raised two separate claims: first, that DEQ's material damage assessment "employed the incorrect legal standard" and, second, that record evidence did not support DEQ's conclusion that the mine expansion was "designed to prevent material damage to the hydrologic balance." DEQ Ex. B at 1. While MEIC's second claim focused on salinity pollution, MEIC Opening Br. at 24-30 (Apr. 11, 2014), its first claim addressed DEQ's failure "to address potential violations of water quality standards" in general, *id.* at 20-24.

92. Second, the material damage standard employed in the CHIA's material damage assessment and determination was not equivalent to any of the water quality standards applicable to Class II groundwater.

93. Administrative Rules of Montana establish three general water quality standards applicable to Class II groundwater:

> Except as provided in ARM 17.30.1005(2), a person may not cause a violation of the following specific water quality standards for Class II ground water:
>
> (i) the human health standards for ground water listed in DEQ-7;
>
> (ii) for concentrations of parameters for which human health standards are not listed in DEQ-7, no increase of a parameter to a level that renders the waters harmful, detrimental, or injurious to the beneficial uses listed for Class II water. . . .
>
> (iii) no increase of a parameter that causes a violation of the nondegradation provisions of 75-5-303, MCA.

ARM 17.30.1006(2)(b).

1. DEQ's CHIA Failed to Address Numeric Water Quality Standards.

94. The CHIA's material damage assessment and determination failed to address the numeric standard set forth in ARM 17.30.1006(2)(b)(i); that is, whether ground water pollution from the mine would violate the human health standards listed in DEQ-7. *Cf.* CHIA at 10-4. DEQ attempts to excuse this failure by asserting that numeric standards are not of concern because groundwater monitoring wells have not detected any exceedances of numeric standards. DEQ Surreply at 3-4 (July 30, 2014). The CHIA, however, refutes DEQ's argument: "No exceedances of DEQ-7 standards were observed in any of the Mammoth Coal wells. *Because mine dewatering produces groundwater flow towards the mine workings during mining, no water quality affects are expected during mining.*" CHIA at 9-11 (emphasis added). The absence of exceedances in groundwater

monitoring wells is not because there is no potential for such exceedances. Instead, as the CHIA clarifies, it is because at present groundwater is flowing "towards the mine working[s]." Only after mining ceases will "degraded" gob water from the mine workings begin to flow away from the mine. *Id.* at 9-11, -13; PHC 314-5-53, -56 to -58, -63 to -64; Groundwater Model 314-6-22 to -24.

2. DEQ's CHIA Failed to Address Narrative Water Quality Standards.

95. The standard applied by the CHIA—"not expected to render groundwaters unsuitable for current or anticipated use," CHIA at 10-4—is not equivalent to the narrative standard for Class II groundwater. The narrative standard for Class II groundwater prohibits increases in pollution that "render the waters harmful, detrimental, or injurious to the beneficial uses of Class II water." ARM 17.30.1006(2)(b)(ii). The beneficial uses of Class II groundwater include:

(i) public and private water supplies;

(ii) culinary and food processing purposes;

(iii) irrigation of some agricultural crops;

(iv) drinking water for most livestock and wildlife; and

(v) most commercial and industrial purposes.

ARM 17.30.1006(2)(a). The CHIA's material damage assessment does not address each beneficial use of Class II water. *Cf.* CHIA 10-4. The only current and anticipated uses identified by the CHIA were "livestock and domestic use." *Id.* at

2-4. "[C]urrent and anticipated use" is a narrower category than "beneficial uses" and is, therefore, less protective. The standard employed for the CHIA's material damage assessment and determination was not equivalent to the narrative water quality standard applicable to Class II groundwater.

96. The CHIA and record evidence indicate the potential for groundwater outside the permit area to degrade from Class II to Class III. *See infra* Part D. The beneficial uses of Class III groundwater include:

> (i) irrigation of some *salt tolerant* crops;
>
> (ii) *some* commercial and industrial purposes;
>
> (iii) drinking water for *some* livestock and wildlife; and
>
> (iv) drinking, culinary, and food processing purposes where the specific conductance is less than 7,000 microSiemens/cm at 25°C.

ARM 17.30.1006(3)(a) (emphasis added). Degradation of groundwater from Class II to Class III either eliminates or limits each designated beneficial use. *Compare* ARM 17.30.1006(2)(a), *with* ARM 17.30.1006(3)(a). Pollution that eliminates or curtails a beneficial use is "harmful, detrimental, or injurious" to that beneficial use and therefore violates the narrative standard for Class II groundwater. *See* ARM 17.30.1006(2)(b)(ii).

97. DEQ contends that potential degradation of groundwater from Class II to Class III would not violate the narrative water quality standard because the uses that would be eliminated—water supply and irrigation—are "not feasible" due to

the "low transmissivity" of the Mammoth Coal aquifer. DEQ Resp. Br. at 31-32, 35. The Board disagrees.

98. First, DEQ's argument, which focuses exclusively on uses that are eliminated, does not account for those uses of Class II water that, while not eliminated, are *limited* if the water is degraded to Class III. Class II groundwater may be used as drinking water for "most livestock and wildlife," but Class III groundwater may only be used as drinking water for "some livestock and wildlife." *Compare* ARM 17.30.1006(2)(a)(iv), *with id.* 17.30.1006(3)(a)(iii). Class II groundwater may be used for "most commercial and industrial purposes," but Class III groundwater may only be used for "some commercial and industrial purposes." *Compare id.* 17.30.1006(2)(a)(v), *with id.* 17.30.1006(3)(a)(ii). Thus, degradation from Class II to Class III may be "harmful, detrimental, or injurious" to some beneficial uses, even when it does not eliminate those uses altogether.

99. Second, DEQ's argument about *eliminated uses* is unsupported by the law or the facts. As a matter of law, there is no "feasibility" exception to the narrative water quality standards for Class II groundwater. Regulations create a narrow exception to water quality standards for groundwater with low hydraulic conductivity, ARM 17.30.1006(5), but that exception is only for Class III and Class IV groundwater and it is only for groundwater with a hydraulic conductivity of less than 0.1 feet per day. Because most groundwater in the Mammoth Coal

aquifer is Class II groundwater with a hydraulic conductivity of 0.16 feet per day, CHIA at 8.5 & tbl. 8-5; 2013 EA at 7, the narrow exception does not apply. The regulations' express recognition of this narrow exception precludes an adjudicative body or court from implying any additional exceptions. *Hillman v. Maretta*, 133 S. Ct. 1943, 1953 (2013); *Omimex Canada, Ltd. v. State*, 2008 MT 403, ¶ 25, 347 Mont. 176, 201 P.3d 3.

100. Further, there is no evidence in the record that groundwater from the Mammoth Coal aquifer is not capable of being used for irrigation or public or private water supply. The only citation offered by DEQ regarding irrigation says nothing about the suitability of the Mammoth Coal aquifer for irrigation. *Cf.* DEQ Resp. Br. at 31, ¶ 99 (citing CHIA 8-5); *see* CHIA at 8-5 (noting low hydraulic conductivity of Mammoth Coal aquifer and stating that only a "few production wells are completed in the coal").

101. Nor does the record compiled by DEQ demonstrate that the Mammoth Coal aquifer is not suitable for public or private water supplies due to its low hydraulic conductivity. In the arid Bull Mountains, the Mammoth Coal aquifer is an important source of water. Its geometric mean hydraulic conductivity is an order of magnitude higher than the overburden and the underburden. CHIA 8-5 & tbl. 8-5. Some of the highest yielding wells and springs are sourced in the Mammoth Coal aquifer, including one spring (spring 53475) yielding nearly 10 gpm. *Id.* tbl.

6-1 (well 19944) & tbl. 8-1 (springs 53455, 53485, 53475). Domestic wells also tap the Mammoth Coal aquifer. PHC at 314-5-12 (stating that "a few domestic wells tap the Mammoth Coal as a water supply"); CHIA at 8-5 (noting that a "few production wells are completed in the coal") & tbl. 6-1 (identifying domestic wells 168805 and 167885 drawing water in part from Mammoth Coal aquifer). The Board notes that a pumping rate of 6 gpm is sufficient for SPE's public water supply well (sourced in the deep underburden). PHC at 314-5-34. No evidence shows that the Mammoth Coal aquifer cannot produce a similar yield.

102. While the CHIA states that the hydraulic conductivity of the Mammoth Coal aquifer is "*typically* inadequate to provide a reliable source of well water," it acknowledges that a "few production wells are completed in the coal." CHIA at 8-5 (emphasis added); *accord* PHC at 314-5-12. Nor is it significant that no wells produce water solely from the Mammoth Coal aquifer. DEQ Surreply at 5. That does not mean that it is *not possible* for wells to produce water solely from the Mammoth Coal aquifer. Numerous springs, including high yielding springs, are sourced in the Mammoth Coal aquifer. CHIA tbl. 8-1. While existing wells in the Mammoth Coal aquifer may also draw water from the overburden or the upper underburden, *id.* tbl. 6-1, post-mining water pollution is expected to affect both the upper underburden and the fractured zone above the mine void, CHIA at 9-12 to -13; PHC at 314-5-47. In sum, no evidence in the record demonstrates that the

Mammoth Coal aquifer could not feasibly be a source of irrigation, or public or private water supplies.

103. DEQ contends that the CHIA's failure to consider all beneficial uses was justified because "the provisions of MSUMRA that protect the hydrologic balance must be construed to require only reasonable and feasible constraints on coal mine operations." DEQ Resp. Br. at 35. At oral argument, counsel for DEQ went further, averring that the hydrologic protections of MSUMRA may not be construed in a manner that would prevent DEQ from permitting a coal mining operation. The Board disagrees.

104. As support for its position, DEQ cites § 82-4-231(10)(k), MCA, and a sentence of SMCRA's legislative history. Section 82-4-231(10)(k), MCA, establishes a performance standard by which a coal mine operator must "*minimize* disturbances to the prevailing hydrologic balance at the mine site and in adjacent areas." *Id.* (emphasis added). But an operator's duty to minimize disturbance to the hydrologic balance does not alter DEQ's duty to withhold a permit in the first instance unless and until the applicant demonstrates and the record shows that the "operation has been designed to *prevent* material damage to the hydrologic balance outside the permit area." *Id.* § 82-4-227(3)(a) (emphasis added). "Prevent" does not mean "minimize." The Board must honor the legislative decision to use "prevent," not "minimize," in § 82-4-227(3)(a), MCA. *See SEC v. McCarthy*, 322

F.3d 650, 656 (9th Cir. 2003) ("[T]he use of different words or terms within a statute demonstrates that Congress intended to convey a different meaning to those words."). This accords with the U.S. Office of Surface Mining's (OSM) original understanding of the identical language from the federal statute, SMCRA. 48 Fed. Reg. 43956, 43965 (Sept. 26, 1983) (stating that the hydrologic protection plan's goal is "to *minimize* disturbance to the hydrologic balance in the permit area and adjacent area, and to *prevent* material damage outside the permit area" (emphasis added)).

105. DEQ also cites a sentence of legislative history that reads: "The total prevention of adverse hydrologic effects from mining is impossible and thus the bill sets attainable standards to protect the hydrologic balance of impacted areas within limits of feasibility." H.R. Rep. No. 95-218, at 110 (1977), *cited in* DEQ Resp. Br. at 33. But the next sentence of the report clarifies that the "imperative" provisions of SMCRA (like 30 U.S.C. § 1260(b)(3) and the Montana equivalent at § 82-4-227(3)(a)) may preclude mining altogether in certain critical and hydrologically fragile areas to prevent irreparable damage: "For most critical areas [and] [in] certain fragile hydrologic settings, the bill sets standards *that are imperative* to begin to assure that adverse impacts to the hydrologic balance are not irreparable." H.R. Rep. No. 95-218, at 110 (1977) (emphasis added); *see also* 30 U.S.C. § 1272(a)(2) (prohibiting coal mining in areas where full reclamation is not

feasible); *id.* § 1260(b)(5) (prohibiting coal mining in alluvial valley floors); § 1272(a)(3)(C) (allowing blanket prohibition of mining in hydrologically fragile areas, such as aquifer recharge areas).

106. Contrary to DEQ's position, MSUMRA (like SMCRA) requires "the adjustment of [a mining] operation to the environmental protection standards rather than the opposite." H.R. Rep. No. 95-218, at 115. The drafters of SMCRA "rejected the notion that the standards should be adjusted to what individual mine operators state they can or cannot afford." *Id.*; *accord* S. Rep. No. 95-128, at 51-52 (1977) (noting that pre-SMCRA laws were "inadequate" because "they [were] tailored to suit ongoing mining practices, rather than requiring modification of mining practices to meet established environmental standards"). If a mining operation cannot meet mandatory legal standards, the DEQ's legal duty is to deny approval of the mining operation unless and until the mining operation can be adjusted to meet the standard. § 82-4-227(3)(a), MCA. DEQ may not adjust the *law* to allow a mining operation to proceed.

3. DEQ's CHIA Failed to Address Nondegradation Water Quality Standards.

107. Contrary to DEQ's assertion, the standard applied in the CHIA's material damage assessment and determination was not equivalent to the nondegradation standard for salinity.

108. The nondegradation standard for Class II groundwater prohibits increases in any parameter that would cause "a violation of the nondegradation provisions of 75-5-303, MCA." ARM 17.30.1006(2)(b)(iii). Under the administrative regulations implementing the nondegradation provisions of § 75-5-303, MCA, a change in groundwater quality is deemed insignificant and, therefore, exempt from further nondegradation review if it meets criteria set forth in ARM 17.30.715(1)-(2). § 75-5-301(5)(c), MCA.

109. An increase in concentration of salinity may be deemed insignificant if it satisfies the initial criteria of ARM 17.30.715(1)(h). However, before making any nonsignificance determination, DEQ must also consider whether an increase in salinity that otherwise satisfies the criteria of ARM 17.30.715(1)(h) should nevertheless be deemed significant and thus subject to further nondegradation review on the basis of various factors set forth in ARM 17.30.715(2). *Clark Fork Coal. v. DEQ*, 2008 MT 407, ¶ 43, 347 Mont. 197, 197 P.3d 482. One relevant consideration under ARM 17.30.715(2) is whether the pollution at issue will continue in perpetuity. § 75-5-301(5)(c)(iii), MCA (nondegradation must consider "the length of time degradation will occur"); *Clark Fork Coal.*, ¶¶ 43, 49 (holding DEQ violated nondegradation standard when it failed to undertake "an independent examination of the length of time the proposed discharge of polluted water will continue" under ARM 17.30.715(2)).

110. Under ARM 17.30.715(1)(h), an increase in salinity may be deemed insignificant if it "will not have a *measurable effect* on any existing or anticipated use or cause measurable changes in aquatic life or ecological integrity." ARM 17.30.715(1)(h) (emphasis added). As noted, the CHIA determined that material damage was not expected to occur because "any degradation of groundwater quality is not expected to *render groundwaters unsuitable* for current or anticipated use." CHIA at 10-4 (emphasis added). The standard employed in the material damage determination of the CHIA is less stringent than the nonsignificance nondegradation standard. Thus, the standard employed in the CHIA was not equivalent to the nondegradation water quality standard for Class II water.

111. Further, even if the standard employed in the CHIA were equivalent to the standard in ARM 17.30.715(1)(h), DEQ would still have been required to consider the discretionary factors set forth in ARM 17.30.715(2), including the length of time that degradation will occur. § 75-5-301(5)(c)(iii), MCA; *Clark Fork Coal.*, ¶¶ 43, 49. The CHIA nowhere examines the length of time that polluted water will continue to migrate from the mine void after the cessation of mining, beyond the arbitrary 50-year horizon established in the Groundwater Model. *Cf.* CHIA 9-11, 10-4. Indeed, in its responses to MEIC's specific discovery requests, DEQ asserted that it was "unable" to "speculate" on how long the water in the

mine void would continue to degrade or how long the degraded water would continue to migrate away from the mine. DEQ Discovery Resp. at 20-23.

112. The CHIA's material damage assessment and determination was not equivalent to the nondegradation standard for Class II groundwater because it did not assess whether changes in salinity concentrations would have a "measurable effect" on existing and anticipated uses as required by ARM 17.30.715(1)(h) and because the analysis did not consider the discretionary factors of ARM 17.30.715(2), including specifically the length of time that the degraded water would continue to migrate from the mine. *Clark Fork Coal.*, ¶ 49.

113. In sum, the CHIA's material damage assessment and determination failed to address whether the proposed mining operation would cause violation of water quality standards outside the permit boundary. As such, it was insufficient as a matter of law.

D. Record Evidence Does Not Affirmatively Demonstrate that the Proposed Operation Was Designed to Prevent Material Damage to the Hydrologic Balance Outside the Permit Area.

114. Section 82-4-227(3)(a), MCA, provides:

> The department may not approve an application for a strip- or underground-coal-mining permit or major revision unless the application affirmatively demonstrates that:
>
> (a) the assessment of the probable cumulative impact of all anticipated mining in the area on the hydrologic balance has been made by the department and the proposed operation of the mining operation has

> been designed to prevent material damage to the hydrologic balance outside the permit area . . . .

115. The implementing regulation, ARM 17.24.405(6)(c), provides:

> The department may not approve an application submitted pursuant to ARM 17.24.401(1) unless the application affirmatively demonstrates and the department's written findings confirm, on the basis of information set forth in the application or information otherwise available that is compiled by the department, that:
>
> . . .
>
> (c) the hydrologic consequences and cumulative hydrologic impacts will not result in material damage to the hydrologic balance outside the permit area; . . . .

116. By law the burden of proof in the permitting process rests with the mine applicant and DEQ to demonstrate with record evidence that material damage will not result. § 82-4-227(3)(a), MCA; ARM 17.24.405(6)(c).

117. Here, SPE's application and the record before DEQ showed only that the proposed operation may or may not be designed to prevent material damage to the hydrologic balance outside the permit area within 50 years after mining. This showing does not constitute affirmative evidence that the "cumulative hydrologic consequences *will not result* in material damage to the hydrologic balance outside the permit area." ARM 17.24.405(6)(c) (emphasis added).

118. The record demonstrates that at present the groundwater in the Mammoth Coal aquifer is predominantly high-quality Class II water. 2013 EA at 7 (average specific conductance is 2,272 microSiemens/cm); CHIA at 8-5 ("[W]ater

from most Mammoth Coal wells is Class II groundwater."); 1992 EIS at III-18 (groundwater in mine area is Class II). DEQ and SPE agree that after the cessation of mining the gob water in the mine void will degrade from Class II to Class III. CHIA at 10-2 to -3; 2013 EA at 7; PHC at 314-5-52; *accord id.* 314-5-48 to -50.

119. Because degradation of high-quality Class II groundwater to low-quality Class III groundwater eliminates some beneficial uses and limits others, it violates the narrative water quality standard of ARM 17.30.1006(2)(b)(ii) (prohibiting increase in any parameter that "renders the waters harmful, detrimental, or injurious" to beneficial uses); *compare id.* 17.30.1006(2)(a) (beneficial uses of Class II groundwater), *with id.* 17.30.1006(3)(a) (beneficial uses of Class III groundwater).

120. The only analysis that considered migration of the plume of polluted gob water beyond the mine permit boundary was the Ground Water Model. The Groundwater Model conducted a particle tracking evaluation under two scenarios, one in which the gate roads collapse and one in which they remain intact. Groundwater Model at 23-26. Neither the Groundwater Model, the PHC, nor the CHIA stated that either scenario was more likely than the other. *See* PHC at 314-5-54 ("Presently, the mine gate roads have tended to remain relatively intact. . . . It may well be that some gate roads remain intact and yet others collapse into the future."); CHIA at 10-2 ("After the conclusion of mining, the gate roads may

remain intact or may collapse . . . ."); Groundwater Model at 314-6-23 (expressing uncertainty about whether gate roads will collapse).

121. Using a 50-year timeframe, the particle tracking evaluation determined that in Scenario 2, in which the gate roads remain intact, the degraded gob water will migrate beyond the mine permit boundary in numerous locations. Groundwater Model at 314-6-26 & fig. 14M (lower frame). In Scenario 1, in which the gate roads collapse, the gob water would migrate more slowly, traveling approximately half the distance it would in Scenario 2. Groundwater Model at 314-6-25 & fig. 14M (upper frame); 2013 EA at 7-8. In Scenario 1, the degrade gob water would migrate towards, but would not pass, the mine permit boundary within 50 years. Groundwater Model at 314-6-25 & fig. 14M (upper frame).

122. The record evidence presented by SPE in the Groundwater Model and the other evidence before DEQ at the time of its decision demonstrated only that it was as likely as not that that degraded water that violates water quality standards would migrate beyond the mine permit boundary within 50 years. The lack of any likelihood or defensible level of confidence that material damage will not result does not constitute an affirmative demonstration of record evidence that the expansion of the Bull Mountain Mine is designed to prevent material damage to the hydrologic balance outside the permit area. *Cf.* § 82-4-227(3)(a), MCA; ARM 17.24.314(5); ARM 17.24.405(6)(c). To approve a coal mining permit, the law

requires DEQ to determine that "cumulative hydrologic impacts *will not* result in material damage to the hydrologic balance outside the permit area." ARM 17.24.405(6)(c) (emphasis added).

123. In light of the uncertainty surrounding whether the gate roads will remain intact, DEQ's 2013 EA determined that material damage outside the permit area would not occur because of factors that the Groundwater Model had failed to address:

> Because the particle tracking model uses conservative assumptions which increase particle transport rates, the actual distance of movement of lower quality water from the mine pool should be less than these estimates. Particle tracking also does not consider dilution or attenuation of lower quality groundwater which would occur during transport away from the mine. Because of these factors, no degradation of groundwater quality outside the permit area is expected to occur after mining.

2013 EA at 8; *see also* Groundwater Model at 314-6-25 (noting that "particle tracking does not account for potential influence of adsorption/desorption influence of given analytes" and "does not account for the effects of dilution as other contributions to groundwater flow occur"). This analysis does not meet the standard of § 82-4-227(3)(a), MCA, and ARM 17.24.314(5), 405(6)(c). An *analysis that is not conducted* and *evidence that is not presented* does not constitute an "affirmative[] demonstrat[ion]" "on the basis of information set forth in the application or information otherwise available that is compiled by the department." ARM 17.24.405(6).

124. In briefing before this Board, DEQ developed various additional arguments. DEQ contends that the evidence before the agency was sufficient to support permit approval because the gob water is not likely to migrate a great distance beyond the mine permit boundary within 50 years and because the pollution impacts would be limited to the Mammoth Coal aquifer and upper underburden. DEQ Resp. Br. at 37 ("[G]ob water will migrate no further than a few hundred feet outside the permit boundary fifty years after mining . . . ."); *id.* at 40 ("Contamination by higher salinity water migrating outside the permit area will only affect, if at all, water in the Mammoth Coal, and possibly the upper underburden . . . ."). This argument fails because it is premised on the mistaken belief that § 82-4-227(3)(a), MCA, does not "establish[] a prohibition" but merely requires DEQ to develop "reasonable and feasible measures . . . to minimize potential impacts." DEQ Resp. Br. at 39. As explained above, *see supra* Part C.2, § 82-4-227(3)(c), MCA, employs the term "prevent" and prevent does not mean "minimize," a term used elsewhere in the statute. The express language of the statute allows no exception for small amounts of material damage that harm only one, potentially two, aquifers.

125. DEQ argues in its briefs that the gob water will not migrate beyond the mine permit boundary because "the gate roads are designed to collapse." DEQ Resp. Br. at 37; DEQ Surreply at 6. DEQ's proposed analysis, however, was not presented in the CHIA or the 2013 EA and, as such, is not properly before the Board. *See* ARM 17.24.314(5) (providing that the CHIA "must be sufficient" for the material damage determination). Both the CHIA and the PHC determined that it was uncertain whether the gate roads would collapse. CHIA at 10-2 (stating that "the gate roads may remain intact or may collapse"); PHC at 314-5-54 (stating that the "mine gate roads have tended to remain intact"); *id.* at 315-5-64 (acknowledging possibility that the "gate road integrity [may] persist[] far into the future"). As mentioned, the transparency requirements and the public oversight provisions of MSUMRA would be nullified if, during a contested case proceeding, DEQ could present analyses and arguments that were never articulated in the CHIA or its other written findings. *Cf.* ARM 17.24.314(5) (CHIA "must be sufficient" for material damage determination); *id.* 17.24.405(6)(c) (application must "affirmatively demonstrate[]" and DEQ's "written findings" must confirm based on record evidence that "cumulative hydrologic impacts will not result in material damage"); *see supra* Part A.

126. DEQ's argument is also unavailing on the merits. The sole support cited by DEQ is two sentences from an application appendix: "Ground movements

should be relatively uniform and subsidence gradual because of the massive sandstone beds. These should concentrate the overburden loads on the gate pillars causing them to crush and lower the surface uniformly." DEQ Ex. K at 3. The CHIA also stated that the gate roads are "designed to . . . yield as the adjacent panel is mine-out." CHIA at 3-2. These statements, however, cannot bear the weight DEQ places on them. First, as SPE pointed out, the actual operation of the mine has disproved the initial engineering prediction: "Presently the gate roads are remaining intact." Groundwater Model at 314-6-23; *accord* PHC 314-5-54 ("Presently, the mine gate roads have tended to remain intact."). It would be illogical and unreasonable for DEQ to premise its material damage analysis on a design prediction (prompt gate road collapse) that has proven inaccurate. Accordingly, neither SPE's PHC nor DEQ's CHIA premised its material damage analysis on the assumption that the gate roads would promptly collapse and thus prevent degraded water from migrating. Instead, as noted, both SPE and DEQ stated that the gate roads may or may not collapse and, accordingly, evaluated two scenarios to account for this uncertainty. CHIA at 10-2; PHC at 314-5-54, -64; Groundwater Model 314-6-23 to -26.

127. DEQ's argument about the gate roads also fails because it is premised on the mistaken belief that the material damage determination may be limited to an arbitrary 50-year horizon. The Groundwater Model expressly limits its analysis to

50-years. Groundwater Model at 314-6-25 ("The particle tracking was conducted using a 50 year time frame simulation."). Thus, in the most optimistic scenario in which all gate roads promptly collapse (a scenario that has not happened and that both the CHIA and PHC concluded is uncertain), the Groundwater Model concludes that "groundwater leaving the mine workings is predicted to remain well within the LOM [life of mine] boundary *at the end of 50 years*." PHC at 314-5-56 (emphasis added). DEQ's CHIA adopted the same temporal limitation, concluding that "this poor quality [gob] water is not expected to migrate outside the permit boundaries within 50 years after mining." CHIA at 9-11. There is no record evidence showing that the degraded gob water will remain within the mine permit boundary over the long term, even if the gate roads promptly collapse. In its discovery responses DEQ refused to "speculate" on whether, in the event of gate road collapse, the gob water would eventually leave the mine permit boundary. DEQ Discovery Resp. at 21.

128. By law, DEQ may not ignore the long-term water pollution impacts of the mine. Section 82-4-227(3)(a), MCA, does not contain an exception for material damage outside the permit area that occurs 50 years after mining. The Board declines DEQ's invitation to write such an exception into the law.

129. The legislative history of SMCRA shows that Congress enacted the CHIA provision of the law to prevent "long-term impacts" to water resources. H.R.

Rep. No. 95-218, at 113 (1977) ("These specific standards are emphasized at the permit approval stage due to the critical and *long-term impacts* mining can have on the water resources of the area affected." (emphasis added)); *see also* 30 U.S.C. § 1272(a)(3)(C) (allowing states to prohibit mining in areas if mining could cause "reduction of *long-range* productivity of water supply" (emphasis added)); *accord* § 82-4-228(2)(b)(iii), MCA (same). When OSM promulgated its initial regulations implementing SMCRA's hydrology protections, the federal agency clarified that the time frame for the analysis of impacts to water resources must be coextensive with the time period that such impacts are expected to persist: "[T]he impacts resulting from [mining and reclamation] activities may extend beyond the time required to complete actual mining and reclamation. The predictive analysis in the PHC determination [and, therefore the CHIA] *must cover the full extent of such impacts*." 48 Fed. Reg. at 43971 (emphasis added). As the Montana Supreme Court has taught and Montana history repeatedly shows, long-term pollution impacts from mining are among the most serious environmental problems, because after a mine closes, "[the mine operator] will be gone, and the polluted discharge will continue and cannot be shut off." *Clark Fork Coal.*, ¶ 44.

130. Indeed, with respect to water *quantity*, the CHIA determined that the appropriate time frame for analysis was the period 50 years *after* cessation of mining. The CHIA determined that the impacts of drawdown outside the permit

boundary were acceptable because groundwater "will recover to near pre-mining levels approximately *50 years after* the cessation of mining." CHIA at 10-2. DEQ cannot have it both ways: if the period after 50 years is appropriate for assessing impacts to water *quantity*, it must also be appropriate for assessing impacts to water *quality*. *Nat'l Parks Conservation Ass'n v. EPA*, 788 F.3d 1134, 1145 (9th Cir. 2014) ("inconsistency" of agency analysis is the "hallmark of arbitrary action" (quoting *Sierra Club v. EPA*, 719 F.2d 436, 459 (D.C. Cir. 1983))). In short, there is no basis in law for limiting the material damage assessment and determination to 50 years.

131. DEQ's final argument is that even if the polluted gob water migrates beyond the mine permit boundary, any polluted water could be replaced by water from the deep underburden aquifer. DEQ Resp. Br. at 41-42; DEQ Surreply at 9-10. The Board disagrees.

132. First, DEQ's mitigation argument repeats the CHIA's misunderstanding of material damage to the hydrologic balance. Replacing water supplies polluted by the mining operation only alleviates harm to *existing and anticipated water users*, but it does not prevent *violation of water quality standards*. It is violation of water quality standards, regardless of the effect on existing and anticipated water use, that is the standard for material damage. §§ 82-4-203(31), 227(3)(a), MCA; *see also supra* Part C.

133. Second, the proposed mitigation with water from the deep underburden aquifer is illusory, as SPE admitted repeatedly in the record. The Groundwater Model admits that there are multiple physical and legal barriers to the use of the deep underburden aquifer as a source of mitigation water:

> One of the potentially more significant uses that has been proposed is to use this same source [the deep underburden aquifer] as a mitigation source for flowing springs, and or stream reaches in the Bull Mountain area. Some of the springs flow at very significant rates. For instance, spring 52455 (near northeastern corner of LOM) flows at rates commonly exceeding 10 gallons per minute. Such a flow rate exceeds the typical demands at the mine public water supply well (projected at 6 gpm). Given that there are a large overall number of springs, ponds, and identified stream reaches, seasonal flow rates could substantially exceed 100 gpm.
>
> Using the deep Underburden aquifer may have other issues as well, including differences in water quality between native spring/stream sources compared to the water quality of the deeper Underburden. There are likely to be issues related to the Beneficial Use application process of the Montana Department of Natural Resources and Conservation. Demonstration of a beneficial use is required before a permit will be issued by the DNRC. Such applications routinely receive objections so that in the event a permit is issued, the process can be rather lengthy. In the event the aforementioned hurdles could be overcome, it would still be necessary to convince the DNRC that the aquifer system has the capacity to meet all the existing uses plus intended uses before a permit could be obtained.

Groundwater Model, Attachment 3M (pdf. 85). Thus, the PHC concluded that further investigation was required to determine whether the deep underburden aquifer would be suitable to meet all potential mitigation needs. PHC at 314-5-35, -

42, -66. The mere *possibility* of mitigation is not sufficient to meet the standard of § 82-4-227(3)(c), MCA, and ARM 17.24.405(6)(c).

134. DEQ may not approve a permit application unless "the application affirmatively demonstrates and the *department's written findings confirm*, on the basis of information set forth in the application or otherwise available that is compiled by the department that . . . cumulative hydrologic impacts *will not result in material damage* to the hydrologic balance outside the permit area." ARM 17.24.405(6)(c); *accord* § 82-4-227(3)(a), MCA. Here, at most, the record demonstrates that the proposed expansion of the Bull Mountain mine *may* (or may not) be designed to prevent material damage to the hydrologic balance outside the permit area *for 50 years* and that there *may* (or may not) be water available to mitigate the operation's impacts to water quality and quantity. This does not satisfy the legal standard of MSUMRA.

CONCLUSION

135. The proposed 7,161-acre expansion of the Bull Mountain Mine is a considerable undertaking. It promises sizeable economic benefits in the short-term. 1992 EIS at iv. However, as the Montana Department of State Lands determined years ago, it also threatens significant economic harm in the long-term. *Id.* at iv. The record before the Board suggests that long-term environmental harm may also result. The Bull Mountains are an arid landscape. Existing ranching operations and

ecosystems in the Bull Mountains are wholly dependent on the area's limited water resources. *Id.* at III-19, 22-23, 42.

136. MSUMRA prohibits DEQ from approving an application to expand mining operations unless the permit application affirmatively demonstrates and DEQ confirms in writing based on record evidence that the operation is "designed to prevent material damage to the hydrologic balance outside the permit area." § 82-4-227(3)(a), MCA; ARM 17.24.405(6)(c); *accord* 30 U.S.C. § 1260(b)(3). By statute, DEQ's material damage assessment and determination must consider whether the mine expansion will cause violation of water quality standards. § 82-4-203(31), MCA.

137. Here, DEQ's approval of SPE's application committed two errors. First, DEQ material damage determination failed to consider whether the mine expansion would lead to violations of water quality standards. Second, the record evidence did not affirmatively demonstrate that the mine expansion is designed to prevent material damage to the hydrologic balance outside the permit area. Instead, it demonstrated only that the mine expansion, as currently designed, may or may not cause material damage outside the permit area in the next 50 years and that there may or may not be water resources available for mitigation.

138. Because DEQ is prohibited from approving a permit application until it makes findings required by § 82-4-227(3)(c), MCA, and ARM 17.24.314(5),

405(6)(c), DEQ's approval of SPE's application for Permit Amendment No. 3 must be set aside and this matter remanded to DEQ to complete a lawful cumulative hydrologic impact assessment.

FINAL ORDER

139. It is HEREBY ORDERED that MEIC's motion for summary judgment is GRANTED, and SPE's cross-motion for summary judgment is DENIED;

140. It is FURTHER ORDERED that DEQ's cumulative hydrologic impact assessment accompanying its approval of SPE's Permit Amendment Application No. 3 is unlawful and is THEREFORE SET ASIDE.

141. It is FURTHER ORDERED that, because it was not based on a lawful cumulative hydrologic impact assessment, DEQ's approval of SPE's Permit Amendment Application No. 3 is SET ASIDE.

142. The Board THEREFORE REMANDS this matter to DEQ for further proceedings consistent with this ORDER.

143. It is FURTHER ORDERED that MEIC's motion to amend its appeal to join the Sierra Club is DENIED as MOOT. Sierra Club will be free to participate in further proceedings upon remand.

Dated this ___ day of ________________, 2015.

Chair
Montana Board of Environmental Review

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Filed with the
MONTANA BOARD OF
ENVIRONMENTAL REVIEW
This 27 day of August, 2015
at 12:25 o'clock P.m.
By: Hillary Houle

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Of attorneys for the Department

**BEFORE THE BOARD OF ENVIRONMENTAL QUALITY
OF THE STATE OF MONTANA**

IN THE MATTER OF: VIOLATIONS OF THE OPENCUT MINING ACT BY BAY MATERIALS, LLC AT NORMONT FARMS PIT, TOOLE COUNTY, MONTANA (OPENCUT NO. 1872; DOCKET NO. OC-14-03)	)	Case No.: BER-2014-07-OC STIPULATION TO DISMISS CONTESTED CASE PROCEEDING

The parties hereby stipulate, pursuant to Rule 41(a)(2), M.R.Civ.P., to the dismissal of this contested case proceeding. The parties have reached a resolution of the matters at issue and Bay Materials, L.L.C., the party requesting a hearing before the Board in this matter, withdraws its request for hearing, and the Department has no objection thereto.

[signatures on following page]

LEE LAW OFFICE PC

Dated: August 25, 2015.

By: ______________________

Brian D. Lee
Of attorneys for Bay Materials, L.L.C.

DEPARTMENT OF ENVIRONMENTAL QUALITY

Dated: August 27, 2015.

By: ______________________

Dana David,
Of attorneys for the Department

CERTIFICATE OF SERVICE

The undersigned certifies that on August 27, 2015, he caused the original or a copy of the foregoing Stipulation to Dismiss Contested Case Proceeding to be delivered or transmitted to the persons named below as follows:

Original by hand delivery:
Joyce Wittenberg
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By: ______________________

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Filed with the
MONTANA BOARD OF
ENVIRONMENTAL REVIEW
This 31 day of August, 2015
at 9:00 o'clock A.m.
By: Hillary Houle

Dana David
Special Assistant Attorney General
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**BEFORE THE BOARD OF ENVIRONMENTAL QUALITY
OF THE STATE OF MONTANA**

IN THE MATTER OF: VIOLATIONS OF THE OPENCUT MINING ACT BY SOMONT OIL COMPANY, INC. AT SOMONT OIL GRAVEL PIT, TOOLE COUNTY, MONTANA (OPENCUT NO. 2326; DOCKET NO. OC-14-021)	)	Case No.: BER-2014-08-OC STIPULATION TO DISMISS CONTESTED CASE PROCEEDING

The parties hereby stipulate, pursuant to Rule 41(a)(2), M.R.Civ.P., to the dismissal of this contested case proceeding. The parties have reached a resolution of the matters at issue and Somont Oil Company, Inc., the party requesting a hearing before the Board in this matter, withdraws its request for hearing, and the Department has no objection thereto.

[signatures on following page]

LEE LAW OFFICE PC

Dated: August 28, 2015.

By: ______________________
Brian D. Lee
Of attorneys for Somont Oil, Company, Inc.

DEPARTMENT OF ENVIRONMENTAL QUALITY

Dated: August 28, 2015.

By: ______________________
Dana David,
Of attorneys for the Department

CERTIFICATE OF SERVICE

The undersigned certifies that on August 31, 2015, he caused the original or a copy of the foregoing Stipulation to Dismiss Contested Case Proceeding to be delivered or transmitted to the persons named below as follows:

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Board of Environmental Review

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Edward Coleman, Bureau Chief, IEMB
John Arrigo, Administrator, Enforcement Division

By: ______________________

BEFORE THE BOARD OF ENVIRONMENTAL QUALITY
OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE OPENCUT MINING ACT BY SOMONT OIL COMPANY, INC. AT SOMONT OIL GRAVEL PIT, TOOLE COUNTY, MONTANA (OPENCUT NO. 2326; DOCKET NO. OC-14-021)	Case No.: BER-2014-08-OC ORDER DISMISSING CONTESTED CASE PROCEEDING

The parties having notified the undersigned that they have reached a settlement of the above-encaptioned matter, in accordance with Rule 41 (a)(2), of the Montana Rules of Civil Procedure,

IT IS HEREBY ORDERED, that this contested case proceeding is dismissed and removed from the docket of the Board.

DATED this ______ day of ___________, 2015.

____
BENJAMIN REED
Hearing Examiner
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