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

AGENDA

FRIDAY, DECEMBER 7, 2012
METCALF BUILDING, ROOM 111
1520 EAST SIXTH AVENUE, HELENA, MONTANA
****

NOTE: *Individual agenda items are not assigned specific times. For public notice purposes, the meeting will begin no earlier than the time specified; however, the Board might not address the specific agenda items in the order they are scheduled. The Board will make reasonable accommodations for persons with disabilities who wish to participate in this meeting. Please contact the Board Secretary by telephone at (406) 444-6701 or by e-mail at jwittenberg@mt.gov no later than 24 hours prior to the meeting to advise her of the nature of the accommodation you need.*

9:00 A.M.

I. ADMINISTRATIVE ITEMS

A. REVIEW AND APPROVE MINUTES

1. September 27, 2012, Board meeting minutes.

B. SET 2013 MEETING SCHEDULE

II. BRIEFING ITEMS

A. CONTESTED CASE UPDATE

1. Enforcement cases assigned to the Hearing Examiner

a. **In the matter of violations of the Montana Septage Disposal and Licensure Laws by James Vaughn, d/b/a Any Time Septic & Porta-Potty, Lake County, BER 2011-06 SDL.** On November 8, 2012, the Hearing Examiner issued *Second Order Vacating and Resetting Hearing and Prehearing Conference Dates* scheduling a prehearing conference for November 14 and the hearing for November 27. On November 14, the hearing examiner issued *Second Order Vacating and Resetting Telephonic Prehearing Conference Date* resetting the prehearing conference for November 26. On November 21, the hearing examiner determined to grant the pending motion for summary judgment on the issue of liability, and has vacated the hearing date.

b. **In the matter of violations of the Public Water Supply laws by the city of Ronan Public Water Supply System, PWSID #MT0000318, Ronan, Lake County, BER 2012-04 PWS.** A hearing is scheduled for January 31, 2013.

c. **In the matter of violations of the Montana Solid Waste Management Act by Valley County Refuse District #1 at the Valley County Landfill, Glasgow, BER 2012-06 SW.** On November 1, 2012, the Board received *DEQ Motion for Summary Judgment and Brief in Support of Motion.* A contested case hearing is currently set for January 23, 2013.

2. Other Cases Assigned to a Hearing Examiner

a. **In the matter of the request for hearing by Hawthorne Springs Property Owners Association; H Lazy Heart, LLC; Patchy, Inc.; and other residents regarding**

Opencut Mining Permit No. 2258, issued to Farwest Rock Products, Missoula County, BER 2012-09 OC. A *First Scheduling Order* was issued on September 27, 2012, setting a contested case hearing for April 16, 2013.

3. Contested Cases not assigned to a Hearing Examiner

   a. **In the matter of the request for hearing by William E. Smith, on behalf of Mike Adkins, regarding Park County's denial to validate Adkins Class III Waste Tire Monofill License No. 517, BER 2012-05 SW.** At its July 27, 2012, meeting, the Board voted to hear all matters in this case. On September 11, 2012, the Board heard oral argument on pending motions; the Board granted the pending motion to intervene of Protecting Paradise, and granted a motion to stay proceedings until disposition of the Petition for Judicial Review filed in the Sixth Judicial District.

   b. **In the matter of the request for hearing by Earth Justice, Montana Environmental Information Center, Sierra Club, and National Wildlife Federation regarding the Administrative Order on Consent issued to PPL Montana, LLC, BER 2012-10 MFS.** On September 18, 2012, the Board received Election of PPL Montana, LLC for Proceeding to Occur in District Court Pursuant to Mont. Code Ann. §75-20-223(1).

B. OTHER BRIEFING ITEMS

1. The department will report to the Board regarding the air quality permit fees anticipated for the next year, pursuant to ARM 17.8.510.

III. ACTION ITEMS

A. INITIATION OF RULEMAKING

DEQ will propose that the Board initiate rulemaking to:

1. Amend ARM 17.30.1330, 17.30.1341, 17.30.1343, 17.30.1361 and 17.30.1362, and adopt New Rule I pertaining to the Montana Pollutant Discharge Elimination System (MPDES) permit program in ARM Title 17, Chapter 30, Subchapter 13. The department is requesting these amendments in order to maintain compliance with federal regulations governing concentrated animal feeding operations (CAFOs) including technical standards governing the application of manure, litter and other process wastewater applied to land under the control of the CAFO.

2. Revise Circular DEQ-4, Montana Standards for Subsurface Wastewater Treatment Systems, to reorganize the format, add illustrations, and correct grammar and numbering errors. In response to emerging technology, new chapters and new design requirements have been added, including an appendix with design examples.

B. REPEAL, AMENDMENT, OR ADOPTION OF FINAL RULES

1. In the matter of proposed final adoption of amended ARM 17.8.102 incorporating the air quality rules adopted in the 2010 edition of the Code of Federal Regulations and current updates to state statutes and regulations that are incorporated by reference in the rules.

2. In the matter of proposed final adoption of New Rule, which incorporates by reference department Circular DEQ-13 entitled Montana's Policy for Nutrient Trading. DEQ is in the final stages of developing numeric standards for nitrogen and phosphorus in surface waters. Nutrient trading is a voluntary, market based approach to improve water quality and is supported by EPA as a tool to meet TMDL load allocations.

3. In the matter of proposed final adoption of amendments to ARM 17.30.1304, 17.30.1310, 17.30.1322, and 17.30.1303, regarding permit exclusions and application requirements for discharge permits issued under the Montana Pollutant Discharge Elimination System Permit (MPDES) program and the repeal of a rule pertaining to general incorporations by reference of federal rules. The department is requesting these amendments in order to maintain compliance with federal regulations governing states with delegated authority to implement the federal Clean Water Act's permitting program.

4. Amend ARM 17.30.617 to designate the mainstem Gallatin River from the Yellowstone National Park boundary to the confluence of Spanish Creek as an Outstanding Resource Water (ORW) and to amend ARM 17.30.638 to add a new subsection clarifying that discharges to ground water with a direct hydrologic connection to an ORW are within the statutory mandate prohibiting any permanent change in the water quality of an ORW resulting from point source discharges. DEQ is proposing the Board take no further action in this matter.

C. FINAL ACTION ON CONTESTED CASES

1. **In the matter of violations of the Montana Strip and Underground Mine Reclamation Act by Signal Peak Energy, LLC at Bull Mountain Mine #1, Roundup, Musselshell County, BER 2012-08 SM**. On October 24, the Board received *Unopposed Motion for Extension of Time* from the Appellant, stating that the parties are involved in settlement discussions. On November 9 the hearing examiner issued *Order Granting Extension of Time and Implementing Second Scheduling Order*. A *Stipulation for Dismissal and Order to Dismiss* was filed on November 19, 2012. The Board will be requested to sign the order dismissing the case.

2. **In the matter of violations of the Montana Underground Storage Tank Act by Jeanny Hlavka, individually and d/b/a J.R. Enterprise, LLC, at the Fort Peck Station, Valley County, BER 2010-08 UST.** On March 9, 2012, the District Court remanded the case back to the Board. On October 12, 2012, the hearing examiner issued a *Recommended Order on Second Motion for Summary Judgment*. On October 22, 2012, the Board received *Exceptions for Recommended Order on Second Motion for Summary Judgment* from the petitioner. The department filed its *Response to Hlavka's Exceptions* on October 26, 2012. The Board will consider the exceptions and determine whether to accept, reject, or modify the recommended order.

D. NEW CONTESTED CASES

1. **In the matter of violations of the Public Water Supply Laws by Trailer Terrace Mobile Park, LLC, Dennis Deschamps and Dennis Rasmussen at the Trailer Terrace, PWSID No. MT0000025, Great Falls, Cascade County, BER 2012-11 PWS.** The Board received the appeal on October 15, 2012. Interim Hearing Examiner Katherine Orr issued *First Prehearing Order* on October 24, giving the parties until November 13 to propose a schedule. The Board may appoint a permanent hearing examiner or decide to hear the matter.

2. **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.** The Board received the request for hearing on October 31, 2012. On November 8, Interim Hearings Examiner Katherine Orr issued a *First Prehearing Order*, giving the parties until November 28 to

file a proposed schedule. The Board may appoint a permanent hearing examiner or decide to hear the matter.

3. **In the matter of violations of the Montana Solid Waste Management Act by Asphalt Plus, LLC, a corporation, and Michael C. and Melinda M. Oedekoven, as individuals, at 425 Johnson lane, Billings, Yellowstone County, BER 2012-13 SW.** The Board received the appeal on November 13, 2012. The Board may appoint a permanent hearing examiner or decide to hear the matter.

E. OTHER ACTION ON CONTESTED CASES

1. **In the matter of violations of the Opencut Mining Act by Brad Blakeman at the Camas Prairie Gravel Pit, Sanders County, BER 2012-01 OC.** A contested case proceeding took place before the full Board on September 28, 2012. The Board found in favor of the department and will take up the question of penalties to assess.

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 • Website: www.deq.state.mt.us

MINUTES
SEPTEMBER 27, 2012

Call to Order

The Board of Environmental Review's regularly scheduled meeting was called to order by Chairman Russell at 2:32 p.m., on Thursday, September 27, 2012, in Room 111 of the Metcalf Building, 1520 East Sixth Avenue, Helena, Montana.

Attendance

Board Members Present: Chairman Joseph Russell, Marvin Miller, Heidi Kaiser, Larry Mires, Larry Anderson, and Joe Whalen

Board Members Absent: Robin Shropshire

Board Attorney Present: Katherine Orr, Attorney General's Office, Department of Justice

Board Secretary Present: Joyce Wittenberg

Court Reporter Present: Susan Johnson, Lesofski Firm

Department Personnel Present: Tom Livers (Deputy Director); John North, Jim Madden and David Dennis – Legal; Judy Hanson – Permitting & Compliance Division; Jon Dilliard, Eugene Pizzini, and Denver Fraser – Public Water Supply & Subdivisions Bureau; Charles Homer, Bob Habeck, and Debra Wolfe – Air Resources Management Bureau; Ed Coleman – Industrial & Energy Minerals Bureau; Rod McNeil – Water Quality Planning Bureau; John Arrigo and Frank Gessaman – Enforcement Division

Interested Persons Present *(Disclaimer: Names are spelled as best they can be read from the official sign-in sheet.)*: There were no members of the public present during this meeting.

I.A.	Review and approve July 27, 2012, Board meeting minutes.
	Mr. Mires MOVED to approve the July 27, 2012, Board meeting minutes. Mr. Miller SECONDED the motion. The motion CARRIED with a unanimous vote.
II.A.1.a	In the matter of violations of the Montana Septage Disposal and Licensure Laws by James Vaughn, d/b/a Any Time Septic & Porta-Potty, Lake County, BER 2011-06 SDL.
	Ms. Orr said this case is ready for ruling on DEQ's renewed motion for summary judgment, and an answer was filed on September 20.
II.A.1.b	In the matter of violations of the Public Water Supply laws by the city of Ronan Public Water Supply System, PWSID #MT0000318, Ronan, Lake County, BER 2012-04 PWS.
	Ms. Orr said a hearing is scheduled in January for this matter.
II.A.1.c	In the matter of violations of the Montana Solid Waste Management Act by Valley County Refuse District #1 at the Valley County Landfill, Glasgow, BER 2012-06 SW.
	Ms. Orr said a hearing is scheduled in January for this matter.
II.A.2.a	In the matter of violations of the Opencut Mining Act by Brad Blakeman at the Camas Prairie Gravel Pit, Sanders County, BER 2012-01 OC.
	Ms. Orr said a contested case hearing would be held on this matter the following morning. She said she expects that Mr. Blakeman would appear.
II.A.2.b	In the matter of the request for hearing by William E. Smith, on behalf of Mike Adkins, regarding Park County's denial to validate Adkins Class III Waste Tire Monofill License No. 517, BER 2012-05 SW.
	Ms. Orr reminded the Board that a telephonic hearing was held September 11 and the Board heard oral argument on pending motions and ruled on those. She said Chairman Russell had an order for his signature to confirm the Board's ruling.
II.A.3.a	In the matter of violations of the Montana Underground Storage Tank Act by Jeanny Hlavka, individually and d/b/a J.R. Enterprise, LLC, at the Fort Peck Station, Valley County, BER 2010-08 UST.
	Ms. Orr stated that this matter is ripe for an order on summary judgment.
III.A.1	In the matter of the proposed amendment of ARM Title 17, Chapter 38, Subchapter 1, Public Water and Sewer Plans, Cross Connections, and Drilling Water Wells.
	Mr. Pizzini said the department is proposing two minor changes to the existing engineering fee rules, which would result in a reduction of cost to systems submitting

plans under those amendments, and New Rule 1, related to the identification and repair of significant deficiencies. He said the legislature requires the department to collect fees commensurate with the cost of reviewing plans and specifications, but that past legislative audits show the department was not recovering its costs for conducting engineering review. He said that during the Board's adoption of increased engineering fees, the department assured the Board that if any fees were found to be excessive, DEQ would return to the Board to correct it.

Mr. Fraser, Mr. Dilliard, and Mr. Pizzini responded to questions from board members.

Chairman Russell asked if anyone in the audience would like to speak to the matter. There was no response.

Chairman Russell called for a motion to initiate the rulemaking and appoint Ms. Orr as the presiding officer. Mr. Miller so MOVED. Ms. Kaiser SECONDED the motion. The motion CARRIED with a unanimous vote.

III.B.1 In the matter of proposed final adoption of the revision of Circular DEQ-2, Design Standards for Municipal Wastewater Collection and Treatment.

Mr. LaVigne reminded the Board that DEQ had briefed the Board on this rulemaking in March and the Board proceeded with initiation in May. He said a public hearing was held in July and there were no public attendees. He also said no public comments were received on the rulemaking during the comment period, and that the department is requesting adoption of the re-use standards and the updated changes to DEQ-2.

Chairman Russell called for public comment on the rulemaking. No one responded.

Chairman Russell called for a motion to adopt the rulemaking, the 521 and 311 Analyses, and the Presiding Officer's Report. Mr. Whalen so MOVED. Mr. Miller SECONDED the motion. The motion CARRIED with a unanimous vote.

III.B.3 In the matter of DEQ's request for final adoption of amendments to ARM 17.8.801 and 17.8.818 related to ozone implementation. (Taken out of order.)

Ms. Wolfe described the amendments and said no comments were received. She said the department is requesting adoption of the rules as proposed.

Chairman Russell asked if anyone in the audience wanted to comment on the rulemaking. There was no response.

Chairman Russell called for a motion to adopt the rulemaking and accept the Presiding Officer's Report. Ms. Kaiser so MOVED. Mr. Mires SECONDED the motion. The motion CARRIED with a unanimous vote.

III.B.2 In the matter of proposed final adoption of amendments to water quality standards rules in ARM Title 17, Chapters 30, 36, 55, and 56. (Taken up after III.B.3.)

Mr. McNeil said the rules were initiated in March, a public hearing was held in July, and changes were made based on the comments received.

Mr. North and Mr. McNeil responded to question concerning what changes are within the scope of rulemaking as well as other questions from the Board.

Chairman Russell asked if anyone in the audience would like to comment on the matter. There was no response.

Chairman Russell called for a motion to adopt the rule as amended, as well as the 521 and 311 Analyses, the Presiding Officer's Report, the department's responses to comments, and DEQ-7. Mr. Miller so MOVED. Mr. Mires SECONDED the motion. The motion CARRIED with a unanimous vote.

III.C.1 In the matter of final action regarding the appeal and request for hearing by Roseburg Forest Products Co. BER 2010-09 WQ.

Ms. Orr said the parties have reached agreement and submitted a stipulation for dismissal. She said an order to dismiss has been submitted to the Board for signature.

Chairman Russell called for a motion to authorize him to sign the order dismissing the case. Ms. Kaiser so MOVED. Mr. Whalen SECONDED the motion. The motion CARRIED with a unanimous vote.

III.C.2 In the matter of final action regarding violations of the Public Water Supply Laws by Olson's Lolo Hot Springs, Inc., BER 2011-09 PWS.

Ms. Orr said the parties have reached agreement on the compliance plan in this matter. She said the parties are requesting dismissal based on their stipulation for dismissal. A brief discussion ensued.

Chairman Russell called for a motion to authorize him to sign the dismissal order. Mr. Anderson so MOVED. Mr. Whalen SECONDED the motion. The motion CARRIED with a unanimous vote.

III.C.3 In the matter of final action regarding violations of the Opencut Mining Act by Ell Dirt Works, LLC, BER 2011-11 OC.

Ms. Orr described the case and the penalty obtained in the AOC.

Chairman Russell called for a motion to authorize him to sign the dismissal order. Mr. Miller so MOVED. Ms. Kaiser SECONDED the motion. Further discussion took place. The motion CARRIED with a unanimous vote.

III.C.4 In the matter of final action regarding violations of the Water Quality Act by SK Construction, Inc., BER 2011-20 WQ.

Ms. Orr presented copies of the signed Administrative Order on Consent.

Chairman Russell called for a motion to authorize him to sign the order dismissing the case. Mr. Mires so MOVED. Ms. Kaiser SECONDED the motion. The motion CARRIED with a unanimous vote.

III.C.5 In the matter of final action regarding violations of the Opencut Mining Act by the City of Ronan, BER 2011-23 OC.

Ms. Orr said the stipulation in this case indicates that all provisions of the administrative compliance and penalty order were fully satisfied and that a Rule 41(a) dismissal is requested.

Chairman Russell called for a motion to authorize him to sign the dismissal order. Mr. Whalen so MOVED. Mr. Anderson SECONDED the motion. The motion CARRIED with a unanimous vote.

III.C.6 In the matter of final action regarding violations of the Opencut Mining Act by Russell Olsen at PaveCo Pit, BER 2012-07 OC.

Ms. Orr provided information surrounding the appeal and said the department moved to dismiss the appeal on the basis that the appeal was not timely. She noted that Mr. Olson did not participate at any stage, did not respond to the motion to dismiss, and did not file exceptions. Brief discussion on the matter took place.

Chairman Russell called for a motion to authorize him to sign the order dismissing the matter. Ms. Kaiser so MOVED. Mr. Miller SECONDED the motion. The motion CARRIED with a unanimous vote.

III.D.1 In the matter of violations of the Montana Strip and Underground Mine Reclamation Act by Signal Peak Energy, LLC at Bull Mountain Mine #1, Roundup, Musselshell County, BER 2012-08 SM.

Ms. Orr described the violations and penalty at the heart of the appeal.

Chairman Russell called for a motion to appoint Ms. Orr as the hearings examiner for this matter. Mr. Mires so MOVED. Mr. Miller SECONDED the motion. Ms. Kaiser RECUSED herself from further action on this matter.

Discussion took place regarding desire for the Board to hear this matter itself. The motion FAILED 5-0. This matter remains unassigned.

III.D.2 In the matter of the request for hearing by Hawthorne Springs Property Owners Association; H Lazy Heart, LLC; Patchy, Inc.; and other residents regarding Opencut Mining Permit No. 2258, issued to Farwest Rock Products, Missoula County, BER 2012-09 OC.

Ms. Orr provided details of the appeal. She responded to questions from Board members.

Chairman Russell called for a motion to appoint Ms. Orr as the permanent hearings examiner for this matter. Mr. Anderson so MOVED. Ms. Kaiser SECONDED the motion. The motion CARRIED with a unanimous vote.

III.D.3 In the matter of the request for hearing by Earth Justice, Montana Environmental Information Center, Sierra Club, and National Wildlife Federation regarding the Administrative Order on Consent issued to PPL Montana, LLC, BER 2012-10 MFS.

Ms. Orr explained the details of the appeal. She indicated that it may be a lengthy proceeding and suggested the Board take no action on the matter at this time.

Chairman Russell called for a motion to not assign this matter at this time. Mr. Anderson so MOVED. Mr. Mires SECONDED the motion. Ms. Kaiser recused herself from any further action in this matter. The motion CARRIED 5-0. This matter has not been assigned.

IV. General Public Comment

Chairman Russell called for general public comment. There was no response.

V. Adjournment

Chairman Russell called for a motion to adjourn. Mr. Whalen so MOVED. Mr. Miller SECONDED the motion. The motion CARRIED with a unanimous vote.

The meeting adjourned at 4:28 p.m.

Board of Environmental Review September 27, 2012, minutes approved:

_____

JOSEPH W. RUSSELL, M.P.H.
CHAIRMAN
BOARD OF ENVIRONMENTAL REVIEW

_____

DATE

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM
EXECUTIVE SUMMARY FOR SETTING OF THE 2013 MEETING SCHEDULE

AGENDA # I.B.

AGENDA ITEM SUMMARY - Setting of 2013 Meeting Schedule

AFFECTED PARTIES SUMMARY - Board members, Department personnel, and members of the public who appear before the Board will be affected.

BACKGROUND - Establishment of a 2013 Board meeting schedule at this meeting will enable Board members, the Department, and the public to plan and schedule matters that involve the Board and other activities far enough in advance to minimize scheduling conflicts and the need for emergency meetings.

HEARING INFORMATION - No hearing is necessary.

BOARD OPTIONS - The Board has authority to set whatever schedule it wishes to set. It is advisable for the Board to schedule meetings approximately two months apart. This allows the Board to adopt rules approximately four months after initiation of rule proceedings and provides adequate time for compilation of public comments and preparation of notices and hearing officer reports. In addition, should the Board at the 4-month meeting decide to ask for more information or major revisions, two-month intervals allow the Board to consider and take action on the matter at the next meeting without renoticing the matter in the Montana Administrative Register. Renoticing is required if notice of adoption is not published within 6 months of the notice of initiation.

Considering the factors listed above, the Department has developed a tentative meeting schedule for the Board's consideration. It is:

January 25
March 22
May 17
July 19
October 4
December 6

DEQ RECOMMENDATION - The Department recommends that the Board consider the matter and set an appropriate schedule.

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM
EXECUTIVE SUMMARY FOR RULEMAKING

AGENDA ITEM # III.A.1.

AGENDA ITEM SUMMARY -. The Department requests that the Board initiate rulemaking to amend and adopt rules governing the Montana Pollutant Discharge Elimination System (MPDES) permit program in ARM Title 17, Chapter 30, Subchapter 13. The Department is requesting these amendments in order to maintain compliance with federal regulations governing concentrated animal feeding operations (CAFOs) including technical standards governing the application of manure, litter and other process wastewater applied to land under the control of the CAFO.

LIST OF AFFECTED RULES – This rulemaking would amend ARM 17.30.1330, 17.30.1341, 17.30.1343, 17.30.1361 and 17.30.1362, and adopt New Rule I.

AFFECTED PARTIES SUMMARY – Owner or operators of Concentrated Animal Feeding Operating (CAFO) facilities holding discharge permits issued pursuant to the Montana Water Quality Act, Title 75, chapter 5, MCA, and persons or facilities who wish to obtain a permit under the Act.

SCOPE OF PROPOSED PROCEEDING - The Department requests that the Board initiate rulemaking, appoint a hearings officer and conduct a public hearing to take comment on the proposed amendments.

BACKGROUND – The rulemaking is necessary to maintain compliance with federal regulations governing states that are delegated to implement the federal Clean Water Act's (CWA) permitting program in accordance 40 CFR 123.25. Under the CWA, concentrated animal feeding operations (CAFO) that meet the requirements of 40 CFR 122.23 or are designated by the department are point sources and subject to the requirements of the federal NPDES program. Requirements for delegated state and tribal NPDES programs are promulgated at 40 CFR Part 123, specifically 40 CFR 123.25 and 40 CFR 123.36 which requires delegated states to adopt technical standards for CAFOs.

The proposed amendments to ARM 17.30.1330, 17.30.1341, 17.30.1343, 17.30.1361 and 17.30.1362 are necessary to incorporate changes in the federal NPDES rules governing CAFOs that were promulgated by EPA on November 20, 2008. The proposed amendments rely heavily on incorporation of the federal rules by reference in order to be consistent with the requirements of 75-5-802, MCA. That statute instructs the board to adopt by reference the CAFO permitting requirements and definitions contained in 40 CFR 122.23 and 40 CFR Part 412.

The proposed adoption of New Rule 1 is necessary to comply with the requirement of 40 CFR 123.36. This rule requires each state to establish technical standards for nutrient management that is consistent with 40 CFR 412.4(c)(2). The technical standard adopted by the state specifies the application rate for manure, litter, and other process wastewater applied to land under the ownership of the CAFO. The proposed rules eliminate language in ARM 17.30.1330 requiring CAFO's to comply with Department Circular DEQ-9. Circular DEQ-9 was adopted by

the board in 2006 prior to the promulgation of the 2008 federal CAFO rule which placed into regulation in 40 CFR 122.23, 122.42(e) and 412 requirements for nutrient management plans, best management plans, record keeping and annual reporting.

In addition to the CAFO requirements the proposed amendments are necessary to: (1) repealing existing incorporations by reference that are either duplicative, obsolete or inapplicable to state permit programs; and (2) clarifying existing language.

Hearing Information: The Department recommends the Board appoint a presiding officer and conduct a public hearing to take comment on the proposed amendment.

Board Options: The Board may:

1. Initiate rulemaking and issue the attached Notice of Public Hearing on Proposed Amendment and Repeal of Rules;
2. Modify the Notice an initiate rulemaking; or
3. Determine that amendment 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 presiding officer to conduct a public hearing, as described in the enclosed proposed Montana Administrative Register notice.

Enclosures:

1. 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 17.30.1330, 17.30.1341, 17.30.1343, 17.30.1361, 17.30.1362 pertaining to concentrated animal feeding operations, general permits, additional conditions applicable to specific categories of MPDES permits, modification or revocation and reissuance of permits, minor modification of permits and adoption of New Rule I pertaining to technical standards for concentrated animal feeding operation	NOTICE OF PUBLIC HEARING ON PROPOSED AMENDMENT AND ADOPTION (WATER QUALITY)

TO: All Concerned Persons

1. On _____, 2013, at __:__ __.m., the Board of Environmental Review will hold a public hearing [in/at address], Montana, to consider the proposed amendment and adoption 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., _____, 2013, 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:

17.30.1330 CONCENTRATED ANIMAL FEEDING OPERATIONS

(1) ~~"Concentrated animal feeding operation (CAFO)" means an animal feeding operation which meets the criteria in 40 CFR Part 122.23, or which the department designates under (3). CAFOs that are required to obtain a permit shall either apply for an individual MPDES permit or submit an application for coverage under an MPDES CAFO general permit. A permit application for an individual permit or application for coverage under a general permit must include the information specified in ARM 17.30.1322(6)(a) through (f) and 40 CFR 122.21(i)(l), including a topographic map. If the department has not made a general permit available to the CAFO, the CAFO owner or operator shall submit an application for an individual permit to the department.~~ Concentrated animal feeding operations (CAFOs), as defined in 75-5-801, MCA, or designated in accordance with (5) through (7), are point sources subject to the MPDES requirements as provided in this rule. Once an animal feeding operation is defined as a CAFO for at least one type of animal, the

MPDES requirements for CAFOs apply with respect to all animals in confinement at the operation and all manure, litter, and process wastewater generated by those animals or the production of those animals, regardless of the type of animal.

(2) ~~Concentrated animal feeding operations are point sources subject to the MPDES permit program.~~ A CAFO must not discharge a pollutant to state surface waters unless the discharge is authorized under an MPDES permit. In order to obtain authorization under an MPDES permit, the CAFO owner or operator must either apply for an individual permit or submit a notice of intent for coverage under a general permit.

(3) An application for an individual permit must include the information specified in ARM 17.30.1322(9). A notice of intent to be covered under a general permit must include the information specified in ARM 17.30.1322(9) and 40 CFR 122.28(b).

(4) CAFOs that meet the requirements of 40 CFR Part 412 must be authorized by the department under a general permit, unless the department discovers site-specific information that indicates a general permit is not sufficiently protective of water quality during its review under (8). If the department determines that a general permit is not sufficient to protect water quality, the department shall require an individual permit for the CAFO.

(3) through (5) remain the same, but are renumbered (5) through (7).

(8) The department shall review notices of intent submitted by CAFO owners for coverage under a general permit according to the procedures in 40 CFR 122.23(h)(1).

(9) The discharge of manure, litter, or process wastewater from a CAFO's land application area to state surface waters is subject to MPDES requirements, except where the discharge is an agricultural storm water discharge, as defined in 40 CFR 122.23(e).

(10) The board adopts and incorporates by reference the following federal regulations, which may be obtained from the Department of Environmental Quality, Water Protection Bureau, P.O. Box 200901, Helena, MT 59620:

(a) 40 CFR 122.23 (except 40 CFR 122.23(d), (f), (g), (i) and (j)) (July 1, 2012), which specifies permit application requirements, definitions, and procedures for issuing individual or general permits to CAFOs.

(b) 40 CFR 122.28(b)(2)(vii) (July 1, 2012), which sets forth informational requirements for notices of intent submitted by CAFOs.

AUTH: 75-5-201, 75-5-401, MCA
IMP: 75-5-401, MCA

REASON: The board is proposing to amend ARM 17.30.1330 in order to incorporate by reference EPA's revisions to the application and permit requirements for concentrated animal feeding operations (CAFOs) that were promulgated by the agency in 2008. The board is proposing to incorporate the regulations, rather than adopt the entire text of the regulations, in order to be consistent with the requirements of 75-5-802, MCA. That statute instructs the board to adopt by reference the CAFO permitting requirements and definitions contained in 40 CFR 122.23 and 40 CFR Part 412. In accordance with this directive, the board is

amending ARM 17.30.1330 to incorporate EPA's most recent revisions to the CAFO application requirements in 40 CFR 122.23 and 40 CFR Part 412. The board's specific reasons for the proposed amendments to various sections of the rule are given below.

The board is amending ARM 17.30.1330(1) to eliminate language that may be inconsistent with the requirements in 40 CFR 122.23 and add new language clarifying the scope of the CAFO permitting requirements. The proposed language is taken from the text of 40 CFR 122.23(a) and explains the circumstances under which the application requirements in ARM 17.30.1330 will apply. The board is proposing to revise the text of the federal regulation by replacing the federal definition of CAFO cited in 40 CFR 122.23(a) with a citation to the definition of CAFO contained in state statute.

The board is proposing to amend (2) to eliminate language explaining that CAFOs are point sources, since that explanation is included in the proposed amendment to (1). The board is proposing to replace the existing language in (2) with the text of 40 CFR 122.23(d) explaining that a CAFO operator must seek coverage under an MPDES permit if the CAFO discharges pollutants to state surface waters. This amendment is necessary to clarify who must apply for an MPDES permit. The remaining text of 40 CFR 122.23, defining circumstances that would establish when a CAFO proposes to discharge, is not proposed for adoption because that portion has been vacated by the Fifth Circuit. On July 30, 2012, EPA published a final rule revising 40 CFR 122.23(d) and (f) and removing 40 CFR 122.23(g), (i) and (j) in response to National Pork Producers Council v. EPA, 635 F 3d 738, 5th Circuit, 2011.

The board is proposing a new (3) to establish CAFO application requirements for coverage under an individual permit or a general permit. The proposed language is based on the requirements of 40 CFR 122.23(d). This amendment is necessary to specify the informational requirements that apply to notices of intent contained in federal rules and to further specify the informational requirements that apply to both notices of intent and individual permits set forth in ARM 17.30.1322(9).

The board is proposing a new (4) to clarify that, when a CAFO meets the requirements of 40 CFR Part 412, the department must authorize the discharge under a general permit. This amendment is necessary to conform to the legislative directive in 75-5-802, MCA, which requires coverage under a general permit whenever a CAFO meets the requirements of 40 CFR Part 412.

The board is proposing new (8) in conformance with the directive in 75-5-802, MCA, requiring the board to adopt by reference the CAFO permitting requirements in 40 CFR 122.23. The proposed amendment explains that the department shall review notices of intent for coverage under a general permit using the procedures in 40 CFR 122.23(h)(1).

The board is proposing new (9) to explain that discharges to surface waters from a CAFO's land application site are subject to the MPDES requirements, except where the discharge meets the definition of "agricultural storm water discharge," as defined in 40 CFR 122.23(e). This amendment is necessary to notify CAFO owners that land application areas that discharge to surface waters require a permit and also to incorporate the exception to that requirement.

The board is proposing new (10) to specify that a CAFO must apply for a

permit whenever the CAFO is required to do so under (2). The proposed amendment is necessary to be consistent with the time frames for submitting an application specified in 40 CFR 122.23(f).

The board is proposing to add new (10) in order to incorporate by reference the federal rules proposed for inclusion in ARM 17.30.1330 that are applicable to permit application requirements for CAFOs. The incorporation by reference of these federal rules is necessary to make them enforceable under state law and to comply with the legislative directive in 75-5-802, MCA.

17.30.1341 GENERAL PERMITS (1) through (11) remain the same.

(12) ~~For purposes of this rule, the board hereby adopts and incorporates by reference (see ARM 17.30.1303 for complete information about all materials incorporated by reference):~~ A concentrated animal feeding operation (CAFO) owner or operator may be authorized to discharge under a general permit only in accordance with the process described in 40 CFR 122.23(h).

~~(a) 40 CFR 122.28 (July 1, 1991) which sets forth criteria for selecting categories of point sources appropriate for general permitting;~~

~~(b) 40 CFR 124.10(d)(1) (July 1, 1991) which sets forth minimum contents of public notices;~~

~~(c) 40 CFR 122.26(c)(2) (July 1, 1991) which sets forth criteria for determining when a point source is considered a "significant contributor of pollution";~~

~~(d) 16 USC 1132 (wilderness area designations); and~~

~~(e) 16 USC 1274 (wild and scenic river designations).~~

(13) The board adopts and incorporates by reference the following federal regulations, which may be obtained from the Department of Environmental Quality, Water Protection Bureau, P.O. Box 200901, Helena, MT 59620-0901:

(a) 40 CFR 122.28 (July 1, 2012), which sets forth criteria for selecting categories of point sources appropriate for general permitting;

(b) 40 CFR 124.10(d)(1) (July 1, 2012), which sets forth minimum contents of public notices;

(c) 40 CFR 122.23(h) (July 1, 2012), which sets forth procedures for CAFOs seeking coverage under a general permit.

AUTH: 75-5-201, 75-5-401, MCA
IMP: 75-5-401, MCA

REASON: The board is proposing to amend the general permit requirements in ARM 17.30.1341 in order to make them consistent with the equivalent federal requirements set forth in 40 CFR 122.28. 40 CFR 122.23(h) requires that CAFOs seeking coverage under a general permit must submit a notice of intent (NOI) providing the information required in 40 CFR 122.21 (ARM 17.30.1322) and including a nutrient management plan (NMP) that meets the requirements in 40 CFR 122.42(e) and Part 412. 40 CFR 122.23(h) also requires that the department make the NOI and NMP available for public comment in accordance with 40 CFR 124.11 (ARM 17.30.1373) through 124.13 (ARM 17.30.1375), respond to any significant public comments, and, if necessary, require the CAFO to make changes in the NMP. 40 CFR 123.23(h) also requires that, when the department authorizes a CAFO

under a general permit, the terms of the NMP shall be incorporated into the general permit and become enforceable under the permit for the CAFO.

The board is proposing to delete the current text of 12(c), which incorporates by reference 40 CFR 122.26(c)(2) (the process for submitting group application requirements for discharges associated with industrial activity). The federal rule was repealed by EPA. The board is also proposing to delete the current text of 12(d) and (e), which incorporates by reference 16 USC 1132 (wilderness designations) and 16 USC 1274 (wild and scenic river designations). These federal statutes are not implemented by the department under the MPDES program and they are not a required element of a delegated state's permit program.

The board is proposing to move the remaining incorporations by reference of federal rules currently in (12) and place them in new (13) and update the reference to the current federal regulation. The amendments are necessary to be consistent with EPA's requirements for delegated state permit programs pursuant to 40 CFR 123.25 and to eliminate incorporations by references that are not necessary.

17.30.1343 ADDITIONAL CONDITIONS APPLICABLE TO SPECIFIC CATEGORIES OF MPDES PERMITS (1) The following conditions, in addition to those set forth in ARM 17.30.1342, apply to all MPDES permits within the categories specified below:

(a) through (b)(iii)(B) remain the same.

(c) ~~All permits issued to concentrated animal feeding operations (CAFOs), in addition to meeting those requirements set forth in ARM 17.30.1322, 17.30.1330, 17.30.1341, and 17.30.1342 must include the requirements set out in 40 CFR 122.42(e). The design, monitoring, recordkeeping, reporting, and specifications for CAFOs must be prepared in accordance with and comply with the criteria set forth in the technical standards for nutrient management and effluent limit guidelines established in 40 CFR Part 412 and department Circular DEQ-9, "Montana Technical Standards for Concentrated Animal Feeding Operations."~~ Any permit issued to a concentrated animal feeding operation (CAFO) must include the requirements specified in 40 CFR 122.42(e). In general, the requirements in that federal regulation include:

(i) a requirement to implement a nutrient management plan that contains best management practices necessary to meet the requirements of 40 CFR 122.42(e)(1) and any applicable effluent limitations in 40 CFR Part 412;

(ii) recordkeeping and reporting requirements;

(iii) requirements relating to the transfer of manure or process wastewater to other persons;

(iv) a requirement to include specific terms in the nutrient management plan and a duty to comply with those terms; and

(v) requirements relating to changes in a nutrient management plan.

~~(3)~~ (2) The board adopts and incorporates by reference the following federal regulations, which may be obtained from the Department of Environmental Quality, Water Protection Bureau, P.O. Box 200901, Helena, MT 59620-0901:

(a) 40 CFR 122.44(f) (July 1, 2012), which ~~is a federal agency rule setting~~ sets forth "notification levels" for dischargers of pollutants that may be inserted in a permit upon a petition from the permittee or upon the initiative of the department;

(b) 40 CFR Part 412 (July 1, 2012), which establishes the effluent limitation guidelines and best management practices for CAFOs; and

(c) ~~department Circular DEQ-9, "Montana Technical Standards for Concentrated Animal Feeding Operations," 2005 edition~~ 40 CFR 122.42(e) (July 1, 2012), which establishes additional permit conditions for CAFOs.

~~(4) See ARM 17.30.1303 for additional information about all materials incorporated by reference. All material that is incorporated by reference may be obtained from the Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901.~~

AUTH: 75-5-201, 75-5-401, MCA
IMP: 75-5-401, MCA

REASON: The board is proposing to amend (1)(c) of ARM 17.30.1343 by eliminating references to rules that generally apply to all MPDES permits. Since the purpose of (1)(c) is to establish additional permit conditions that apply only to CAFOs, the inclusion of references to generally applicable MPDES requirements is not necessary.

The board is proposing to replace the existing language in (1)(c) with a requirement that all CAFO permits include the additional permit requirements specified in 40 CFR 122.42(e). Rather than adopt the text of the federal regulation, the board is proposing to incorporate by reference the requirements of 40 CFR 122.42(e) to be consistent with the legislative directive in 75-5-802, MCA. That statute directs the board to incorporate by reference the federal regulations for permitting CAFOs. In general, the additional permit conditions that are proposed for adoption by reference include the following: (1) a requirement to implement a nutrient management plan (NMP) that contains best management practices necessary to meet the requirements of 40 CFR 122.43(e)(1) and any applicable effluent limitations in 40 CFR Part 412; (2) a requirement to create, maintain, and make available to the department certain records; (3) a requirement to maintain a copy of the NMP on-site; (4) a requirement to provide an analysis of manure, litter, or process wastewater prior to transfer to other persons; (5) a requirement to comply with the terms of the NMP; and (6) requirements relating to changes in the NMP.

The board is also proposing to eliminate language requiring CAFOs to comply with department Circular DEQ-9 due to EPA's revisions to the CAFO regulations in 2008, specifically 40 CFR 123.36. This federal rule requires each delegated state to establish technical standards for nutrient management that is consistent with 40 CFR 412.4(c)(2). This technical standard is an effluent limitation which specifies the application rate for manure, litter, and other process wastewater applied to land under the ownership or operational control of the CAFO. The technical standards adopted by the state must include: (1) the requirement to develop a nutrient management plan that is based on a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to surface water, and that addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals; and (2) appropriate flexibilities for any CAFO to implement nutrient management practices to comply with the technical standards, including consideration of multiyear phosphorus application, phased

implementation of phosphorus-based nutrient management, and other components as determined appropriate by the state. The proposed technical standards are in New Rule I.

The board is also proposing to replace the requirement to comply with Circular DEQ-9 with a requirement to comply with the technical standards given in New Rule I. New Rule I fulfills the requirements of 40 CFR 123.36. Department Circular DEQ-9 was adopted by the board in 2006 prior to promulgation of the 2008 federal CAFO rule, which placed into regulation, in 40 CFR 122.23, 122.42(e), and Part 412, the requirements for nutrient management, best management practices, record keeping, and annual reporting for CAFOs. These provisions of DEQ-9 are no longer necessary. Other requirements of Circular DEQ-9 are neither consistent with, nor required by, 40 CFR 123.36 or 40 CFR 122.42(e).

17.30.1361 MODIFICATION OR REVOCATION AND REISSUANCE OF PERMITS (1) remains the same.

(2) The following are causes for modification but not revocation and reissuance of permits except when the permittee requests or agrees:

(a) when ~~T~~there are material and substantial alterations or additions to the permitted facility or activity ~~which~~ that occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit. (~~c~~Certain reconstruction activities may cause the new source provisions of ARM 17.30.1340 to be applicable~~).~~;

(b) when ~~T~~the department ~~has received~~ receives new information that was not available at the time of permit issuance. Permits may be modified during their terms for this cause only if the information was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance. For MPDES general permits (ARM 17.30.1341) this subsection includes any information indicating that cumulative effects on the environment are unacceptable. For new source or new discharger MPDES permits (ARM 17.30.1340), this subsection includes any significant information derived from effluent testing after issuance of the permit~~.~~;

(c) when ~~T~~the standards or requirements on which the permit was based have been changed by amendment or by judicial decision after the permit was issued. Permits may be modified during their terms for this cause only as follows:

(i) ~~F~~for promulgation of amended standards or requirements, when:

(A) through (C) remain the same.

(ii) ~~F~~for judicial decisions, a court of competent jurisdiction has remanded and stayed board rules or effluent limitation guidelines, if the remand and stay concern that portion of the regulations or guidelines on which the permit condition was based and a request is filed by the permittee in accordance with ARM 17.30.1365 within 90 days of judicial remand~~.~~;

(d) when ~~T~~the department determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage or other events over which the permittee has little or no control and for which there is no reasonably available remedy. However, in no case may an MPDES compliance schedule be modified to extend beyond an applicable reasonably available remedy.

However, in no case may an MPDES compliance schedule be modified to extend beyond an applicable statutory deadline. (See also ARM 17.30.1362(1)(c) minor modifications);

(e) ~~W~~when the permittee has filed a request for a variance under the federal Clean Water Act, sections 301(c), (g), (h), (i), (k), or 316(a), or for "fundamentally different factors" within the time specified in ARM 17.30.1322 or 40 CFR 125.27(a);

(f) ~~W~~when required to incorporate an applicable federal Clean Water Act section 307(a) toxic effluent standard or prohibition (see ARM 17.30.1344(2));

(g) ~~W~~when required by the "reopener" conditions in a permit, which are established in the permit under ARM 17.30.1344(2) (toxic effluent limitations) or under any pretreatment requirements in the permit;

(h)~~(i)~~ ~~U~~upon request of a permittee who qualifies for effluent limitations on a net basis under ARM 17.30.1345(10)~~;~~ or

~~(ii)~~ when a discharger is no longer eligible for net limitations, as provided in ARM 17.30.1345(12);

(i) ~~A~~as necessary under ARM 17.30.1412 (compliance schedule for development of pretreatment program);

(j) ~~U~~upon failure of the department to notify, as required by section 402(b)(3) of the federal Clean Water Act, another state whose waters may be affected by a discharge from Montana;

(k) ~~W~~when the level of discharge of any pollutant which is not limited in the permit exceeds the level which can be achieved by the technology-based treatment requirements appropriate to the permittee under 40 CFR 125.3(c);

(l) ~~T~~to establish a "notification level" as provided in ARM 17.30.1344;

(m) ~~T~~to modify a schedule of compliance to reflect the time lost during construction of an innovative or alternative facility, in the case of a POTW which has received a grant under section 202(a)(3) of the federal Clean Water Act for 100% of the costs to modify or replace facilities constructed with a grant for innovative and alternative wastewater technology under section 202(a)(2) of the federal Clean Water Act. In no case may the compliance schedule be modified to extend beyond an applicable statutory deadline for compliance;

(n) ~~F~~for small municipal separate storm sewer systems, to include effluent limitations requiring implementation of minimum control measures as specified in ARM 17.30.1111(6) if:

(i) and (ii) remain the same.

(o) ~~T~~to correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions; and

(p) ~~W~~when the discharger has installed the treatment technology considered by the department in setting effluent limitations and has properly operated and maintained the facilities but nevertheless has been unable to achieve those effluent limitations. In this case, the limitations in the modified permit may reflect the level of pollutant control actually achieved (but may not be less stringent than required by a subsequently promulgated effluent limitations guideline).

(q) To incorporate the terms of a concentrated animal feeding operation's (CAFO) nutrient management plan into the terms and conditions of a general permit, when a CAFO obtains coverage under a general permit in accordance with 40 CFR 122.23(h) and 122.28, is not a cause for modification pursuant to the requirements

of this rule.

(3) The following are causes to modify or, alternatively, revoke and reissue a permit:

(a) cause exists for termination under ARM 17.30.1363, and the department determines that modification or revocation and reissuance is appropriate; and

(b) the department has received notification (as required in the permit, see ARM 17.30.1362(12)(c)) of a proposed transfer of the permit. A permit also may be modified to reflect a transfer after the effective date of an automatic transfer (ARM 17.30.1360(2)) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new permittee.

(4) The board ~~hereby~~ adopts and incorporates ~~herein~~ by reference ~~(see ARM 17.30.1303 for complete information about all materials incorporated by reference)~~ the following federal regulations, which may be obtained from the Department of Environmental Quality, Water Protection Bureau, P.O Box 200901, Helena, MT 59620-0901:

(a) 40 CFR Part 133 (July 1, 2012), which ~~is a series of federal agency rules setting~~ sets forth requirements for the level of effluent quality available through the application of secondary (or equivalent) treatment;

(b) sections 301(c), (g), (i), and (k) of the federal Clean Water Act, codified at 33 USC section 1311(c), (g), (i), and (k), which ~~are federal statutory provisions allowing~~ allow for modifying or extending dates for achieving effluent limitations;

(c) section 316(a) of the federal Clean Water Act, codified at 33 USC section 1326, which ~~is a federal statutory provision allowing~~ allows a variance from an applicable effluent limitation based on fundamentally different factors (FDF);

(d) section 402(b)(3) of the federal Clean Water Act, codified at 33 USC section 1342(b)(3), which ~~is a federal statutory provision requiring~~ requires that states administering the NPDES program notify other states whose waters may be affected by a proposed discharge; and

(e) 40 CFR 125.3(c) (July 1, 2012), ~~which is a federal agency rule setting~~ sets forth methods of imposing technology-based treatment requirements in permits;

(f) 40 CFR 122.23(h) (July 1, 2012), which sets forth procedures for CAFOs seeking coverage under a general permit; and

(g) 40 CFR 122.28 (July 1, 2012), which sets forth conditions applicable to the issuance of general permits.

~~(f) Copies of the above listed materials are available from the Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901.~~

AUTH: 75-5-201, 75-5-401, MCA
IMP: 75-5-401, MCA

REASON: The board is proposing to amend the conditions for modification of a general permit issued to a CAFO in ARM 17.30.1361 in order to make them consistent with the federal regulation at 40 CFR 122.62 and update the date for other incorporations by reference in this rule. 40 CFR 122.62 states that modifications to a CAFO's nutrient management plan (NMP) are not a basis for modification of the general permit if those modifications are made in accordance with 40 CFR 122.23(h) and 122.28. 40 CFR 122.23(h), incorporated by reference at

ARM 17.30.1330, establishes procedures for authorizing a CAFO seeking coverage under a general permit. 40 CFR 122.28, incorporated by reference at ARM 17.30.1341, establishes procedures and conditions for all categories of general permits. In general, these federal regulations specify that, if the changes in a CAFO's NMP are made in accordance with 40 CFR 122.42(e)(6), including public notification, the incorporation of these changes into the CAFO's permit are not a basis for public notice of the general permit.

These amendments are necessary to be consistent with EPA's requirements for delegated state permit programs pursuant to 40 CFR 123.25. The incorporation by reference of these federal rules is necessary to make them enforceable under state law and to comply with the legislative directive in 75-5-802, MCA.

17.30.1362 MINOR MODIFICATIONS OF PERMITS (1) Upon the consent of the permittee, the department may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this rule, without following the procedures of ARM 17.30.1364, 17.30.1365, 17.30.1370 through 17.30.1379, 17.30.1383, and 17.30.1384. Any permit modification not processed as a minor modification under this rule must be made for cause and with a draft permit (ARM 17.30.1370) and public notice as required in ARM 17.30.1364, 17.30.1365, 17.30.1370 through 17.30.1379, 17.30.1383, and 17.30.1384. Minor modifications may only:

(a) through (d) remain the same.

(e)~~(i)~~ change the construction schedule for a discharger ~~which~~ that is a new source. No such change may affect a discharger's obligation to have all pollution control equipment installed and in operation prior to discharge under ARM 17.30.1340;

(ii) remains the same, but is renumbered (f).

(f) remains the same, but is renumbered (g).

~~(g)~~ (h) incorporate conditions of a POTW pretreatment program that has been approved in accordance with the procedures in ARM 17.30.1413 (or a modification thereto that has been approved in accordance with the procedures in ARM 17.30.1426) as enforceable conditions of the POTW's permits~~.~~; or

(i) incorporate changes to the terms of a CAFO's nutrient management plan that have been reviewed and approved in accordance with the requirements of 40 CFR 122.42(e)(6).

AUTH: 75-5-201, 75-5-401, MCA
IMP: 75-5-401, MCA

REASON: The board is proposing to amend the conditions for minor amendments of MPDES permits in ARM 17.30.1362 to make them consistent with 40 CFR 122.63. This new condition states that the terms of a CAFO's NMP may be incorporated into the permit as a minor amendment if the plan has been revised in accordance with the requirements of 40 CFR 122.42(e)(6). This federal rule requires that a CAFO must provide the department with the most current version of the NMP and identify any changes in the NMP. The department must determine if any changes in the terms of the NMP are substantial according to the criteria of 40

CFR 122.42(e)(6)(iii). If the changes are not substantial, they must be incorporated into the permit and the department must notify the owner or operator of the CAFO to implement the changes and make the changes available to the public. If the changes are substantial according to the criteria of 40 CFR 122.42(e)(6)(iii), the department must notify the public and make the NMP available for public comment in accordance with 40 CFR 124.11 (ARM 17.30.1373) through 124.13 (ARM 17.30.1375), respond to any significant public comments, and require the CAFO to implement the changes. For large CAFOs, changes in the annual calculations of manure, litter, and process wastewater that are made in accordance with 40 CFR 122.42(e)(5)(i)(B) and (5)(ii)(D) are not subject to this process.

These amendments are necessary to be consistent with EPA's requirements for delegated state permit programs pursuant to 40 CFR 123.25. The incorporation by reference of these federal rules is necessary to make them enforceable under state law and to comply with the legislative directive in 75-5-802, MCA.

4. The proposed new rule provides as follows:

NEW RULE I TECHNCIAL STANDARDS FOR CONCENTRATED ANIMAL FEEDING OPERATION (1) The owner or operator of a CAFO as defined in ARM 17.30.1330 that is subject to the requirements of 40 CFR 412 Subparts C or D shall develop and implement a nutrient management plan (NMP) in accordance with the requirements of this rule and 40 CFR 122.42(e). The NMP must address the form, source and amount of nutrients, and the timing and method of application for all manure, litter, and other process wastewater that is applied to land under the ownership or operational control of the CAFO.

(2) For purposes of this rule, the following terms have the meaning and interpretations as indicated below and are supplemental to the definitions contained in ARM 17.30.1304:

(a) "expected crop yield" means the estimated crop yield, expressed as bushels per acre or tons per acre, in a future year based on one of the following:

(i) if historic crop yield data are available, the expected crop yield must be based on the average of at least three years of previous crop yield data (past average yield) using the formula: estimated crop yield = 1.05 X past average yield; or

(ii) if historic crop data are unavailable, expected crop yield must be based on realistic yield goals determined from other sources and described in the facility's NMP;

(b) "field" means an area of land that is capable of supporting vegetation and is homogeneous with respect to crop or cover type where manure is to be applied and is under the control of a CAFO owner or operator;

(c) "manure" means manure, litter, or process wastewater, including bedding, compost, and raw materials or other materials comingled with manure or set aside for disposal;

(d) "multi-year phosphorus application" means phosphorus applied to a field in excess of the crop needs for that year;

(e) "Olsen soil test" means the concentration of phosphorus in the soil as determined by the Olsen sodium-bicarbonate extraction in accordance with method

code 4D5 in United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42, Version 4.0, November 2004;

(f) "process wastewater" means water directly or indirectly used in the operation of a CAFO for any or all of the following:

(i) spillage or overflow from animal or poultry watering systems;

(ii) washing, cleaning, or flushing pens, barns, manure pits, or other CAFO facilities;

(iii) direct contact swimming, washing, or spray cooling of animals;

(iv) dust control; or

(v) any water that comes into contact with any raw materials, products, or byproducts including manure, litter, feed, milk, eggs, or bedding;

(g) "site vulnerability rating" means the narrative description of a field for phosphorus loss as determined by Table 4 (Site/Field Vulnerability to Phosphorus Loss) in United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), No. 80.1 Nutrient Management, Agronomy Technical Note MT-77 (revision 3), January 2006; and

(h) "total phosphorus index value" means the sum of the weighted risk factors for a field as determined by Table 3 (Phosphorus Index Assessment) in United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), No. 80.1 Nutrient Management, Agronomy Technical Note MT-77 (revision 3), January 2006.

(3) Except as provided in (10), application rates for manure applied to each field must be determined based on the criteria given in (a) through (c).

(a) The CAFO shall complete a field-specific assessment to determine the appropriate basis (nitrogen or phosphorus based) for application of plant nutrients. The field-specific assessment must be based on the phosphorus index assessment method described in United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), No. 80.1 Nutrient Management, Agronomy Technical Note MT-77 (revision 3), January 2006. The nutrient application basis is determined as follows:

(i) nitrogen based application if the site vulnerability rating is low or medium (total phosphorus index value is less than 22);

(ii) phosphorus based application up to crop removal if the site vulnerability rating is high (total phosphorus index value is between 22 and 43); or

(iii) no application of phosphorus if:

(A) the site vulnerability rating is rated as very high (total phosphorus index value is greater than 43); or

(B) the results of a representative soil phosphorus test for the field results in a value of 150 mg/L phosphorous or more using the Olsen soil test.

(b) The CAFO shall complete a nutrient need analysis for each crop to determine the acceptable amounts of nitrogen and phosphorus to be applied to the field based on the appropriate basis (nitrogen or phosphorus based application) as determined in (a). The nutrient needs must be determined based on Montana State University Extension Service Publication 161, Fertilizer Guidelines for Montana Crops. For crops not listed in Bulletin 161, the department may approve a fertilizer application rate provided by the local county extension service.

(c) The CAFO shall complete a nutrient budget based on the nutrients needs of the crop as determined in (b) that accounts for all sources of nutrients available to the crop. Other sources that must be addressed where applicable include those in (i) through (vi) below.

(i) The nitrogen needs determined in (b) must be reduced based on nitrogen fixation credits if a legume crop was grown in the field in the previous year based on the nitrogen fixation rates given in Schedule I.

Schedule I. Nitrogen Fixation Estimates for Dryland Conditions

Crop	Nitrogen Fixation (pounds per acre)
Alfalfa (after harvest)	40-80
Alfalfa (green manure)	80-90
Spring Pea	40-100
Winter Pea	70-100
Lentil	30-100
Chickpea	30-90
Fababean	50-125
Lupin	50-55
Hairy Vetch	90-100
Sweetclover (annual)	15-20
Sweetclover (biennial)	80-150
Red Clover	50-125
Black Medic	15-25

(ii) The nitrogen needs determined in (b) must be reduced based on nitrogen residuals from past manure applications based on nitrogen mineralization rates given in Schedule II.

Schedule II. Nitrogen Mineralization Rates

Type of Wastes	First Year[1]	Second Year
Fresh poultry manure	0.90	0.02
Fresh swine manure	0.75	0.04
Fresh cattle manure	0.70	0.04
Fresh sheep and horse manure	0.60	0.06
Liquid manure, covered tank	0.65	0.05
Liquid manure, storage pond	0.65	0.05
Solid manure, stack	0.60	0.06
Solid manure, open pit	0.55	0.05
Manure pack, roofed	0.50	0.05
Manure pack, open feedlot	0.45	0.05
Storage pond effluent	0.40	0.06
Oxidation ditch effluent	0.40	0.06
Aerobic lagoon effluent	0.40	0.06

Anerobic lagoon effluent	0.30	0.06

(1) If irrigated, reduce first year mineralization by 0.05.

(iii) The nitrogen needs determined in (b) must be reduced based on any nutrients provided by commercial fertilizer, irrigation water, or other sources. The CAFO shall provide the basis for the nutrients adjustments on the NMP.

(iv) Nitrogen availability may be adjusted to reflect the method of application given in Schedule III. For phosphorus based application, the nitrogen availability is 1.0.

Schedule III. Nitrogen Availability and Loss by Method of Application

Application Method	Loss Factor
Injection (sweep)	0.90
Injection (knife)	0.95
Broadcast (incorporated within 12 hours)	0.7
Broadcast (incorporated after 12 hours but before four days)	0.6
Broadcast (incorporated after four days)	0.5
Sprinkling	0.75

(v) The nutrient budget must be completed on forms provided by the department.

(vi) If after the first three years of implementing the NMP the yield does not average at least 80% of the planned expected crop yield, the NMP must be amended to be consistent with the documented yield levels unless sufficient justification for the use of the higher yield is approved by the department. The amendment must be submitted as an amendment in accordance with ARM 17.30.1365.

(4) Manure that is land applied must be sampled at least once per year and analyzed for total nitrogen (as N), ammonium nitrogen (as NH_4-N), total phosphorus (as P_2O_5), total potassium (as K_20), and percent dry matter (solids). Except for percent dry matter, the results of this analysis must be expressed as pounds per 1,000 gal for liquid wastes and pounds per ton for solid manure. The sample must be representative of the manure that is to be applied to a field and must be collected and analyzed in accordance with (a) and (b).

(a) Solid manure must be sampled from at least ten different locations (subsamples) within the material to be applied from a depth of at least 18 inches below the surface. Subsamples must be thoroughly mixed in a clean receptacle and a sample of the mixed material must be collected and placed in a sealable plastic bag or other sample container approved by the analytical laboratory. The sample must be identified with the name, source, and date. The sample must be cooled to four degrees centigrade and analyzed within seven days or frozen at minus 18 degrees centigrade for up to six months or as directed by the analytical laboratory specified in (6).

(b) Liquid manure must be agitated for a minimum of four hours prior to sample collection or until thoroughly mixed. A minimum of five one-quart subsamples must be collected from different locations in the storage facility. The subsamples must be collected from the liquid manure at a depth of least 12 inches below the surface. The subsamples must be combined into a single container and thoroughly mixed. A sample for laboratory analysis must be collected from the composited subsamples and placed into a clean one-quart plastic bottle or other sample container approved by the analytical laboratory. The sample must be identified with the name, source, and date. The sample container must not be completely filled. The sample must be cooled to four degrees centigrade and analyzed within seven days, or frozen at minus 18 degrees centigrade for up to six months or as directed by the analytical laboratory specified in (6).

(5) Each field where manure is to be land applied must be sampled at least once every five years in accordance with the procedure given in (a) through (d).

(a) A minimum of ten individual core samples must be composited to formulate a composite sample for the field. Core sampling in fields with significant landscape variation, including, soil type, slope, degree of erosion, drainage, historic usage, or other factors, must be collected from each unit in proportion to the relative abundance in terms of total area. Uniform fields may be sampled in a simple random, stratified random, or systematic pattern following the guidance sources listed below. Individual core samples must be composited and thoroughly mixed in a clean plastic container except that core samples collected at different depths must be kept separate. Alternative soil sampling procedures are given in the following:

(i) United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Sampling Soils for Nutrient Management – Manure Resource Series, MT, April 2007; and

(ii) Montana State University Extension, MontGuide, Interpretation of Soil Test Reports for Agriculture, MT200702AG, July 2007.

(b) The composite soil sample for phosphorus analysis must be collected from a depth of zero to six inches below the surface and analyzed for phosphorus using the Olsen soil test method. Results must be reported as mg/kg phosphorus and pounds per acre.

(c) Composite soil samples for nitrogen analysis must be collected from a depth of zero to six inches below the surface and analyzed for total nitrogen (as N) and nitrate (as N). A second composite sample must be collected at a depth of six to 24 inches and analyzed for nitrate (as N) only. Samples must be analyzed in accordance with method code 4H2a1-3 in United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42, Version 4.0, November 2004. Results must be reported as mg/kg total nitrogen and pounds per acre.

(6) Analytical laboratories approved for manure and soil testing are given in Montana State University Extension Service Publication 4449-1, Soil Sampling and Laboratory Selection, June 2005.

(7) Manure must be applied to fields at times and under conditions that will hold the nutrients in place for crop growth and protect surface and ground water using best management practices described in the nutrient management plan. The intended target spreading dates must be included in the NMP. Manure must not be

land applied under the following conditions:

(a) on land that is flooded or saturated with water;

(b) during or within 36 hours of a rainfall event that exceeds four hours in duration or 0.25 inches or more of precipitation; or

(c) to frozen or snow-covered ground.

(8) Manure application rates and procedures must be consistent with the capabilities, including capacity and calibration range, of application equipment.

(a) For an existing CAFO, the NMP must include a statement indicating that the existing equipment has been calibrated to ensure delivery of the application rates described in the plan and has the capacity to meet those rates. The CAFO shall maintain the supporting documentation on site and shall make this information available to the department upon request.

(b) For proposed operations, or when it is not feasible to calibrate the equipment or verify its capacity at planning time, the operator shall perform this application equipment verification prior to the first application of manure. The information required in (a) must be maintained on site and incorporated into any subsequent amendment of the NMP. The CAFO shall maintain the supporting documentation on site and shall make this information available to the department upon request.

(c) If a commercial hauler is used, the hauler shall be responsible for ensuring that the equipment is capable of complying with the application rate in the NMP. The CAFO shall maintain the supporting documentation on site and shall make this information available to the department upon request.

(9) A multiyear phosphorus application is allowed for fields that require a nitrogen based application based on a site-specific assessment (site vulnerability rating less than 22) as described in (3). When such application is made, the following conditions apply:

(a) the application may not exceed the recommended nitrogen application rate during the years of application which may include a calculation for fertilizer inefficiencies or the estimated nitrogen removal in harvested plant biomass during the year of application when there is no recommended nitrogen application;

(b) conservation practices must be included in the NMP and implemented to minimize the risk of phosphorus loss from the field; and

(c) no additional manure may be applied to the field until the phosphorus applied in the single application has been removed through plant harvest.

(10) As an alternative to the manure application rates based on the criteria given in (3), the CAFO may develop application rates for manure based on United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), Conservation Practice Standard, Code 590 (November 2006), provided that the following conditions are met:

(a) a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to surface waters must be conducted;

(b) the form, source, amount, timing, and method of application of manure and any other nutrients to each field must be based on realistic production goals, and minimizing nitrogen and phosphorus movement to surface water must be addressed;

(c) the appropriate flexibilities for the CAFO must be maintained to implement

a multi-year phosphorus application as described in (9);

(d) manure must be sampled a minimum of once annually for nitrogen and phosphorus and must be analyzed based on procedures and methods given in (4) and (5);

(e) soil must be analyzed a minimum of once every three years for phosphorus content;

(f) the results of the manure and soil sampling analysis must be used in determining manure application rates; and

(d) the nutrient budget must be completed on forms provided by the department.

(11) The board adopts and incorporates by reference the following, which may be obtained from the Department of Environmental Quality, Water Protection Bureau, P.O. Box 200901, Helena 59620-0901, or on the department's website at http://deq.mt.gov/default.mcpx.

(a) United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), No. 80.1 Nutrient Management Agronomy Technical Note MT-77 (revision 3), (January 2006);

(b) United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Method 4D5 (Olsen Sodium-Bicarbonate Extraction), Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42, Version 4.0, (November 2004);

(c) United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Sampling Soils for Nutrient Management – Manure Resource Series, MT (April 2007);

(d) Montana State University Extension, MontGuide, Interpretation of Soil Test Reports for Agriculture, MT200702AG, (July 2007);

(e) Montana State University Extension Service Publication 4449-1, Soil Sampling and Laboratory Selection, (June 2005); and

(f) United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Conservation Practice Standard, Nutrient Management, Code 590, (November 2006).

AUTH: 75-5-401, 75-5-802, MCA
IMP: 75-5-401, 75-5-802, MCA

REASON: The board is proposing to adopt New Rule I to comply with the requirements of 40 CFR 123.36. This federal rule requires each delegated state to establish technical standards for nutrient management that are consistent with 40 CFR 412.4(c)(2). This technical standard is an effluent limitation that specifies the application rate for manure, litter, and other process wastewater applied to land under the ownership or operational control of the CAFO.

The technical standards adopted by the state must include: (1) a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to surface water and a nutrient management plan (NMP) that addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals; and (2) appropriate flexibilities for any CAFO to implement nutrient management practices to comply with the technical standards,

including consideration of multiyear phosphorus application, phased implementation of phosphorus-based nutrient management, and other components as determined appropriate by the state.

The technical standards in New Rule I are based on and derived from Section 6 of Department Circular DEQ-9 that the board adopted in 2006, which describes procedures for conducting a field-specific assessment and determination of application rates for manure, litter, and process water. New Rule I also contains sampling procedures that are described in Section 5 of Department Circular DEQ-9. In addition to these procedures, New Rule I includes a section of definitions explaining technical terms used in the rule, identifies analytical procedures for analysis of soils and manure and analytical laboratories that may perform these analyses, and sets out conditions under which multiyear phosphorus application rates are acceptable.

The board is also proposing to eliminate language in ARM 17.30.1343 requiring CAFOs to comply with Department Circular DEQ-9 due to EPA's revisions to the CAFO regulations in 2008, specifically 40 CFR 123.36. Department Circular DEQ-9 was adopted by the board in 2006 prior to promulgation of the 2008 federal CAFO rule, which placed into regulation, in 40 CFR 122.23, 122.42(e), and Part 412, the requirements for nutrient management, best management practices, record keeping, and annual reporting for CAFOs. These provisions of Department Circular DEQ-9 are no longer necessary. Other requirements of Department Circular DEQ-9 are neither consistent with, nor required by, 40 CFR 123.36 or 40 CFR 122.42(e).

These amendments are necessary to be consistent with EPA's requirements for delegated state permit programs pursuant to 40 CFR 123.25 and 40 CFR 123.36.

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., _____, 2013. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

6. Katherine Orr, 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.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

_____ BY: _____

JAMES M. MADDEN
Rule Reviewer

JOSEPH W. RUSSELL, M.P.H.,
Chairman

Certified to the Secretary of State, _____, 2013.

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM
EXECUTIVE SUMMARY FOR RULEMAKING PROPOSAL

AGENDA # III.A.2.

AGENDA ITEM SUMMARY: The Department requests that the Board initiate rulemaking to adopt revisions to Department Circular DEQ-4, Montana Standards for On-Site Subsurface Sewage Treatment Systems. Circular DEQ-4 is incorporated in Board rules at ARM 17.30.702, 17.36.914, and 17.38.101. Circular DEQ-4 is incorporated in Department rules at ARM 17.36.345. A draft joint Board/Department rule notice is attached, which would update the incorporations by reference from the 2009 edition to the 2013 edition.

LIST OF AFFECTED RULES: ARM 17.30.702, 17.36.345, 17.36.914, and 17.38.101.

AFFECTED PARTIES SUMMARY: The proposed rule amendments will affect designers and owners of systems that discharge sewage to subsurface treatment systems, and local boards of health and health departments that have regulations for such systems.

SCOPE OF PROPOSED PROCEEDING: The Department requests that the Board initiate rulemaking and schedule a public hearing to take comment on the proposed revisions to Department Circular DEQ-4 incorporated by reference in the rules shown above.

BACKGROUND: Department Circular DEQ-4 sets out requirements for the design and preparation of plans and specifications for subsurface sewage treatment systems. Circular DEQ-4 is incorporated by reference in Department rules for review of subdivisions, and in Board rules addressing water quality nondegradation, review of public sewer systems, and minimum standards for sewage regulation by local health agencies. In the proposed revisions to Department Circular DEQ-4, the document format is reorganized, illustrations are added, and grammar and numbering is corrected. In response to emerging technology, it is necessary to also add new chapters and new design requirements, including an appendix with design examples. A list by chapter of the proposed revisions to Department Circular DEQ-4 is provided in the attached Draft Notice of Public Hearing on Proposed Amendments.

HEARING INFORMATION: The Department recommends that the Board appoint a hearing officer and conduct a public hearing to take comment on the proposed amendments.

BOARD OPTIONS:

The Board may:

1. Initiate rulemaking and issue the attached Notice of Public Hearing on Proposed Amendment;
2. Modify the Notice and initiate rulemaking; or
3. Determine that amendment 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 hearings officer.

ENCLOSURES:

1. Draft Notice of Public Hearing on Proposed Amendment
2. Proposed Department Circular DEQ-4

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
AND THE DEPARTMENT OF ENVIRONMENTAL QUALITY
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.30.702, 17.36.345, 17.36.914, and 17.38.101 pertaining to Department Circular DEQ-4	NOTICE OF PUBLIC HEARING ON PROPOSED AMENDMENT (WATER QUALITY) (SUBDIVISIONS/ON-SITE SUBSURFACE WASTEWATER TREATMENT) (PUBLIC WATER AND SEWAGE SYSTEMS REQUIREMENTS)

TO: All Concerned Persons

1. On _____, 2013 at ____ __.m., the Board of Environmental Review and the Department of Environmental Quality will hold a public hearing [in/at address], Montana, to consider the proposed amendment of the above-stated rules.

2. The board and department 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., _____, 2013, 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:

17.30.702 DEFINITIONS The following definitions, in addition to those in 75-5-103, MCA, apply throughout this subchapter (Note: 75-5-103, MCA, includes definitions for "degradation," "existing uses," "high quality waters," "mixing zone," and "parameter"):

(1) through (25) remain the same.

(26) The board adopts and incorporates by reference:

(a) remains the same.

(b) Department Circular DEQ-4, entitled "Montana Standards for Subsurface Wastewater Treatment Systems" (~~2009~~ 2013 edition), which establishes technical standards for construction of subsurface wastewater treatment systems; and

(c) and (d) remain the same.

AUTH: 75-5-301, 75-5-303, MCA
IMP: 75-5-303, MCA

REASON: The department is proposing to revise Department Circular DEQ-4. The proposed amendment to this rule is necessary to adopt the revised DEQ-4 for purposes of the nondegradation rules adopted under the provisions of the Montana Water Quality Act, Title 75, chapter 5, MCA. The proposed revisions to Circular DEQ-4 are summarized in the Reason for the amendments to ARM 17.38.101. The complete text of the proposed amendments to the DEQ-4 Circular is available on the department's web site at http://www.deq.mt.gov/wqinfo/Sub/default.mcpx.

17.36.345 ADOPTION BY REFERENCE (1) For purposes of this chapter, the department adopts and incorporates by reference the following documents. All references to these documents in this chapter refer to the edition set out below:

(a) through (c) remain the same.

(d) Department Circular DEQ-4, "Montana Standards for Subsurface Wastewater Treatment Systems," ~~2009~~ 2013 edition;

(e) through (2) remain the same.

AUTH: 76-4-104, MCA
IMP: 76-4-104, MCA

REASON: The department is proposing to revise Department Circular DEQ-4. The proposed amendment to this rule is necessary to adopt the revised DEQ-4 for purposes of the subdivision rules adopted under the provisions of the Sanitation in Subdivisions Act, Title 76, chapter 4, MCA. A summary of the revisions to DEQ-4 is contained in the Reason for the amendments to ARM 17.38.101. The complete text of the proposed amendments to the DEQ-4 Circular is available on the department's web site at http://www.deq.mt.gov/wqinfo/Sub/default.mcpx.

17.36.914 WASTEWATER TREATMENT SYSTEMS - TECHNICAL REQUIREMENTS (1) remains the same.

(2) Department Circular DEQ-4, ~~2009~~ 2013 edition, which sets forth standards for subsurface sewage treatment systems, and Department Circular DEQ-2, 1999 edition, which sets forth design standards for wastewater facilities, are adopted and incorporated by reference for purposes of this subchapter. All references to these documents in this subchapter refer to the editions set out above. Copies are available from the Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901.

(3) through (7) remain the same.

AUTH: 75-5-201, MCA
IMP: 75-5-305, MCA

REASON: The proposed amendment to this rule is necessary to adopt the revised DEQ-4 in the state standards for sewage treatment that are implemented by local health departments. The proposed revisions to Circular DEQ-4 are summarized in the Reason for the amendments to ARM 17.38.101. The complete text of the proposed amendments to the DEQ-4 Circular is available on the

department's web site at http://www.deq.mt.gov/wqinfo/Sub/default.mcpx.

17.38.101 PLANS FOR PUBLIC WATER SUPPLY OR WASTEWATER SYSTEM (1) through (15) remain the same.

(16) For purposes of this chapter, the department adopts and incorporates by reference the following documents. All references to these documents in this chapter refer to the edition set out below:

(a) through (c) remain the same.

(d) Department of Environmental Quality Circular DEQ-4, ~~2009~~ 2013 edition, which sets forth standards for subsurface wastewater treatment systems;

(e) through (17) remain the same.

AUTH: 75-6-103, MCA
IMP: 75-6-103, 75-6-112, 75-6-121, MCA

REASON: The proposed amendments to ARM 17.38.101 adopt the revised Circular DEQ-4 by reference. The amendments are necessary to establish the standards the department will use when it reviews, under the public water and sewer laws in Title 75, chapter 6, MCA, plans and specifications for public subsurface wastewater systems. The proposed revisions to Circular DEQ-4 are summarized below. The complete text of the proposed amendments to the DEQ-4 Circular is available on the department's web site at http://www.deq.mt.gov/wqinfo/Sub/default.mcpx.

Proposed Revisions to Department Circular DEQ-4

Throughout the entire document format was reorganized, illustrations added, grammar corrected, and numbering reconfigured. In response to emerging technology, it is necessary to also add new chapters, including an appendix with design examples.

General references in the Circular to the applicability of local building codes and uniform codes, such as uniform plumbing and electrical codes, have been deleted. The department lacks authority to generally enforce these codes, because some components governed by the codes (e.g., buildings, wiring, and service lines) are not subject to statutes administered by the department. When a code provision does apply to a component reviewed by the department under the Circular, the provision has been specifically added to the text of the Circular. For example, the Circular requires that wastewater pumping stations be provided with effluent pumps, controls, and wiring that are corrosion-resistant and listed by Underwriters Laboratories, Canadian Standards Association, or another approved testing and/or accrediting agency, as meeting the requirements for National Electric Code (NEC) Class I, Division 2 locations.

Following is a list by chapter of the proposed revisions to Department Circular DEQ-4.

Table of Contents. The table was reorganized to include the new headings in the Circular.

Chapter 1, Introduction. Further explanation is provided of gravity and

pressure dosed systems, and new system descriptions are provided for shallow capped, waste segregation, and subsurface drip treatment options. New definitions are added to match existing statutes, rules, and other Department Circulars.

Chapter 2, Site Conditions. The revisions add new requirements and clarify existing requirements for site evaluations, including provisions relating to soil evaluation, staking, non-degradation, and sizing. Provisions are inserted to allow minor cut and fill of natural soil during construction.

Chapter 3, Wastewater. The revisions provide a new methodology for evaluating wastewater flows in large onsite systems. The revisions also add a chapter on high strength waste and water treatment waste residuals.

Chapter 4, Collection, Pumping and Distribution Systems. The revisions add a new chapter discussing sewer collection systems, pumping stations, and effluent distribution systems. Much of the new information is taken from Department Circular DEQ-2.

Chapter 5, Primary Treatment. The revisions modify and clarify sizing, construction, and installation requirements for septic tanks. The revisions also add provisions for the use of poly and fiberglass septic tanks.

Chapter 6, Secondary Treatment. The revisions revise requirements for subsurface treatment systems, including the following systems: standard absorption trenches, shallow capped absorption trenches, deep absorption trenches, sand-lined absorption trenches, gravelless trenches and other absorption methods, elevated sand mounds, gray water systems, evapo-transpiration/absorption (ETA) systems, evapo-transpiration (ET) systems, and absorption beds. The revisions add a chapter discussing subsurface drip, and remove the provisions for at-grade systems.

Chapter 7, Advanced Treatment. The revisions clarify requirements and sizing criteria for drainfields and system configurations for the following advanced treatment systems: recirculating media filter, intermittent sand filter, recirculating sand filter, aerobic wastewater treatment units, and chemical nutrient–reduction systems. The revisions also add a chapter discussing alternative advanced treatment systems.

Chapter 8, Miscellaneous. The revisions add a chapter outlining waste segregation through the use of composting and incinerating toilets.

Appendix A, Percolation Test Procedure. The revisions remove percolation test procedure 2 from allowable methodologies.

Appendix B, Soils and Site Characterization. The revisions add and change definitions in the Appendix to match the Circular and add percolation rates to the soil textural triangle.

Appendix C, Groundwater Observation Well Installation and Measurement Procedures. The revisions add a ground water monitoring report form.

Appendix D, Operation and Maintenance. The revisions clarify existing requirements.

Appendix E, Design Examples. The revisions add design examples for an elevated sand mound and an ETA system.

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., _____, 2013. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

5. Katherine Orr, 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 and department maintain 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 supplies; public sewage systems regulation; hard rock (metal) mine reclamation; major facility siting; opencut mine reclamation; strip mine reclamation; subdivisions; renewable energy grants/loans; wastewater treatment or safe drinking water revolving grants and loans; water quality; CECRA; underground/above ground storage tanks; MEPA; or general procedural rules other than MEPA. 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 or department.

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

Reviewed by:

BOARD OF ENVIRONMENTAL REVIEW

_____

JAMES M. MADDEN
Rule Reviewer

BY: _____

JOSEPH W. RUSSELL, M.P.H.,
Chairman

DEPARTMENT OF ENVIRONMENTAL QUALITY

BY: _____

RICHARD H. OPPER, Director

Certified to the Secretary of State, _____, 2013.

CIRCULAR DEQ 4

MONTANA STANDARDS

FOR SUBSURFACE WASTEWATER

TREATMENT SYSTEMS

~~2009~~ 2013 Edition

FOREWORD

These standards, based on ~~proven~~ demonstrated technology, set forth requirements for the design and preparation of plans and specifications for subsurface wastewater treatment systems.

Users of these standards need to be aware that subsurface wastewater treatment systems are considered by the Environmental Protection Agency to be Class V injection wells and may require associated permits. ~~Of particular concern are systems receiving wastewater from industries and automotive service stations.~~

These standards are a revision of the Department's Circulars WQB-4, WQB-5, and WQB-6, 1992 Editions and Circular DEQ 4, 2000, 2002, ~~and~~, 2004, and 2009 Editions.

CIRCULAR DEQ-4

CHAPTER

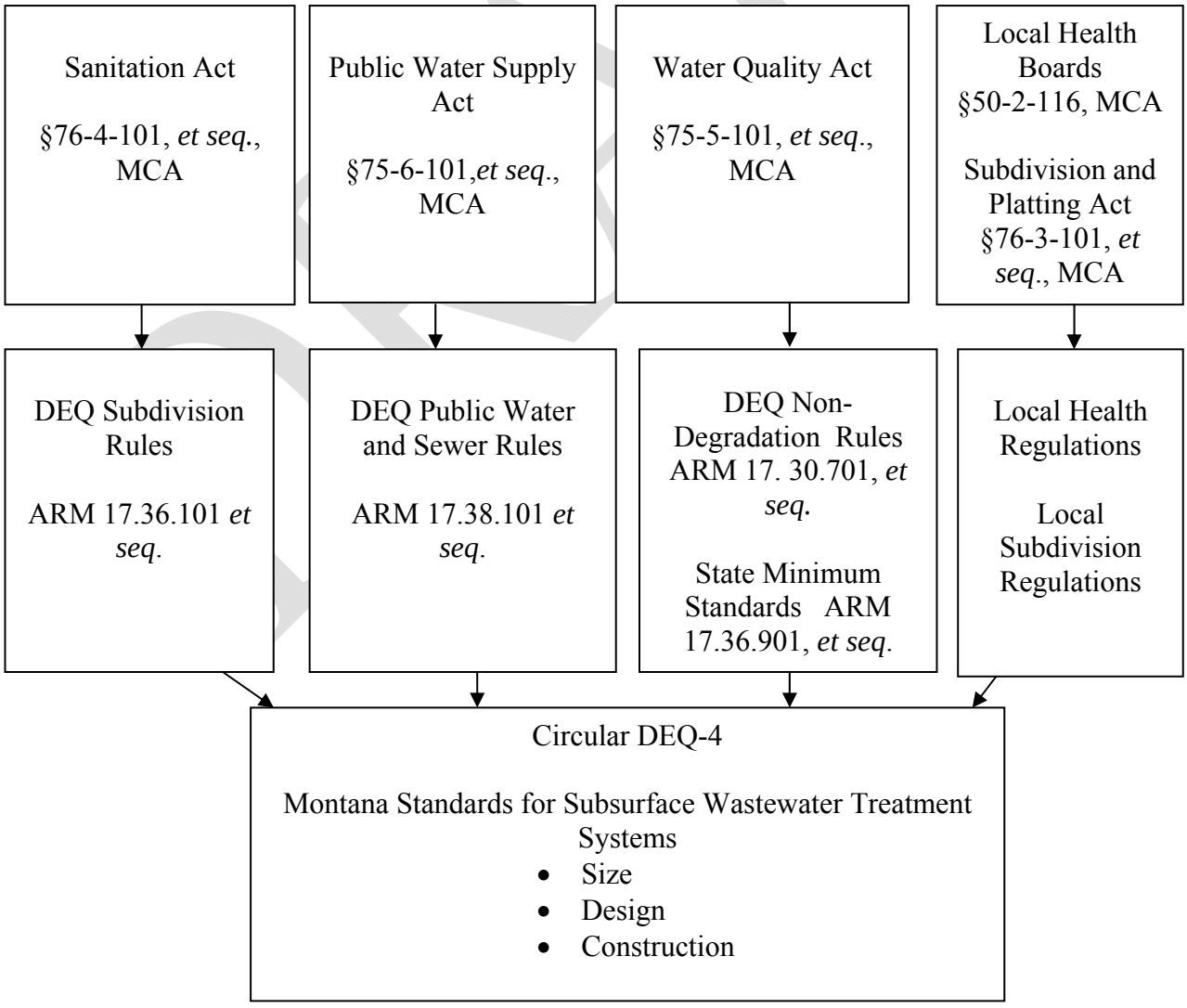
1. INTRODUCTION

1.1 APPLICABILITY

1.1.1 General

These minimum standards apply to all subsurface wastewater treatment systems in Montana. In some cases, a reviewing authority (other than the Department of Environmental Quality) may have requirements that are more stringent than those set out in this Circular.

The term "reviewing authority," as used in these standards, refers to the Montana Department of Environmental Quality, a division of local government delegated to review public wastewater systems pursuant to Administrative Record of Montana (ARM) 17.38.102, a local unit of government that has adopted these standards pursuant to Section 76-3-504, Montana Code Annotated (MCA), or a local board of health that has adopted these standards pursuant to Section 50-2-116, MCA.



1.1.2 Types of systems

This Circular describes different types of wastewater treatment and disposal systems for use in subsurface effluent discharge. These systems typically consist of a collection system, septic tank, distribution box or manifold and series of subsurface laterals for effluent allocation. All wastewater applied to the subsurface treatment system must meet residential strength parameters. The method and pattern of effluent discharge in a subsurface absorption system are important design elements; distribution of effluent may be either through gravity flow application or pressure dosing.

The gravity flow method of effluent distribution discharges wastewater from the septic tank or other pretreatment tank directly to the subsurface treatment system as incoming wastewater displaces it from the tank(s). It is characterized by the term "trickle flow" because the effluent is slowly discharged over much of the day. Typically, tank discharges are too low to flow throughout the entire subsurface network; thus, distribution is unequal and localized. Overloading of the infiltration surface may occur; without extended periods of little or no flow to allow the subsoil to dry, hydraulic failure is possible.

Pressure dose distribution accumulates wastewater effluent in a dose tank from which it is periodically discharged under pressure to the subsurface treatment system by a pump. The pretreated wastewater is allowed to accumulate in the dose tank and is discharged “in doses” when a predetermined water level, water volume, or elapsed time is reached. The dose volumes and discharge rates are usually such that much of the subsurface network is filled, resulting in more uniform distribution over the absorption system area. Periods between doses provide opportunities for the subsoil to drain and reaerate before the next dose. As a result, dosed-flow systems reduce the rate of soil clogging, more effectively maintain unsaturated conditions in the subsoil and provide a means to manage wastewater effluent applications to the absorption system. Dosing outperforms gravity-flow systems because distribution is more uniform, controlled and can be used in any application. Pressure dosed distribution should be the method of choice whenever possible.

The~~se~~ wastewater treatment and disposal systems described by this document include standard absorption trenches, shallow capped absorption trenches, deep absorption trenches, ~~at-grade absorption trenches~~, sand-lined absorption trenches, gravelless trenches and other absorption systems, elevated sand mounds, intermittent sand filters, recirculating sand filters, recirculating trickling filters, evapotranspiration absorption systems, evapotranspiration systems, aerobic wastewater treatment units, chemical nutrient reduction systems, waste segregation systems, subsurface drip systems, gray water systems, and experimental systems. ~~Systems providing advanced treatment or greater separation to a limiting layer may be used where standard absorption trenches are acceptable~~. ~~Many of these systems also have specific applications to solving particular problems.~~ ~~The list~~ Below is a partial list of system applications intended to assist in problem solving for a particular set of site conditions.

1.1.3 System uses

1.1.3.1 Deep absorption trenches are used to break through an impervious soil layer and allow effluent to infiltrate a deeper and more permeable soil. ~~The bottom of the trench must not be more than 5 feet below natural ground surface.~~

1.1.3.2 Shallow capped absorption trenches and elevated sand mounds are used to achieve the minimum separation distance between the ~~bottom of the trench~~ treatment system and a limiting layer. ~~and may be used as long as a 4-foot separation can be maintained. These systems may be used only for residential strength wastewater and for flows not exceeding 500 gallons per day~~.

1.1.3.3 ~~Sand-lined absorption trenches are used where the percolation rate is faster than 3 minutes per inch or for rapid or slow permeability situations~~. Sand-lined absorption trenches are used for rapid permeability situations.

1.1.3.4 Gravelless trenches and other absorption systems are used in lieu of standard absorption trenches within the limitations provided in this Circular.

~~Elevated sand mounds are used to provide advanced treatment of septic tank effluent and/or to achieve the minimum separation distance between the bottom of the drain rock and a limiting layer.~~

1.1.3.5 Evapotranspiration absorption systems are used where slow percolation rates or soil conditions would preclude the use of a standard absorption trench.

1.1.3.6 Evapotranspiration systems are used where slow percolation rates or soil conditions would preclude the use of a soil absorption ~~standard~~ system

1.1.3.7 Subsurface drip systems are used for irrigation and in cases where the standard absorption system shape must be altered due to topography or natural barriers.

1.1.3.8 Gray water systems are used for irrigation.

1.1.3.9 Intermittent sand filters are used to provide advanced treatment of septic tank effluent prior to final disposal and are typically used on small systems.

1.1.3.10 Recirculating sand filters are used to provide advanced treatment of septic tank effluent prior to final disposal and are typically used on large wastewater systems.

1.1.3.11 Recirculating media trickling filters, aerobic wastewater treatment units and chemical nutrient reduction systems are used to provide advanced treatment of septic tank effluent prior to final disposal. They may also be used to provide treatment of high strength wastewater.

~~Aerobic wastewater treatment units are used to provide advanced treatment of septic tank effluent or to provide treatment equal to or better than a septic tank.~~

~~Chemical nutrient reduction systems are used to provide advanced treatment of septic tank effluent. The monitoring frequency must be sufficient to establish the treatment efficiency and response to varying wastewater flows, strengths, and climatic conditions. The Department will consider the complexity and maintenance required of the system, the stability of the processes, and the monitoring data in determining the adequacy, level of maintenance, and monitoring frequency of the system.~~

1.1.3.12 Absorption beds, holding tanks, sealed pit privies, unsealed pit privies, and seepage pits may only be used as specified in ~~Department~~ the reviewing authority's regulations. These systems are not allowed as new systems in subdivisions unless authorized by the regulations. Typically, these systems are subject to limited areas, used as replacement systems, or are used in areas where other systems cannot be used.

1.1.3.13 Waste segregation systems are used where system utilization, slow percolation rates or soil conditions would preclude the use of a soil absorption system

~~Gray water is untreated wastewater collected from bath tubs, showers, lavatory sinks, clothes washing machines, and laundry tubs. Gray water systems used in conjunction with a waste segregation system may also use wastewater collected from kitchens. Gray water can be contaminated with organic matter, suspended solids or microorganisms that are potentially pathogenic. In general, treatment and disposal of gray water is subject to all applicable provisions in this Circular, except that gray water may be used for irrigation as provided in this chapter.~~

1.1.4 Deviations

~~Deviations from the mandatory requirements of this Circular may be granted by the reviewing authority having jurisdiction on a case-by-case basis for specific projects~~. The reviewing authority may grant deviations from the requirements of this Circular. The terms **shall, must,** and **may not** are used where practice is sufficiently standardized to permit specific delineation of requirements or where safeguarding of the public health justifies such definite action. These mandatory items serve as a checklist for the reviewing authority. Other terms, such as **should, may, recommended,** and **preferred**, indicate desirable procedures or methods. These non-mandatory items serve as guidelines for designers and do not require specific approval for deviations.

1.1.4.1 Procedure

A person desiring a deviation shall make a request in writing to the reviewing authority having jurisdiction and shall include the appropriate review fee. The request must identify the specific section of the Circular to be considered. Adequate justification for the deviation must be provided. "Engineering judgment" or "professional opinion" without supporting data ~~must be~~ is considered inadequate justification. The justification must address the following issues:

A. The system that would be allowed by the deviation would be unlikely to cause pollution of state waters in violation of 75-5-605, MCA; and

B. The granting of the deviation would protect the quality and potability of water for public water supplies and domestic uses and would protect the quality of water for other beneficial uses, including those uses specified in 76-4-101, MCA; and

C. The granting of the deviation would not adversely affect public health, safety, and welfare.

The reviewing authority having jurisdiction will review the request and make final determination on whether a deviation may be granted.

The reviewing authority ~~must~~ shall maintain a file of all deviations.

~~A file of all deviations must be maintained by the reviewing authority~~.

1.1.5 Illustrations and Examples

The images, pictures examples and calculations found in this Circular are presented for illustration purposes only and may not include all design requirements. Please refer to the specific rules in this circular pertaining to each element for details.

1.2 DEFINITIONS

1.2.1 **Absorption area** means that area determined by multiplying the length and width of the bottom area of the disposal trench.

1.2.2 **Absorption bed** means an absorption system that consists of excavations greater than 3 feet in width where the distribution system is laid for the purpose of distributing pretreated waste effluent into the ground.

1.2.3 **Absorption system** means any secondary treatment system including absorption trenches, elevated sand mounds, ~~and~~ evapotranspiration absorption (ETA) ~~systems~~, gray water irrigation and subsurface drip systems used for subsurface disposal of pretreated waste effluent.

1.2.4 **Absorption trench** means an absorption system that consists of excavations 18 to 36 inches ~~less than or equal to 3 feet~~ in width where the distribution system is laid for the purpose of distributing pretreated waste effluent into the ground.

1.2.5 **Accessory building** means a subordinate building or structure on the same lot as the main building, which is under the same ownership as the main building, and which is devoted exclusively to an accessory use such as a garage, workshop, art studio, guest house, or church rectory.

1.2.6 **Advanced treatment** means a treatment process that provides effluent quality in excess of primary treatment.

1.2.7 **Aerobic wastewater treatment unit** means a wastewater treatment plant that incorporates a means of introducing air and oxygen into the wastewater so as to provide aerobic biochemical stabilization during detention period. Aerobic wastewater treatment facilities may include anaerobic processes as part of the treatment system.

1.2.8 **Bedrock** means material that cannot be readily excavated by hand tools, or material that does not allow water to pass through or that has insufficient quantities of fines to provide for the adequate treatment and disposal of wastewater.

1.2.9 **Bedroom** means any room that is or may be used for sleeping on a regular basis. An unfinished basement is considered as an additional bedroom.

1.2.10 **Blackwater** means any wastewater that includes waste from toilets**.**

1.2.11 **BOD_5** (five-day biochemical oxygen demand) means the quantity of oxygen used in the biochemical oxidation of organic matter in 5 days at 20 degrees centigrade under specified conditions and reported as milligrams per liter (mg/L).

1.2.12 **Building drain** means the pipe extending from the interior plumbing to a point 2 feet outside the foundation wall.

1.2.13 **Building sewer** means the pipe connecting the house or building drain to the public sewer or private sewer.

1.2.14 **Cleanout** means access to a sewer line ~~at least 4 inches diameter~~, extending from the sewer line to the ground surface or inside the foundation, used for access to clean a sewer line.

~~**Chemical nutrient reduction** means a wastewater treatment system that incorporates the systematic addition of one or more chemicals into the effluent in order to reduce the concentration of one or more chemical components (such as nitrate or phosphorus).~~

1.2.15 **Commercial unit** means the area under one roof occupied by a business. For example, a building housing two businesses under one roof is considered two commercial units.

1.2.16 **Composting toilet** means a system consisting of a compartment or a vault that contains or will receive composting materials sufficient to reduce human waste by aerobic decomposition.

1.2.17 **Connection** means a line that provides water or sewer service to a single building or main building with accessory buildings. The term is synonymous with "service connection".

1.2.18 **Design flow** means the ~~peak~~ flow ~~(daily or instantaneous, as appropriate)~~ used for sizing hydraulic facilities, such as pumps, piping, storage, and absorption systems ~~and means the average daily flow for sizing other treatment systems.~~

1.2.19 **Distribution box** means a watertight receptacle that receives septic tank effluent and distributes it equally into two or more pipes leading to the absorption area.

1.2.20 **Distribution pipe** means a perforated pipe used in the dispersion of septic tank or other treatment facility effluent into ~~disposal trenches, seepage trenches, or seepage beds~~ a subsurface wastewater treatment system.

1.2.21 **Dosed system** means any system that utilizes a pump or actuated valves to deliver treated effluent to a subsurface absorption area.

1.2.22 **Dosing frequency** means the number of times per day that effluent is applied to an absorption system, ~~drainfield,~~ or sand filter~~, or sand mound, or to a section of an absorption system, drainfield, sand filter, or sand mound.~~

1.2.23 **Dosing tank** means a watertight receptacle receiving effluent from the septic tank or after another treatment device, equipped with ~~an automatic~~ a siphon or a pump designed to discharge effluent.

1.2.24 **Dosing volume** means the volume of effluent (in gallons) applied to an absorption system~~,~~ ~~drainfield~~ or sand filter~~, or sand mound~~ each time a pump is activated ~~turned on~~ or each time a siphon functions.

1.2.25 **Drain rock** means the rock or coarse aggregate used in an absorption system~~, drainfield, sand mound,~~ or sand filter. Drain rock must be washed, be a maximum of 2 ½ inches in diameter and larger than the orifice size unless shielding is provided to protect the orifice, and contain no more than 2 percent passing the No. 8 sieve. The material must be of sufficient competency to resist slaking or dissolution. Gravels of shale, sandstone, or limestone may degrade and may not be used.

~~**Dwelling or residence** means any structure, building, or portion thereof, which is intended or designed for human occupancy and supplied with water by a piped water system.~~

1.2.26 **Effective size** means the sieve size in millimeters (mm) allowing only 10 percent of the material to pass as determined by wet-test sieve analysis method ASTM C117-95.

1.2.27 **Effluent** means partially treated wastewater from a ~~septic tank~~ primary, advanced or other treatment facility.

1.2.28 **Effluent filter** means an effluent treatment device installed on the outlet of a septic tank designed to prevent the passage of suspended matter larger than 1/8 inch in size.

1.2.29 **Effluent pump** means a pump used to convey wastewater that has been partially treated from a septic tank or other treatment facility. This wastewater has had settleable or floatable solids removed.

1.2.30 **Ejector pump** means a pump that transports raw sewage.

1.2.31 **Emitter** means orifices that discharge effluent at controlled rates, usually specified in gallons per hour. Emitters are typically found in subsurface drip irrigation systems.

1.2.32 **Fats, oils, grease (FOG)** means a component of wastewater typically originating from food stuffs (animal fats or vegetable oils) or consisting of compounds of alcohol or glycerol with fatty acids (soaps and lotions).

1.2.33 **Fill** means artificially placed soil.

1.2.34 **GP Systems** means a grinder pump is used in the wastewater collection system.

1.2.35 **Gravity dose** means a known volume (dose) of effluent that is delivered to an absorption system in a specific time interval. The effluent ~~may be~~ is delivered either by a siphon or by a pump to a drop box, distribution box or manifold. The drop box distribution box or manifold then distributes effluent into a non-pressurized absorption system.

1.2.36 **Gray Water** means wastewater that is collected separately from a sewage flow and that does not contain industrial chemicals, hazardous wastes, or wastewater from toilets.

1.2.37 **Grease trap** means a device designed to separate fats, grease and oils from the effluent.

1.2.38 **Grinder pump** means a pump that shreds solids and conveys wastewater through a sewer to primary or advanced treatment.

1.2.39 **High-strength waste** means effluent from a septic tank or other treatment device that has BOD_5 greater than 300 mg/L, ~~and/or~~ TSS greater than 150mg/L, ~~and~~/or fats, oils, and grease greater than 25mg/L.

1.2.40 **Holding tank** means a watertight receptacle that receives wastewater for retention and does not as part of its normal operation dispose of or treat the wastewater**.**

1.2.41 **Horizon** means a layer in a soil profile that can be distinguished from each of the layers directly above and beneath it by having distinctly different soil physical, chemical, and/or biological characteristics.

1.2.42 **Impervious layer** means any layer of material ~~in the soil profile~~ that has a percolation rate slower than 240 ~~120~~ minutes per inch.

1.2.43 **Incinerating toilet** means a self-contained unit consisting of a holding tank and an adequate heating system to incinerate waste products deposited in the holding tank. The incineration by-products are primarily water and a fine ash.

1.2.44 **Individual wastewater system** means a wastewater system that serves one living unit or commercial unit. The term does not include a public sewage system as defined in 75-6-102, MCA

1.2.45 **Industrial wastewater** means any waste from the process of business or industry or from the development of any natural resource, together with any sewage that may be present.

1.2.46 **Infiltrative surface** means the soil interface that receives the effluent wastewater below the drain rock or sand.

1.2.47 **Influent** means the wastewater flow stream prior to any treatment.

1.2.48 **Irrigation** means those ~~irrigation~~ systems ~~are those~~ that provide ~~for the~~ subsurface application of wastewater to any planted material by means of a piping system.

1.2.49 **Key** means to hollow out in the form of a groove.

1.2.50 **Limiting layer** means bedrock, an impervious layer or seasonally high ground water.

1.2.51 **Living unit** means the area under one roof that can be used for one residential unit, and which has toilet facilities, a kitchen, a bedroom, and an independent entrance. A duplex is considered two living units.

1.2.52 **Manhole mean**s an access to a sewer line for cleaning or repair with requirements as defined in this circular. ~~Department DEQ-2 1999 Edition.~~

1.2.53 **Main** means any line providing water or sewer to multiple service connections, any line serving a water hydrant that is designed for firefighting purposes, or any line that is designed to water or sewer main specifications.

1.2.54 **Manifold** means a solid (non-perforated) main wastewater line that distributes effluent to individual distribution pipes.

1.2.55 **Mottling** or **redoximorphic features** means soil properties associated with wetness that result from the reduction and oxidation of iron and manganese compounds in the soil after saturation and desaturation with water.

1.2.56 **Multiple-user wastewater system** means a non-public wastewater system that serves or is intended to serve ~~three through 14 living units or three through 14 commercial structures~~ more than two living or commercial units, but which is not a public sewage system as defined in 75-6-102, MCA. The total number of people served may not exceed 24. In estimating the population that will be served by a proposed residential system, the reviewing authority shall multiply the number of living units times the county average of persons per living unit based on the most recent census data 2.5.

1.2.57 **Natural soil** means soil that has developed in place through natural processes, and to which no fill material has been added.

1.2.58 **Orifice means** an opening or hole through which wastewater can exit the distribution pipe**.**

~~**Passive nutrient reduction** means a wastewater treatment system, other than elevated sand mound, intermittent sand filter, or recirculating sand filter, that reduces the effluent concentration of one or more components (such as nitrate or phosphorus) without the addition of chemicals and without mechanical aeration.~~

1.2.59 **Percolation test** means a standardized test used to assess the infiltration rate of soils performed in accordance with Appendix A.

1.2.60 **Plasticity** means the ability of a soil sample to be rolled into a wire shape with a diameter of 3 mm without crumbling.

1.2.61 **Pressure distribution** means an effluent distribution system where all pipes are pressurized~~, the head at any orifice is at least 1 pound per square inch (psi) and not more than 6 psi,~~ and the effluent is pumped (or delivered by siphon) to the next portion of the treatment system in a specific time interval or volume.

1.2.62 **Pretreatment** means the wastewater treatment that takes place prior to discharging to any component of a wastewater treatment and disposal system, including, but not limited to, pH adjustment, oil and grease removal, BOD_5 and TSS reduction, screening, and detoxification.

1.2.63 **Primary treatment** means a treatment system, such as a septic tank, that provides retention time to settle the solids in raw wastewater and that retains scum within the system

1.2.64 **Private sewer** means a sewer receiving the discharge from one building sewer and conveying it to the public sewer system or a wastewater treatment system.

1.2.65 **Professional engineer** means an engineer licensed or otherwise authorized to practice engineering in Montana pursuant to Title 37, Chapter 67, MCA.

1.2.66 **Proprietary system** means a wastewater treatment method holding a patent, or trademark

1.2.67 **Public wastewater system** means a system for collection, transportation, treatment, or disposal of wastewater that serves 15 or more families or 25 or more persons daily for a period of at least any 60 or more days in a calendar year. In estimating the population that will be served by a proposed residential system, the reviewing authority shall multiply the number of living units times the county average of persons per living unit based on the most recent census data of 2.5, so that 10 or more proposed residential connections will be considered a public system.

1.2.68 **Qualified site evaluator** means a soils scientist, professional engineer, registered sanitarian, hydro geologist or geologist who has experience and knowledge of soil morphology. Other individuals will be considered qualified after providing to the reviewing authority evidence of experience describing soils or experience conducting necessary test procedures.

1.2.69 **Raw wastewater** means wastewater that has not had settleable solids removed through primary treatment or other approved methods.

1.2.70 **Recreational camping vehicle** means a vehicular unit designed primarily as temporary living quarters for recreational, camping, travel, or seasonal use, and that either has its own power or is mounted on, or towed by, another vehicle. The basic types of RVs are: camping trailer, fifth wheel trailer, motor home, park trailer, travel trailer, and truck camper

1.2.71 **Redoximorphic** or mottling features means soil properties associated with wetness that result from the reduction and oxidation of iron and manganese compounds in the soil after saturation and desaturation with water.

1.2.72 **Residential strength wastewater** means effluent from a septic tank or other treatment device with a BOD_5 less than or equal to 300 mg/L, TSS less than or equal to 150 mg/L, and fats, oils, and grease less than or equal to 25 mg/L.

1.2.73 **Reviewing authority** means the Department of Environmental Quality, a local department or board of health certified to conduct reviews under 76-4-104, MCA; a division of local government delegated to review public wastewater systems pursuant to ARM 17.38.102; a local unit of government that has adopted these standards pursuant to 76-3-504, MCA; or a local board of health that has adopted these standards pursuant to 50-2-116, MCA.

1.2.74 **Scarify** means to make shallow cuts in order to break the surface.

~~**Secondary treatment** means a biological treatment process coupled with solid/liquid separation. The effluent from secondary treatment should generally have a BOD_5 less than 30 mg/L and TSS less than 30 mg/L.~~

1.2.75 **SDG means a small diameter gravity system is used for wastewater collection.**

1.2.76 **Seasonally high ground water** means the depth from the natural ground surface to the upper surface of the zone of saturation, as measured in an unlined hole or perforated observation well during the time of the year when the water table is the highest. The term includes the upper surface of a perched water table.

1.2.77 **Septic tank** means a ~~**storage**~~ wastewater settling tank in which settled sludge is in immediate contact with the wastewater flowing through the tank while the organic solids are decomposed by anaerobic action.

1.2.78 **Service Connection** means a means a line that provides water or sewer service to a single building or main building with accessory buildings. ~~and that is designed to service line specifications~~. The term is synonymous with "connection".

1.2.79 **Sewage is synonym**ous with "wastewater" for purposes of this Circular.

1.2.80 **Sewer invert** means inside bottom (or flow line) of a sewer pipe.

1.2.81 **Shared wastewater system** means a wastewater system that serves or is intended to serve two living units or commercial units. The term does not include a public sewage system as defined in 75-6-102.~~structures. The total number of people served may not exceed 24. In estimating the population served, the reviewing authority shall multiply the number of living units times the county average of persons per living unit based on the most recent census data.~~

1.2.82 **Siphon** means a pipe fashioned in an inverted U shape and filled until atmospheric pressure is sufficient to force a liquid from a reservoir in one end of the pipe over a barrier and out the other end. Siphons are sometimes used to gravity-dose an absorption system from a dosing tank or chamber.

1.2.83 **Slope** means the rate that a ground surface declines in feet per 100 feet. It is expressed as percent of grade.

1.2.84 **Soil profile** means a description of the soil strata to a depth of eight feet using the USDA soil classification system method in Appendix B.

1.2.85 **Soil consistence** means attributes of soil material as expressed in degree of cohesion and adhesion or in resistance to deformation or rupture. For the purposes of this Circular consistence includes: (1) resistance of soil material to rupture, (2) resistance to penetration, (3) plasticity, toughness, and stickiness of puddled soil material, and (4) the manner in which the soil material behaves when subject to compression. Although several tests are described, only those should be applied which may be useful.

1.2.86 **Soil texture** means the amount of sand, silt, or clay, measured separately in a soil mixture

1.2.87 **STEP System** means aseptic tank effluent pumping system is used for wastewater collection

1.2.88 **Surge Tank** means a watertight structure or container that is used to buffer flows. ~~**Surge Tank** a watertight structure or container that is part of a gray water irrigation system.~~

1.2.89 **Synthetic drainage fabric** means a nonwoven drainage fabric with a minimum weight per square yard of 4 ounces, a water flow rate of 100 to 200 gallons per minute per square foot, and an apparent opening size equivalent to a No. 50 to No. 110 sieve.

~~**Tertiary treatment** means additional removal of colloidal and suspended solids by chemical coagulation and/or medium filtration for the reduction of nutrients.~~

1.2.90 **TSS (Total Suspended Solids)** means solids in wastewater that can be removed by standard filtering procedures in a laboratory and is reported as milligrams per liter (mg/L).

1.2.91 **Transport pipe** means the pipe leading from the septic tank or dose tank to the distribution box or manifold.

1.2.92 **Uniformity coefficient** (UC) means the sieve size in millimeters (mm) that allows 60 percent of the material to pass (D60), divided by the sieve size in mm allowing 10 percent of the material to pass (D10), as determined by ASTM C117-95 (UC=D60/D10).

1.2.93 **Uniform distribution** is a means to distribute effluent into a ~~sand filter, sand mound, or~~ pressure dosed absorption system or sand filter such that the difference in flow (measured in gallons per day per square foot) throughout the ~~absorption~~ treatment system~~, sand filter, or sand mound~~ is less than 10 percent.

1.2.94 **Waste segregation** means a system for the Waste segregation systems consist of dry disposal of human toilet waste by a method such as composting, chemical, dehydrating, or incinerator treatment, with a separate disposal method for gray water. ~~**Waste Segregation** – Waste segregation systems consist of dry disposal of toilet waste by a method such as composting, chemical, dehydrating, or incinerator treatment, with a separate disposal method for gray water.~~

1.2.95 **Wastewater treatment system or wastewater disposal system** means a system that receives wastewater for purposes of treatment, storage, or disposal. The term includes, but is not limited to, pit privies, incinerator and chemical toilets, and experimental systems. ~~household, commercial, or industrial wastes; chemicals; human excreta; or animal and vegetable matter in suspension or solution. wastes including, but not limited to: household, commercial, or industrial wastes; chemicals; human excreta; or animal and vegetable matter in suspension or solution.~~

1.2.96 **Wet well** means a chamber in a pumping station, including a submersible pump station, where wastewater collects.

2. SITE CONDITIONS

2.1 SITE EVALUATION

2.1.1 General

Information concerning soil and site conditions is needed for the design of subsurface wastewater treatment systems. ~~Those Factors~~ Elements ~~which~~ that must be included in the evaluation ~~evaluated~~ are:

A. soil profile descriptions as described in Section 2.1.4; and
B. soil permeability determined from soil texture or percolation tests described in Section 2.1.5, if required ; and
C. depth to ground water, bedrock or other limiting layer; and
D. land slope and topographic position; and
E. flooding potential; and
F. amount of suitable area available; and
G. setback distances required in ARM Title 17, Chapter 36, subchapter 3 or 9.

~~thickness of permeable soil above seasonally high ground water, bedrock or other limiting layer, soil properties, land slope, topographic position, flooding hazard and amount of suitable area available, and setback distances required in ARM Title 17, chapter 36, subchapter 3 or 9. For systems with a design wastewater flow greater than 1,000 gallons per day, the potential for ground water mounding must be evaluated~~

2.1.2 A qualified site evaluator as defined in Section 1.2.68 shall conduct a site evaluation in the location of each proposed system.

~~Evaluation of soil factors~~

~~Soil properties must be evaluated using a soil profile and must be supported by percolation tests, soils maps, and other available scientific information when variability of the soils indicates additional information is necessary to determine the appropriate application rate.~~

2.1.3 Existing soil information

Soil surveys are usually found at the local USDA Natural Resources Conservation Service (NRCS) office or through the USDA WebSoil Survey website. Soil surveys offer good preliminary information about an area and can be used to identify potential problems; however, they cannot substitute for a field investigation.

2.1.4 Soil profile description

Soils must be described in accordance with Appendix B.

Soil ~~pits~~ profiles within 25 feet of the boundaries of the proposed absorption system and its replacement area are required ~~for soil descriptions~~. Soil pits should be located outside

the boundaries of the proposed absorption system so that they do not act as a conduit for effluent between soil horizons. The number and depth of soil pit descriptions for a subsurface wastewater treatment system must comply with the requirements of ARM Title 17, Chapter 36, subchapter 3 or 9 as applicable.

For proposed primary and replacement absorption systems that are not located in the same immediate area, a soil profile may be required for each proposed absorption system area. The minimum depth of soil profile descriptions must be 8 feet unless a limiting layer is encountered at a shallower depth. If a limiting layer is encountered at less than 8 feet in the soil profile or if the site is in an area where bedrock outcroppings exist, one soil profile is required at each end of both the absorption system and the replacement area to ensure adequate depth of soil. The soil profile may need to be completed to a greater depth to demonstrate compliance with other applicable ~~nondegradation~~ rules ~~for phosphorous breakthrough.~~

For lots 2 acre in size or less, the applicant shall physically identify the absorption system location by staking or other acceptable means of identification. For lots greater than 2 acre in size, the reviewing authority may require the applicant to physically identify the absorption system location.

2.1.4.1 The following soil properties must be evaluated and reported by a qualified site evaluator as defined in Section 1.2.68 in accordance with ~~Appendix B t~~this circular to the full depth of the hole:

A. thickness of layers or horizons; each of these layers or horizons needs to be described; ~~and,~~

B. ~~T~~texture, structure, and ~~consistence~~ consistency of soil horizons; and,

C. ~~C~~color (preferably described by using the notation of the Munsell color scheme) and color variation (redoximorphic features); and

D. ~~D~~depth of water, if observed; and,

E. ~~E~~estimated depth to seasonally high ground water and basis for the estimate; and,

F. ~~D~~depth to ~~and type of~~ bedrock or other limiting layer if observed; and

G. ~~S~~stoniness reported on a volume basis (i.e. the percentage of the soil volume occupied by particles greater than 2 mm in diameter); ~~and~~

H. ~~P~~plasticity; and

I. ~~O~~other prominent features such as roots, etc.

2.1.5 Percolation tests or infiltrometer tests

The reviewing authority may require multiple percolation tests when the soils are variable or other conditions create the need to verify system sizing.

Percolation tests, if required, must be conducted at the approximate depth of proposed construction. For elevated sand mounds ~~and at-grade systems,~~ the depth of the percolation test hole must be 12 inches. Additional percolation tests may be required to determine the existence of a limiting layer. The percolation tests must be performed in accordance with the procedures contained in Appendix A. ~~When the proposed replacement area is not immediately adjacent to the primary absorption system, at lease one percolation test must be conducted within the boundaries of the replacement area.~~

When more than one percolation test is conducted within the boundaries of a proposed absorption system, the percolation rate will be determined based on the arithmetic mean of ~~the~~ similar percolation test values.

2.1.6 The size of the site and the amount of suitable area must be evaluated in conjunction with the size of the proposed ~~size of the~~ subsurface wastewater system and locations of other features requiring a minimum separation distance.

2.1.7 Table 2.1-1 and the soil descriptions outlined in Appendix B must be used to determine application rates for subsurface wastewater treatment systems.

TABLE 2.1-1
Soil Texture Descriptions are found in Appendix B

Texture	Percolation Rate (min/in)	Application rate (gpd/ft^2) (a) (b)
Gravel with less than 10% fines, gravelly sand or very coarse sand (c)	<3 min/in	0.8
Loamy sand, coarse sand (d)	3-<6 min/in	0.8
Medium sand, sandy loam	6- <10 min/in	0.6
Fine sandy loam, loam	10- <16 min/in	0.5
Very fine sand, sandy clay loam, silt loam	16-<31 min/in	0.4
Clay loam, silty clay loam,	31-<51 min/in	0.3
Sandy clay	51-<121min/in	0.2
Clays, silts, silty clays (e)	121- <240 min/in	0.15
Clays, silts, silty clays (f)	>240 min/in	Additional Soil Information Required

a) If, prior to an allowed absorption area size reduction, more than 500 lineal feet (or 1000 square feet) of distribution line is needed, then uniform pressure distribution must be provided

b) Comparison of the soil profile report, percolation rate and NRCS soils report should be used to select the most conservative application rate.

c) Systems installed in gravel or coarser textured soils with less than 10 % fines or with percolation rates faster than 3 min/in must be pressure dosed and sand lined.

d) Uniform pressure distribution must be provided for these soils if there is less than 6 feet from the bottom of the trench to a limiting layer.

e) Percolation tests must be conducted in accordance with Appendix A.

f) Systems in soils with initial percolation rates greater than 240 minutes per inch must be sized in accordance with application rates determined using the Double-/Ring Infiltrometer procedure outlined in ASTM D5093-02. Only ETA or ET systems design in accordance with Chapter 6.7 may be used.

2.1.8 Site factors

The land slope, potential for flooding ~~and surface water concentration~~, and amount of suitable area must be evaluated.

2.1.8.1 Type and percent of land slope

The type (concave, convex, or plane), percent, and direction of land slope must be reported, along with the method of determination. The reviewing authority may require a 2 foot contour map of the area for sites having slopes exceeding 15% within 25feet of the absorption system or replacement area.

2.1.8.2 Flooding and surface water

The potential for flooding or accumulation of surface water from storm events must be evaluated. Floodplain maps, when available, must be included as part of the evaluation.

2.1.8.3 Ground water and surface water quality impact

Compliance with the nondegradation requirements of the Montana Water Quality Act (75-5-101, *et seq*., MCA) must be demonstrated.

2.1.8.4 Ground water ~~monitoring~~ observation

When required, ground water ~~monitoring~~ observation must be conducted in accordance with Appendix C.

2.1.9 Any person performing a site evaluation on a parcel shall submit to the reviewing authority all data and locations of all test holes and percolation tests performed on the parcel.

2.2 SITE MODIFICATIONS

2.2.1 General

Site modifications, as described in Sections 2.2.2, 2.2.3 and 2.2.4 of this chapter, may ~~only~~ be used only for replacement of failing systems. ~~The following systems may not be used for new systems in subdivisions, although cut systems and fills systems may be used for replacement areas for new subdivisions, provided~~ the Site preparation for cut and fill modifications must be ~~(cut or fill) is~~ completed prior to final approval. Minor leveling, as described in Section 2.2.5 of this chapter, will be allowed for both new systems and replacement systems. All new and replacement subsurface treatment systems must meet the requirements of this Circular.

2.2.2 Artificially drained site

~~General~~
Artificially drained site modifications may be used only for the replacement of failing systems only and may not be used for new systems.

Prior to construction of any site drainage system such as a field drain, under drain, or vertical drain, an evaluation of the site must be performed, including: soil profile descriptions; slope; depth to bedrock or other impervious layer; estimation of depth to seasonally high ground water; topography; distance to wells, seeps, streams, ponds, or other open water; and any other pertinent considerations.

2.2.2.1 Design of drain system

A. The drainage method chosen (curtain drain, vertical drain, or under drain) and the reason for this choice must be detailed. Drawings showing dimensions of the drain system and materials to be utilized must be provided.

B. The drainage system must be constructed according to the specific design approved by the reviewing authority.

2.2.2.2 The type of wastewater treatment system to be approved must depend upon the depth to seasonally high ground water. A minimum of 4 feet of natural soil from the bottom of the ~~trench over the entire area of the proposed absorption system and replacement area~~ infiltrative surface to the seasonally high ground water must ~~have been~~ be achieved by the site drainage system. An adequate horizontal separation distance must be maintained between the drain and the absorption system ~~in order~~ to reduce the potential for effluent to enter the drain.

2.2.2.3 The reviewing authority may require ~~monitoring~~ observation of the depth to seasonally high ground water after installation of the drainage system.

2.2.3 Cut systems

~~General~~
Cut systems may be used only for the replacement of failing systems and may not be used for new subsurface treatment systems. The reviewing authority must initially approve the cut location with the site modification completed prior to final system approval.

~~Limitation~~

~~Absorption trenches for these systems must meet the same requirements as a standard absorption trench~~.

2.2.3.1 A minimum of 4 feet of natural soil from the bottom of the infiltrative surface to a limiting layer must be maintained

2.2.3.2 Design

A. Cut areas for the replacement absorption system must be physically completed prior to approval. Two soil test holes must be excavated and detailed soil profile descriptions must be provided prior to excavation. Percolation tests may be required after the cut has been completed.

B. A complete lot layout must be submitted showing the cut areas, the uphill and downhill slope, and slope across the cut area. Slope across the absorption system site must be a uniform slope.

C. Cut systems will only be considered on slopes that do not exceed 25 percent and where downhill slope below the cut area is not greater than 25 percent.

2.2.3.3 Report

The designer shall submit a letter of verification indicating that the site meets minimum requirements of ~~applicable rules~~ this circular after the cut has been completed.

2.2.4 Fill system

~~General~~
Fill systems may be used only for replacement of existing failed systems and may not be used for new subsurface treatment systems. The reviewing authority must initially approve the fill location with the site modification completed prior to final system approval. .

2.2.4.1 Location

A. ~~Any parcel that will undergo land modification by filling must have enough area suitable for absorption system placement.~~ The entire area necessary for the replacement absorption system must be filled prior to final approval of the system.

B. Fill systems may not be installed on soils with a percolation rate slower than 60 minutes per inch. Side slopes on the fill may not exceed 25 percent (4:1).

2.2.4.2 A minimum of 4 feet of natural soil from the bottom of the infiltrative surface of the subsurface absorption system to a limiting layer must be maintained. Fill cannot be used to overcome minimum vertical or horizontal separation distances.

2.2.4.3 Fill material

Soils used for fill may not be finer than sandy loam with a maximum of 20 percent passing the No. 100 sieve.

2.2.4.4 Design

A. System configuration dimensions and orientation must be submitted in a design report. The design report and drawings must be approved by the reviewing authority prior to the placement of fill material.

~~Fill may be used only in areas where there is four feet of separation distance from the natural ground surface to a limiting layer. Fill cannot be used to overcome minimum vertical or horizontal separation distances~~.

B. Three percolation tests evenly spaced across the completed fill must be performed at the depth of the proposed infiltrative surface as a basis for design application rate.

C. The absorption system must be sized on the basis of the percolation rate for either the soil beneath the fill material or the percolation rate of the fill material, whichever is slower.

2.2.4.5 Construction

A. All native vegetative cover must be removed ~~for~~ from the area to be filled.

B. Fill material must not be put in place when the fill or the original soil surface is frozen.

C. Fill material must be placed in lifts and compacted as specified in ~~by~~ the design report s~~o obtain~~ so that stable soil structure conditions are achieved.

D. Absorption ~~trenches~~ systems must be set back at least 25 ~~24~~ feet from the lower edge of the filled area on slopes of 6 percent or greater. For slopes less than 6 percent, absorption ~~trenches~~ systems must be set back at least 10 ~~3~~ feet on all sides prior to starting the side slope.

E. The fill area must be seeded with a suitable grass to aid in stabilization.

2.2.5 Minor Leveling

Minor leveling is limited to sites with a natural ground slope of 15% or less. A parcel may undergo minor leveling by cutting and/or filling of the natural ground surface up to and no more than a 12-inch depth.

The bottom 12-inches of the infiltrative surface must be located in native soil and all vertical depth requirements must be met.

A minimum of 4 feet of natural soil from the bottom of the infiltrative surface to a limiting layer must be maintained.

A detailed site plan must be provided of the area proposed for minor leveling showing the contours and other pertinent land features, both before and after minor leveling.

3. WASTEWATER

3.1 WASTEWATER FLOW

3.1.1 General

The purpose of this chapter is to provide a method for estimating wastewater flows. Subsurface wastewater treatment system flow rates are based on type of use, size of the home site including number of bedrooms, or number of people. The agreements and easements for shared, multi-user, or public subsurface treatment systems, as required in ARM 17.36.326 must be met.

3.1.2 Residential wastewater ~~flows~~ design flow rates must be estimated as follows: ~~Design wastewater flow for residential dwelling units must be in accordance with the following table. Single-family dwelling units will be considered to have three bedrooms unless otherwise approved~~

A. When the number of individual living units on a single or common absorption system is 9 or less, the following table must be used. Sizing is based on individual living units, not collective number of bedrooms. Living units will be considered to have three bedrooms unless otherwise ~~approved~~ specified.

1 bedroom	150 gpd
2 bedrooms	225 gpd
3 bedrooms	300 gpd
4 bedrooms	350 gpd
5 bedrooms	400 gpd
Each additional bedroom	add 50 gpd

B. When the number of living units on a single or common absorption system is 10 or more, the design flow rate per living unit may be reduced to 100 gallons per day per person. An average of 2.5 persons per living unit must be used to calculate total design flow unless site specific information is supplied to the reviewing authority.

A detailed set of plans, specifications and an operation and maintenance plan are required. The operation and maintenance plan must meet the requirements in Appendix D.

3.1.3 Nonresidential wastewater flow

Typical daily flows for a variety of commercial, institutional, and recreational establishments are presented in Tables 3.1-1 and 3.1-2. ~~5-1 and 5-2~~

Unless information is supplied to the reviewing authority demonstrating that the wastewater meets residential strength standards, all nonresidential establishments must comply with the requirements of Chapter 3.2.

For design purposes, the typical flows must be used as minimum design flows. Greater design flows may be required where larger flows are likely to occur, such as resort areas. Design flow must be computed using the total number of units in the proposed facility times the typical daily flow in the tables, with no reduction allowed for occupancy rates. Where the system includes several different types of uses from the tables, each use must be computed separately, and the design flow must be based on the sum of all of the uses. A means of flow measurement (such as flow meters or pump run-time meters) may be required.

As an alternative to the flows listed in the tables, design flow may be based on actual water use data from similar facilities. If daily flows are used, the design flow must be 1.1 times the highest daily flow. If monthly averages are used, the peak design flow must be a minimum of 1.5 times the average flow of the highest month. The water use data must be representative of the facility proposed and for a time period adequate to evaluate annual use of the system. System components may be added (or enlarged) to address peak flows to allow absorption systems to be sized based on average flow.

Expansions to an existing system with actual water use data are also an acceptable method to determine design flows.

~~5.4 Wastewater strength~~

~~Subsurface wastewater disposal systems must be used only for residential strength wastewater. Wastewater exceeding the limits for residential strength wastewater must be pretreated to residential strength prior to discharging to DEQ-4 systems. Effluent from recreational vehicle holding tanks have BOD_5 levels as high as 15 times that of residential strength wastewater and must be pretreated accordingly. High strength waste must be pretreated with systems specifically designed to reduce high strength wastewater to residential strength wastewater. For design, construction, operation and maintenance of systems that treat high strength wastewater, please refer to the Onsite Wastewater Treatment Systems Manual, EPA/625/R-00/008, February 2002.~~

TABLE 3.1-1 ~~5-1~~
TYPICAL WASTEWATER FLOWS FROM COMMERCIAL, INDUSTRIAL, AND OTHER NONRESIDENTIAL SOURCES

Source	Unit	Wastewater Flow, gpd/unit Range	Typical
Airport	Passenger	2-4	3
Automobile Service Station	Vehicle Served	7-13	10
	Employee	9-15	12
Bar	Customer	5	3
	Employee	10-16	13
Church (Not including a kitchen, food service facility, daycare, or camp)	Seat		3
Church (Including kitchen, but not including a food service facility, day care, or camp)	Seat		5
Daycare	Child	10-30	25
	Employee	10-20	15
Department Store	Toilet Room	400-600	500
	Employee	8-12	10
Hospital, medical	Bed	125-240	165
	Employee	5-15	10
Hospital, mental	Bed	75-140	100
	Employee	5-15	10
Hotel/Motel	Guest	40-56	48
	Employee	7-13	10
Industrial Building (Sanitary waste only)	Employee	10-16	13
Laundry	Machine	450-650	580
(Self-serve)	Wash	45-55	50
Office	Employee	7-16	13
Prison	Inmate	75-150	115
	Employee	5-15	10
Rest home	Resident	50-120	85
Restaurant	Meal	2-4	3
School, day:			
With cafeteria, gym, showers	Student	15-30	25
With cafeteria only	Student	10-20	15
Without cafeteria, gym, showers	Student	5-17	11
School, boarding	Student	50-100	75
Shopping Center	Parking Space	1-2	2
	Employee	7-13	10
Store	Customer	1-4	3
	Employee	8-12	10

TABLE 3.1-2 ~~5-2~~
TYPICAL WASTEWATER FLOWS FROM RECREATIONAL FACILITIES

Source	Unit	Wastewater Flow, gpd/unit Range	Typical
Apartment, resort	Person	50-70	60
Bed and Breakfast	Person	20 - 40	40
Cabin, resort	Person	8-50	40
Cafeteria	Customer	1-3	2
	Employee	8-12	10
Campground (developed)	Person	20-40	30
Cocktail lounge	Seat	12-25	20
Coffee shop	Customer	4-8	6
	Employee	8-12	10
Country club	Member present	60-130	100
	Employee	10-15	13
Day camp (no meals)	Person	10-15	13
Dining hall	Meal served	4-10	7
Dormitory, bunkhouse	Person	20-50	40
Hotel/Motel, resort	Person	40-60	50
Store, resort	Customer	1-4	3
	Employee	8-12	10
Swimming pool	Customer	5-12	10
	Employee	8-12	10
Theater	Seat	2-4	3
Visitor center	Visitor	4-8	5
~~Travel trailer parks~~ Recreational Vehicles without individual hookups for water or sewer	Space		50
~~Travel trailer~~ Recreational Vehicles ~~without parks~~ with individual hookups for water and/or sewer	Space		100

3.2 HIGH STRENGTH WASTEWATER

3.2.1 General

Nonresidential establishments may have the potential to produce wastewater considered high-strength. Elevated levels of BOD_5, TSS, and FOG will reduce the effectiveness of on-site wastewater treatment systems by increasing the biological demand on downstream components in the system, by containing inorganic compounds that are not easily broken down, and by accelerating mechanical clogging of the infiltrative surface. These establishments often produce effluent with variations of flow rate including intermittent flow, seasonal flow or sporadically high flow rates.

Unless information is supplied to the reviewing authority demonstrating that the wastewater meets residential strength standards, all nonresidential establishments must comply with the requirements of Chapter 3.2.

Nonresidential establishments are listed in Table 3.1-1, 3.1-2 and may also include, but are not limited to:

Athletic Facilities
Bakeries
Beauty Shops/Nail Salon
Breweries
Car washes
Food processing facilities
Funeral homes and Crematoriums
Facilities with separate gray water plumbing
Hobby woodworking shops or art studios
Manufacturing facilities
Nursing homes
Rest Areas
Restaurants
RV dump stations
Schools
Tanneries
Veterinarian clinics

Nonresidential structures or establishments that produce or contain any industrial or chemical components may be required to obtain a Montana Ground Water Pollution Control System permit regardless of system size.

~~The United States Environmental Protection Agency has classified subsurface wastewater absorption systems associated with many nonresidential sources as injection wells and should be contacted regarding any federal rules that may apply.~~

3.2.2 Wastewater strength

High strength wastewater must be treated to the following levels prior to final disposal in a subsurface absorption system:

BOD_5 < 300 mg/L; and
TSS < 150 mg/L; and
Fats, oils, and grease < 25 mg/L

System accepting wastewater that is not treated to these levels will require the following minimum design considerations. Other conditions of system approval may be required by the reviewing authority

3.2.2.1 BOD_5 or TSS

All wastewater must meet residential waste standards for BOD_5 and TSS. Special consideration should be given to those systems with extremely low BOD_5 levels where compliance with the Water Quality Act and non-degradation of state waters is a concern.

3.2.2.2 Fats, oils and grease

Restaurants, nonresidential kitchens or other institutions that have fats, oils, or greases (FOGs) greater than 25 mg/L must include a grease tank or other treatment system approved by the reviewing authority in their design. This treatment must occur prior to wastewater entering the septic tank.

A. Grease tanks

1. Grease tanks must be sized based upon the daily design flow estimates in Chapter 3, with the minimum acceptable tank size being 1,000 gallons. Grease tanks must provide a minimum of 24-hours of holding time to allow FOGs to cool and separate out of emulsion. Establishments that experience surge loading must provide larger grease tanks designed for longer holding periods.

2. Grease tanks must be constructed in accordance with Section 5.1.7.

3. Grease tanks must have inlet and outlet baffles. The baffles must extend down from the top of the tank with the openings near the bottom. The chamber between the baffles must be sized to contain the expected FOG volume between pumping periods.

4. Wastewater from all food preparation and clean-up areas must be plumbed separately into the grease tank. Cross connections with blackwater sewers is not allowed.

5. Effluent from the grease tank must be plumbed into the septic tank.

B. Other treatment systems designed to treat FOGs will be reviewed on a case by case basis.

3.2.3 A design report must be submitted along with plans and specifications including:

3.2.3.1 A statement describing the type of business or industry and the end products and byproducts that will be disposed of in the wastewater system.

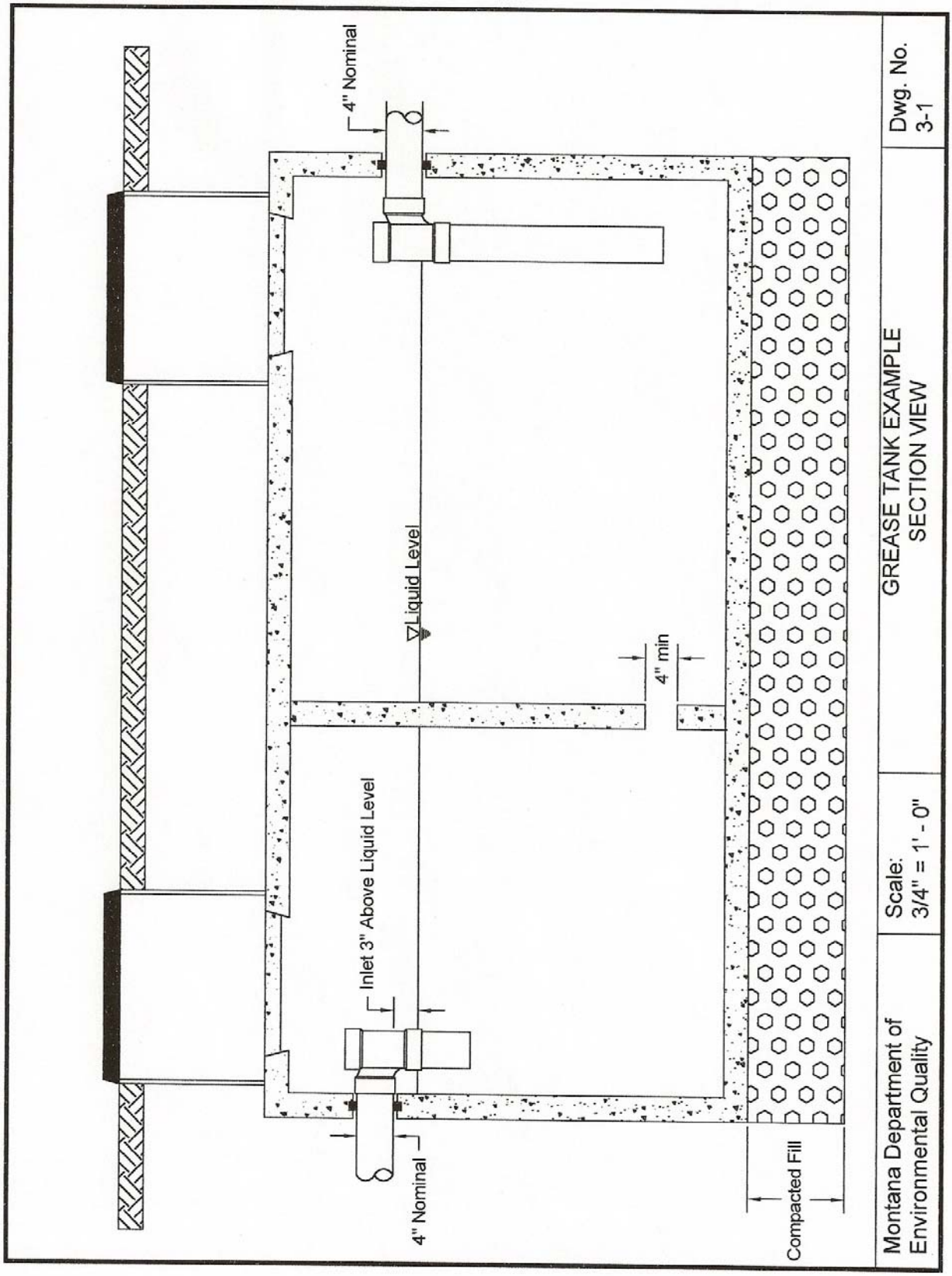
3.2.3.2 Description, plans and specifications that detail the treatment of the high strength wastewater.

3.2.4 Uniform pressure distribution must be provided for all high strength waste treatment systems.

3.2.5 All high strength waste treatment systems must submit an operation and maintenance plan in accordance with Appendix D and this chapter.

3.2.5.1 The operation and maintenance plan must include procedures for each component of the wastewater treatment system, Material Safety Data Sheets (MSDS) for chemicals used, as well as a perpetual contract for operation and maintenance of the system must.

3.2.5.2 Sampling records, when required, must be kept on site and made available to the reviewing authority upon request.


4" Nominal
Liquid Level
4" min
Inlet 3" Above Liquid Level
4" Nominal
Compacted Fill
Montana Department of Environmental Quality
Scale: 3/4" = 1' - 0"
GREASE TANK EXAMPLE
SECTION VIEW
Dwg. No. 3-1

3.3 WATER TREATMENT WASTE RESIDUALS

3.3.1 General

Wastewater from ion exchange water treatment systems, water softening treatment systems, demineralization water treatment systems, or other water treatment systems that produce a discharge may be disposed using an onsite wastewater treatment absorption system. A Montana Ground Water Pollution Control System permit and nondegradation analysis may be required.

3.3.2 The wastewater (backwash) from water softeners may be discharged to a wastewater treatment system only if the installed water softener:

A. regenerates using a demand-initiated regeneration control device; and

B. is connected only to interior plumbing for potable water usage and not to exterior irrigation water lines.

3.3.3 Wastewater from water treatment devices, including water softeners, iron filters and reverse osmosis units, may not be discharged into an experimental, or proprietary on-site wastewater treatment systems unless the quality and quantity of discharge meets the recommended usage, operation and maintenance specifications of the designer or manufacturer of the system. If such specifications are not available, then approval for the discharge must be obtained from the reviewing authority.

3.3.4 Wastewater from water treatment devices, including water softeners, iron filters and reverse osmosis units, may be discharged to a dry well, a separate drainfield with pipe, gravelless or other approved absorption systems.

3.3.5 An operation and maintenance plan for all components of the water treatment and wastewater treatment systems must be submitted in accordance with Appendix D.

3.3.6 The reviewing authority may require that wastewater treatment residuals be disposed in a separate subsurface wastewater treatment system unconnected to the system for the disposal of sanitary wastewater.

4. COLLECTION, PUMPING AND EFFLUENT DISTRIBUTION SYSTEMS

4.1 COLLECTION SYSTEMS

4.1.1 General

4.1.1.1 Sewer collection systems as described in this chapter are the system of pipes, and other appurtenances that receive and convey wastewater or effluent either by gravity or pressure to a treatment system. This chapter discusses sewer services, mains (gravity and force), alternative collection systems, and necessary setbacks.

4.1.1.2 A sewer service means a line that provides water or sewer service to a single building or main building with accessory buildings. The term is synonymous with "service connection".

4.1.1.3 A sewer main means any line providing water or sewer to multiple service connections, any line serving a water hydrant that is designed for firefighting purposes, or any line that is designed to water or sewer main specifications.

4.1.1.4 Sewer collection systems must be designed for wastewater only. Rain water from roofs, streets, and other areas; cooling water, surface water drainage, groundwater from foundation drains, etc., are not permitted in wastewater sewers.

4.1.1.5 In general, flow used for designing sewers must consider ultimate population to be served, maximum hourly wastewater flow, and possible infiltration.

4.1.1.6 Sewer extensions should be designed for projected flows even when the diameter of the receiving sewer is less than the diameter of the proposed extension. A schedule for future downstream sewer relief may be required by the Reviewing authority.

4.1.2 Sewer Services

4.1.2.1 Sewer services must be made of PVC that meets the requirements of ASTM D 3034, Schedule 40, or Schedule 80; and meets ASTM D 1785; Joints must be an integral bell-and-spigot joint with rubber elastomeric gasket or solvent cement joints. When using ASTM D 3034, rock-free bedding is required. Schedule 40 pipe must be used leading into and out of the septic tank, and in the area of backfill around the tank for a minimum length of at least 10 feet.

4.1.2.2 Transition connections to other materials must be made by adapter fittings or one-piece molded rubber couplings with appropriate bushings for the respective materials. All fittings must be at least of equivalent durability and strength of the pipe itself.

4.1.2.3 A sewer service from the structure to the septic tank must be at least 4 inches in diameter and must be placed at a minimum slope of 1/4 inch per foot toward the point of discharge unless pressurized.

4.1.2.4 Sewer services must be installed at uniform slope.

4.1.2.5 Sewer services must be designed to prevent freezing.

4.1.2.6 Cleanouts are recommended within 3 feet of the building, at angles greater than 45 degrees, and for continuous pipe runs greater than 150 feet in length.

4.1.2.7 The reviewing authority discourages the use of shared service lines.

4.1.2.8 Service connections to the sewer main must be watertight and may not protrude into the sewer. If a saddle type connection is used, it must be a device intended to join with the types of pipe that are to be connected. All materials used to make service connections must be compatible with each other and with the pipe materials to be joined. All materials must be corrosion-proof.

4.1.3 Gravity Sewer Mains

4.1.3.1 A gravity sewer main conveying raw wastewater must be at least 8 inches (203 mm) in diameter, except gravity sewer mains within private property. Trailer courts, condominiums, apartments, etc. are allowed mains no smaller than 6 inches in diameter, provided that the 6 inch diameter main can be shown to be hydraulically feasible, that no future expansion is anticipated, and that maintenance will not be increased due to the smaller diameter.

4.1.3.2 In general, sewers should be sufficiently deep to receive wastewater from basements and to prevent freezing. The minimum depth of bury must not be less than 4 feet (to the top of pipe) without justification by the designer. Insulation must be provided for sewers that cannot be placed at a depth sufficient to prevent freezing. Insulation used for this purpose must be specifically designed to withstand compaction and for use in subsurface locations. It must retain the insulating value for the design life of the sewer.

4.1.3.3 Buoyancy of sewers and manholes must be considered and flotation of the component must be prevented with appropriate construction where high groundwater conditions are anticipated.

4.1.3.4 Slopes

A. All sewers must be designed and constructed to provide the pipe-full velocities of not less than 2.0 feet per second (0.6 m/s) using Manning's formula with an "n" value of 0.013 and the minimum slopes listed in the

following table. These values are based on Manning's formula using an "n" value of 0.013.The following are the minimum slopes that must be provided for sewer mains; however, slopes greater than these are desirable.

Minimum Slope in Feet for Sewer Main

Sewer Main Size	Per 100 Feet (m/100m)
6 inch (152 mm)	0.60
8 inch (203 mm)	0.40
10 inch (254 mm)	0.28
12 inch (305 mm)	0.22
14 inch (356 mm)	0.17
15 inch (381 mm)	0.15
16 inch (406 mm)	0.14
18 inch (457 mm)	0.12
21 inch (533 mm)	0.10
24 inch (610 mm)	0.08
27 inch (686 mm)	0.067
30 inch (762 mm)	0.058
33 inch (838 mm)	0.052
36 inch (914 mm)	0.046
39 inch (991 mm)	0.041
42 inch (1067 mm)	0.037

Sewers 48 inches (1200 mm) or larger should be designed and constructed to give mean velocities, when flowing full, of not less than 3.0 feet per second (0.9 m/s), based on Manning's Formula using an "n" value of 0.013.

B. Pipe slopes slightly less than those required may be permitted, only under extenuating circumstances through an approved deviation. Such decreased slopes will only be considered where the depth of flow will be 0.3 of the diameter or greater for design average flow. The operating authority of the sewer system will give written assurance to the reviewing agency that any additional sewer maintenance required by reduced slopes can be provided.

C. The pipe diameter and slope must be selected to obtain the greatest practical velocities to minimize settling problems. Oversize sewers will not be approved to justify using flatter slopes. If the proposed slope is less than the minimum slope of the smallest pipe which can accommodate the design peak hourly flow, the actual depths and velocities at minimum, average, and design maximum day and peak hourly flow for each design section of the sewer must be calculated by the designer and included with the plans.

D. Sewers must be laid with uniform slope between manholes.

E. Sewers on 20 percent slopes or greater must be anchored securely with concrete, or equal, with anchors spaced as follows (as a minimum):

1. Not over 36 feet (11 m) center to center on grades 20 percent and up to 35 percent;

2. Not over 24 feet (7.3 m) center to center on grades 35 percent and up to 50 percent; and

3. Not over 16 feet (4.9 m) center to center on grades 50 percent and over.

4.1.3.5 Where velocities greater than 15 feet per second (4.6 m/s) are attained, special provision must be made to protect against displacement by erosion and impact.

4.1.3.6 Alignment

A. Sewer mains 24 inches (610 mm) or less in diameter must be laid with straight alignment between manholes. Straight alignment must be checked by either using a laser beam or lamping.

B. Curvilinear alignment of sewers larger than 24 inches (610 mm) may be considered on a case-by-case basis if compression joints are specified and ASTM or specific pipe manufacturers' maximum allowable pipe joint deflection limits are not exceeded. Curvilinear sewers must be limited to simple curves that start and end at manholes. When curvilinear sewers are proposed, the required minimum slopes indicated in Section 4.1.3.4 (Recommended Minimum Slopes) must be increased accordingly to provide a minimum velocity of 2.0 feet per second (0.6 m/s) when flowing full.

4.1.3.7 Materials

A. Any generally accepted material for sewers will be given consideration, but the material selected should be adapted to local conditions, such as: character of industrial wastes, possibility of septicity, soil characteristics, exceptionally heavy external loadings, abrasion, corrosion, and similar problems.

B. Suitable couplings complying with ASTM specifications must be used for joining dissimilar materials. The leakage limitations on these joints must be in accordance with Section 4.1.3.9.

C. All sewers must be designed to prevent damage from superimposed live, dead, and frost-induced loads. Proper allowance must be made for loads on the sewer because of soil and potential groundwater conditions, as well as the width and depth of the trench. Where necessary, special bedding, haunching and initial backfill, concrete cradle, or other special construction must be used to withstand anticipated potential superimposed loading or loss of trench wall stability. See ASTM D 2321 with respect to PVC pipe installation, when appropriate.

D. For new pipe materials for which ASTM standards have not been established, the designer shall provide complete pipe specifications and installation specifications developed on the basis of criteria adequately documented and certified in writing by the pipe manufacturer to be satisfactory for the specific detailed plans.

4.1.3.8 Installation

A. Installation specifications must contain appropriate requirements based on the criteria, standards, and requirements established by industry in technical publications. Requirements must be set forth in the project specifications for the pipe and methods of bedding and backfilling the pipe.

B. The width of the trench must be ample to allow the pipe to be laid and jointed properly and to allow the bedding and haunching to be placed and compacted to adequately support the pipe. The trench sides must be kept as nearly vertical as possible. When wider trenches are specified, appropriate bedding class and pipe strength must be used.

C. In unsupported, unstable soil, the size and stiffness of the pipe, stiffness of the embedment and insitu soil and depth of cover must be considered in determining the minimum trench width necessary to adequately support the pipe.

D. Ledge rock, boulders and large stones must be removed to provide a minimum clearance of 4 inches (102 mm) below and on each side of all pipe(s).

E. Pipe Bedding Materials and Placement

1. Type 1 Pipe Bedding includes the material placed from 4 inches (100mm) below the bottom of the pipe, around the pipe, and up to the springline of the pipe.

   Type 1 Bedding consisting of sand, sandy gravel, or gravel having a maximum 3/4 inch size (19mm) and a maximum plasticity index of 6, determined by AASHTO T89 and T90 or by ASTM D4318.

Where trench excavation encounters wet or unstable material, Type 1 Pipe Bedding must be free draining and non-plastic.

Refer to Montana Public Works Standard Specifications Standard Drawing 02221-1 and Special Provisions for other requirements.

Select Type 1 Bedding includes the material placed from the springline of the pipe to 6 inches (15cm) over the pipe.

Select Type I Bedding shall consist of soil, sand or fine gravel, free from clods, lumps of frozen material, or rock exceeding 1-1/2 inches (38mm) in its greatest dimension.

Excavated trench material may be screened or sorted for use as backfill subject to approval of the designer

Where trench excavation encounters wet or unstable material, Select Type 1 Bedding must be free draining and non-plastic.

2. Type 2 Pipe Bedding is used as directed by the designer to replace unsuitable material encountered in the trench bottom.

   Place Type 2 Pipe Bedding from the bottom of the Type 1 Bedding material to the depth required to adequately support the pipe.

   Type 2 Bedding shall consist of granular material meeting the following gradation:

Sieve Opening	% Passing
3 Inch -	100
No. 4 0 -	25
No. 8 0 –	10

3. Place in maximum 6” lifts and compacted to 95% of Maximum Dry Density as determined using AASHTO T-99 or ASTM D698.

4. Embedment materials for bedding, haunching and initial backfill Classes I, II or III, as described in ASTM D 2321, must be used. Backfill must be carefully compacted for all flexible pipe. The proper strength pipe must be used with the specified bedding to support the anticipated load based on the type of soil encountered, and potential groundwater conditions.

5. All water entering the excavations or other parts of the work must be removed until all the work has been completed. No sanitary sewer may be used for the disposal of trench water. The reviewing authority must be contacted immediately if either contaminated soil or contaminated groundwater is encountered. If contamination is anticipated, an acceptable plan for handling and disposal must be submitted to the reviewing authority for approval.

6. Final backfill must be of a suitable material removed from the

excavation except where other material is specified. Debris, frozen material, clods or stones larger than 8 inches, organic matter, or other unstable materials may not be used for final backfill within 1 foot of the top of the pipe. Final backfill must be placed in such a manner as not to disturb the alignment of the pipe.

Type A trench backfill used in streets and paved areas shall be placed in 8 inch lifts within 3 percent of optimum moisture content and compacted to at least 95 percent of maximum dry density determined by AASHTO T99 or by ASTM D698 or as recommended by a geotechnical engineer.

Type B trench backfill used for unpaved alleys, cultivated areas, borrow pits, unimproved streets, or other unsurfaced areas shall be shall be placed in 8 inch lifts within 3 percent of optimum moisture content and compacted to at least 90 percent of maximum dry density determined by AASHTO T99 or by ASTM D698 or as recommended by a geotechnical engineer.

Type C trench backfill used in open and unimproved areas outside of the public right-of-way shall be shall be placed in 12 inch lifts at densities equal to or greater than the densities of adjoining undisturbed soils.

4.1.3.9 Testing Requirements

A. The designer has the option of requiring deflection testing of all or a portion of flexible pipe installations to assure the quality of construction. Flexible pipe is a conduit that will deflect at least 2 percent without any sign of structural distress. Deflection tests, when performed on PVC pipe, must be conducted in accordance with ASTM D3034 and must satisfy either of the following deflection limitations:

Minimum Period Between Trench Backfilling & Testing	Minimum Mandrel Diameter as a Percent of Inside Pipe Diameter
7 days	95.0
30 days	92.5

B. If deflection exceeds the specified limits, replacement or correction must be accomplished in accordance with requirements in the approved specifications.

C. The rigid ball or mandrel used for the deflection test must have a diameter of at least 95 percent or 92.5 percent (depending on the time of test) of the base inside diameter or average inside diameter of the pipe depending on which is specified in the ASTM Specification, including the appendix, to which the pipe is manufactured. The pipe must be measured in compliance with ASTM D 2122 Standard Test Method of Determining Dimensions of Thermoplastic Pipe and Fittings. Mandrels must have at least nine arms. The test must be performed without mechanical pulling devices.

D. Deflection testing requirements for flexible pipe other than PVC must be determined by the designer.

E. The installation of joints and the materials used must be included in the specifications. Sewer joints must be designed to minimize infiltration and to prevent the entrance of roots throughout the life of the system.

F. Leakage tests must be specified. This may include appropriate water or low pressure air testing. The testing methods selected should take into consideration the range in groundwater elevations during the test and anticipated during the design life of the sewer. Sewers with active service connections may be leak tested via video inspection.

G. The leakage exfiltration or infiltration may not exceed 200 gallons per inch of pipe diameter per mile per day (0.019 m3/mm of pipe dia/km/day) for any section of the system. An exfiltration or infiltration test must be performed with a minimum positive head of 2 feet (610 mm).

H. The air test must, at a minimum, conform to the test procedure described in ASTM C-828-86 for clay pipe, ASTM C 924 for concrete pipe, UNI-B-6-90 low pressure test for PVC pipe. For other materials, test procedures must be approved by DEQ.

I. Service connections to the sewer main must be water tight and may not protrude into the sewer. If a saddle type connection is used, it must be a pre-manufactured device intended that is designed to join with the types of pipe that are to be connected. All materials used to make service connections must be compatible with each other and with the pipe materials to be joined. All materials must be corrosion proof resistant.

J. Where casing pipe is used to carry sewers at horizontal borings, stream crossings, water line crossings and other locations, the pipe must conform to the slope requirements of Section 4.1.3.4 (Slopes), if necessary, and must be rated for the structural and environmental conditions to which it will be exposed. The designer must provide supporting manufacture's documentation and calculations as necessary to justify the type and size of casing pipe proposed.

4.1.3.10 Manholes

A. Location

Manholes must be installed: at the end of each sewer line; at all changes in grade, size, or alignment; at all intersections; and at distances not greater than 400 feet (122 m) for sewers 15 inches (381 mm) or less in diameter; and 500 feet (152 m) for sewers 18 inches (457 mm) to 30 inches (762 mm). Greater spacing may be permitted in larger sewers at the discretion of the reviewing authority.

Distances up to 600 feet (183 m) may be approved where cleaning equipment for the stated spacing is provided. Documentation must be provided that such cleaning equipment is readily available and has the cleaning capability stated. Cleanouts may be used only for special conditions and may not be substituted for manholes or installed at the end of laterals greater than 150 feet (46 m) in length.

Cleanouts may not be used in place of manholes on mains of public wastewater systems conveying raw wastewater but may be used in place of manholes on lines conveying septic tank effluent. For systems conveying septic tank effluent, manholes or cleanouts must be located at major junctions of three or more pipes and should be limited to strategic locations for cleaning purposes.

B. Drop Manholes

A drop pipe should be provided for a sewer entering a manhole at an elevation of 24 inches (610 mm) or more above the manhole invert. Where the difference in elevation between the incoming sewer and the manhole invert is less than 24 inches (610 mm), the invert should be filleted to prevent solids deposition.

Drop manholes should be constructed with an outside drop connection. Inside drop connections (when necessary) must be secured to the interior wall of the manhole and provide access for cleaning.

Due to the unequal earth pressures that would result from the backfilling operation in the vicinity of the manhole, the entire outside drop connection must be encased in concrete.

C. Flow Channel

When a smaller sewer joins a large one at a manhole, the invert of the larger sewer should be lowered sufficiently to maintain the same energy gradient. An approximate method for securing these results is to place the 0.8 depth point of both sewers at the same elevation. Special consideration

should be given to minimizing turbulence when designing a flow channel within a manhole where there is a change in pipe size.

The flow channel straight through a manhole should be made to conform as closely as possible in shape and slope to that of the connecting sewers. For pipes greater than 8 inches in diameter, the channel walls should be formed or shaped to the full height of the crown of the outlet sewer in such a manner to not obstruct maintenance, inspection or flow in the sewers. For pipes 8 inches or less in diameter, the channel must be formed at least to the spring line of the pipe. When curved flow channels are specified in manholes, including branch inlets, or when entrance or exit losses are significant, minimum required slopes must be increased to maintain acceptable velocities.

A bench must be provided on each side of any manhole channel when the pipe diameter(s) are less than the manhole diameter. The bench should be sloped no less than 1/2 inch (13 mm) per foot (305 mm) (4 percent). A lateral sewer, service connection, or drop manhole pipe may not discharge onto the surface of the bench.

D. Manhole Construction

The minimum inside diameter for manholes is 48 inches (1.22 m); larger diameters are preferable for large diameter sewers. A minimum access diameter of 22 inches (559 mm) must be provided.

Manholes must be of the pre-cast concrete or poured-in-place concrete type. Manholes must be waterproofed on the exterior. Pre-cast concrete manhole sections manufactured in accordance with ASTM C 478M-93 (with Section 16 rejection requirements made mandatory) are exempt from the exterior waterproofing requirement. Manhole lift holes and grade adjustment rings must be sealed with non-shrinking mortar or other material approved by the reviewing authority.

Inlet and outlet pipes must be joined to the manhole with a gasketed flexible watertight connection or any watertight connection arrangement that allows differential settlement of the pipe and manhole wall to take place.

Watertight manhole covers are to be used wherever the manhole tops may be flooded by street runoff or high water. Locked manhole covers may be desirable in isolated easement locations or where vandalism may be a problem.

The specifications must include a requirement for inspection and testing for watertightness or damage prior to placing into service.

Vacuum testing, if specified for concrete sewer manholes, must conform to

the test procedures described in ASTM C 1244.

Water testing will only be allowed where groundwater is below the bottom of the manhole during testing. Hydrostatic testing shall be conducted by sealing all pipe penetrations to the manhole and filling the manhole to the top of the manhole cone with water. Water may be added over a 24 hour period to compensate for losses due to evaporation and absorption. Following the 24 hour saturation period any loss of water within a 30 minute period shall be a failed test and the manhole must be rejected.

Where corrosive conditions due to septicity or other causes are anticipated, consideration must be given to providing corrosion protection on the interior of the manholes and all electrical equipment.

4.1.3.11 Inverted Siphons

Inverted siphons must not have less than two barrels, with a minimum pipe size of 6 inches (152mm). They must be provided with necessary appurtenances for maintenance, convenient flushing,and cleaning equipment. The inlet and discharge structures must have adequate clearances forcleaning equipment, inspection, and flushing. Design must provide sufficient head and appropriate pipe sizes to secure velocities of at least 3 feet per second (0.92 m/s) for design average flows. The inlet and outlet details must be arranged so that the design average flow is diverted to one barrel, and so that either barrel may be taken out of service for cleaning. Thevertical alignment should permit cleaning and maintenance.

4.1.4 Force Mains (Pressurized Sewers)

4.1.4.1 At design pumping rates, a cleaning velocity of at least 2 feet per second (0.61 m/s) must be maintained. It is desirable to have cleaning velocities of at least 3 feet per second. The maximum velocity shall not exceed 8 feet per second for the design pump rate.

Force mains in small grinder and effluent pump installations must be based on a minimum design flow velocity of 2 feet per second and a minimum pipe diameter of 1.5 inches.

4.1.4.2 The minimum force main diameter for raw wastewater is 4 inches (102 mm), except that for design flows of less than 5,000 gpd, the minimum force main diameter is 2 inches (51 mm), if the pump is capable of passing a 2-inch sphere or grinder pumps are provided

4.1.4.3 Materials

A. PVC or High Density Polyethylene (HDPE) sewer pipe will be allowed.

B. PVC sewer pipe must meet the requirements of ASTM D 3034, Schedule 40, or Schedule 80 and meet ASTM D 1785 and must be joined by an integral bell-and-spigot joint with rubber elastomeric gasket or solvent cement joints. When using ASTM D 3034, rock-free bedding is required.

C. HDPE sewer pipe must meet the requirements of ASTM D3350, must meet the minimum cell classification of 435400C as defined and described in ASTM D3350, and must be joined by an integral bell-and-spigot joint with rubber elastomeric gasket or butt fusion weld.

4.1.4.4 Pipe and joints must be equal to water main strength materials suitable for design conditions. The force main, reaction blocking, and station piping must be designed to withstand water hammer pressures and associated cyclic reversal of stresses that are expected with the cycling of wastewater lift stations. Surge protection chambers should be evaluated.

4.1.4.5 Transition connections to other materials must be made by adapter fittings or one-piece molded rubber couplings with appropriate bushings for the respective materials. All fittings must be at least of equivalent durability and strength of the pipe itself.

4.1.4.6 An air relief valve must be placed at high points in the force main to prevent air locking. Vacuum relief valves may be necessary to relieve negative pressures on force mains.

4.1.4.7 Force mains should enter the gravity sewer system at a point not more than 1 foot (0.3 m) above the flow line of the receiving manhole. Corrosion protection for the receiving manhole must be provided.

4.1.4.8 Force mains must be constructed to prevent freezing and must be buried a minimum of 6 feet. Depths greater than 6 feet may be required where local conditions dictate. If it is impossible to achieve sufficient burial depth, insulation may be used to help prevent freezing. However, when proper depth cannot be obtained, the designer shall submit justification for the lesser depth and heat flow calculations showing that the pipe will not freeze.

4.1.4.9 Friction losses through force mains must be based on the Hazen and Williams formula or other acceptable methods. When the Hazen and Williams formula is used, the value for "C" must be 100 for unlined iron or steel pipe for design. For other smooth pipe materials such as PVC, polyethylene, lined ductile iron, etc., a higher "C" value not to exceed 120 may be allowed for design.

Both new and old pipe conditions must be evaluated, along with the various combinations of operating pumps and minimum and maximum flows, to determine the highest head and lowest head pumping conditions. The effects of higher discharge rates on selected pumps and downstream facilities must be considered.

4.1.4.10 Where force mains are constructed of material that might cause the force main to be confused with potable water mains, the force main must be appropriately identified.

4.1.4.11 Leakage tests must be specified, including testing methods and leakage limits.

4.1.4.12 Isolation valves must be used where force mains connect into a common force main. Cleanouts at low points and chambers for pig launching and catching should be considered for any force main to facilitate maintenance.

4.1.5 Alternative Collection Systems

4.1.5.1 Alternative wastewater collection systems include pressurized sewers carrying raw wastewater from grinder pumps, pressurized or gravity sewers carrying effluent, and combinations thereof.

Grinder pump (GP) systems use a macerating type pump to grind the waste into a slurry, which is then pumped to a centralized sewer system for treatment. The slurry enables smaller diameter pipelines to be utilized for the conveyance of sewage. Grinder pumps are commonly used in conjunction with conventional gravity collection systems where a particular service is located below the invert of a gravity collection pipe or there is insufficient vertical drop between the structure and the gravity pipe. Due to increased settling times associated with raw wastewater that has passed through grinder pump stations, the size of septic tanks or other system components may need to be increased.

Septic tank effluent pump (STEP) systems utilize septic tanks and small diameter force mains for the conveyance of wastewater. Septic tank effluent flows to a pump vault where it is pumped to a centralized collection system. The removal of solids in the septic tank at each service connection enables smaller diameter force mains to be used. Solids must be removed from the septic tanks periodically. Since the liquid conveyed in a STEP system is generally septic, odor and corrosion issues for the downstream collection system may be a concern.

STEP systems may produce an effluent stream with extremely low BOD_5 levels. Additional design requirements may apply where compliance ARM Title 17 Chapter 30 is a concern.

Small diameter gravity (SDG) systems utilize septic tanks and small diameter sewer mains for the conveyance of wastewater to a centralized location for treatment. The removal of solids in the septic tank at each service connection enables smaller diameter pipelines to be used. Solids must be removed from the septic tanks periodically. Since the liquid conveyed in an SDG system is generally septic, odor and corrosion issues for the downstream collection system may be a

concern. SDG systems may also produce an effluent stream with extremely low BOD_5 levels. Special consideration should be given to those systems with extremely low BOD_5 levels where compliance with the Water Quality Act and non-degradation of state waters is a concern.

Where SDG and STEP systems comprise a single collection system, the STEP units must not create a backpressure in the SDG lines that negatively impacts flow in the gravity main under all flow conditions.

Standards of Chapters 4.3 Effluent Distribution Systems, and Chapter 5 Septic Tanks of this Circular also apply to alternative sewer systems. This chapter provides standards that are specific only to alternative sewer systems and these standards override any conflicting standards in the above-referenced chapters.

4.1.5.2 Materials and Design Considerations

A. All piping, valves, pumps and other alternative sewer system components must be ASTM or ANSI/AWWA rated for wastewater applications. For small diameter components (less than 4"), the specified material must have a pressure rating of 200 psi. All system components must be constructed of material that is not readily subject to corrosion by raw or septic wastewater and able to withstand the pressures created during pressure cleaning.

B. Detection wires for locating buried pipe are recommended.

C. Cleanouts, air release structures or valve access vaults located in traffic areas must be designed to withstand normal traffic loads without damage.

D. Service lines, mainlines, force mains, and all other system components must be designed and constructed to prevent freezing. The minimum depth of bury must not be less than 6 feet to the top of pipe for pressurized pipes. The minimum depth of bury must not be less than 4 feet to the top of SDG pipe without justification by the designer.

4.1.5.3 Manholes and Cleanouts

A. The limited use of manholes is encouraged. Cleanouts can be used in place of manholes at changes in grade, alignment, and at the end of each line to minimize infiltration, reduce odor potential, limit introduction of extraneous materials and reduce cost. Manholes must be located at major junctions of three or more pipes and limited to strategic locations for cleaning purposes. Watertight manhole covers are required for odor control and to limit inflow.

B. Manholes must be waterproofed tested for watertightness and should be of the type, which has the base riser section cast with an integral floor. Manholes must meet the requirements of Section 4.1.3.10D (Manhole Construction).

C. Spacing of cleanouts and manholes depends upon cleaning capabilities. A maximum of 600 feet for mechanically cleaned and jet-cleaned systems and a maximum of 1000 feet for systems cleaned by pigging.

4.1.5.4 Pump Station Design Standards for Alternative Collection Stations

In addition to the requirements of Chapter 4.2.3 the following standards apply to pump stations that pump septic tank effluent.

A. Pumps must be sized to pass the expected wastewater and for the proposed force main diameter. Screens should be considered to protect the pump(s) from clogging

B. Inlet pipes must be extended below the low water elevation in the wet well in order to reduce turbulence and odors.

C. The lift station wet well must have watertight covers for odor control and to limit inflow.

D. A vent must be provided with odor control. The vent can be connected to activated carbon, soil filters, or other odor control devices.

E. The force main sizing must be based upon hydraulic requirements using a minimum design velocity of 1.0 ft/sec based on a Hazen-Williams friction coefficient of 130 to 140. The minimum pipe diameter for force mains is 1.5 inches.

F. Leakage tests must be specified including testing methods and leakage limits.

4.1.5.5 Design Flow/Hydraulic Considerations

A. Peak design flow must be based upon water use records when available. When water use records are not available the peak flow used in the pipeline design must be based on the following equation:

Q = 20 + 0.5D, where

Q = Design peak flow, gpm
D = Homes served by the system

B. The reviewing authority may require that a hydraulic analysis (including pump head calculations and pump curves) be submitted to verify that the system will function as proposed.

4.1.5.6 Small Diameter Gravity Sewer Design

A. Small diameter gravity (SDG) sewers may be used for septic tank effluent only.

B. Hydraulic design must be based upon 1/2 to 3/4 full pipe at peak design flow (Equation in 4.1.5.5.A) A minimum design velocity equal to 1 ft/sec and a Manning roughness coefficient of 0.013 must be used.

C. All SDG sewer piping must be 4-inch diameter pipe or larger.

D. To minimize potential sources of infiltration, 20 foot minimum pipe lengths and in-line service fittings should be used.

4.1.5.7 Septic Tank Effluent Pumps (STEP) and Grinder Pump (GP) Sewer Design

A. One STEP or GP unit must be provided per household. Where multiple family dwellings or trailer courts are served, duplex pumps, each capable of handling maximum flow must be provided~~,~~

B. System hydraulic requirements for STEP systems must be based on a minimum design velocity of 1.0 ft/sec, and a Hazen-Williams friction coefficient of 130 to 140. System hydraulic requirements for GP systems must be based on 2ft/sec, and a Hazen-Williams friction coefficient of 120.

C. Pumping Units

1. STEP and GP units receiving wastewater from private sewers must be provided with pumps and controls that are corrosion resistant and are listed by Underwriters Laboratories, Canadian Standards Association, or other approved testing and/or accrediting agency as meeting the requirements for National Electric Code Class I, Division 2 locations. Submersible pumps and motors must be designed specifically for totally submerged operation

2. Pumping units must be activated by appropriate level control switches. High and low level alarms will be required with audio-visual alarms recommended. Low level pump deactivation controls must be provided. A control panel with appropriate circuit protection and electrical safety devices must be used. The alarm circuit should be separately wired from the pump circuit. The power cables to the pump must be designed for extra-hard usage. Electrical components must be designed to facilitate maintenance of the pumping unit. Wiring must be exterior to the residence for maintenance purposes.

3. Pipe fittings used should be commonly available. Appropriate isolation, check, and air release valves must be used with ease of maintenance in mind. STEP and GP pumping equipment must be

serviceable from the surface without requiring operations personnel to enter vaults, tanks or other enclosed spaces.

D. For systems served by a community water system, STEP and GP tanks must have a minimum of 24 hours of storage within the tank. Storage volume is defined as the volume between the pump "off" switch and the invert of the influent line. The designer must review historical records of the local power provider to determine if the area has a history of prolonged power outages. Where such conditions exist, additional storage requirements or a backup generator may be required by the reviewing authority.

E. Inlet pipes to wet wells must be extended below the low water elevation in the wet well in order to reduce turbulence and odors.

F. Each service line between the STEP or GP pump and the collection line must be a minimum of 1-1/4 inch in diameter and have a gate or ball valve installed at the main with a stem and riser to the surface. In addition, a minimum of two check valves must be installed on STEP and GP service lines to prevent surcharge. A check valve integral to either the STEP or GP pump may be one of the check valves.

G. Sufficient mainline valves must be installed at locations to isolate portions of the system and to ensure continuous operation for maintenance and repair.

H. Isolation valves must be placed upstream of where two mains intersect and at the terminal end of the system to facilitate the future extension of the main. Valves must also be installed at railroad crossings, bridge crossings, waterway crossings, and long force main lengths.

I. STEP and GP sewers must be installed with cleanouts (pig ports) at the end of each line and at all line size changes to necessitate cleaning. Cleanouts must be designed to launch a minimum 2 lb/cu-ft polyfoam pig for scouring the pipelines.

J. Air relief valves must be placed at high points to prevent air locking. Vacuum relief valves may be necessary to relieve negative pressures on force mains. The force main configuration and head conditions should be evaluated as to the need for and placement of vacuum relief valves.

K. Where air release devices are used, odor control such as activated carbon, soil filters or other odor control must be provided.

L. Leakage tests must be specified including testing methods and leakage limits. Pressure testing of service lines must be completed with the ball valve at the mainline in the closed position. Pressure testing of the mainline must be completed with the service line ball valves in the open position to verify the effectiveness of check valves.

4.1.5.8 Discharge to a Conventional Collection System

Discharge to a conventional gravity system shall be by installing a wye on the gravity main or by connection at a manhole. Drop manholes must not be used. Discharge in a manhole must be accomplished by producing a laminar flow in the manhole channel.

When a STEP or GP system is connected to a conventional force main, the designer must provide hydraulic calculations that demonstrate the system pump(s) will operate across the expected range of head conditions.

4.1.5.9 Corrosion Control

If required by the receiving wastewater facility owner, the effluent must be conditioned to reduce or eliminate the effects of hydrogen sulfide release. Conditioning may include aeration or chemical addition.

4.1.5.10 Operation and Maintenance

All alternative systems must have an operation and maintenance plan in accordance with Appendix D with the following additions:

A. A responsible authority must assume ownership, operation, and maintenance of the alternative sewer system. This authority should also assume control of servicing individual contributing units or at least coordinating proper servicing by the manufacturer's local service representatives.

B. The wastewater system entity must maintain spare pumps and a supply of spare parts for both individual and central pumping units.

C. An overall system schematic plan showing the number of connections contributing to each reach, pump stations with pump sizing information, pipe routes and sizes, valve locations, etc.,

D. Routine inspection requirements and checklists, operation and maintenance responsibilities (including septic tank maintenance, odor control devices, etc.),

E. Cleaning strategies, trouble-shooting, equipment and component contact information, monitoring and sampling plan for operational purposes and permit requirements, solids handling plan, record keeping, operator safety (including confined space entry and H_2S exposure issues), an emergency response plan, and warranty information.

4.1.6 Collection System Setbacks

4.1.6.1 Stream Crossings

A. The top of all sewers entering or crossing streams must be at a sufficient depth below the natural bottom of the stream bed to protect the sewer. In general, the following cover requirements must be met:

1. One foot (0.3 m) of cover where the sewer is located in rock;

2. Three feet (0.9 m) of cover in other material. In streams with high seasonal flows or streams with an alluvial foundation, more than three feet (0.9 m) of cover may be required. The designer must provide scour analysis to justify the bury depth in these cases; and

3. In paved stream channels, the top of the sewer should be placed below the bottom of the channel pavement.

Less cover will be approved only if the proposed sewer crossing will not interfere with the future improvements to the stream channel. Reasons for requesting less cover must be provided in the project proposal.

B. Sewers located along streams must be located outside of the stream bed and sufficiently removed from the stream bed to provide for future possible stream widening and to prevent pollution by siltation during construction.

C. The sewer outfalls, headwalls, manholes, gate boxes, or other structures must be located so they do not interfere with the free discharge of flood flows of the stream.

D. Sewers crossing streams should cross the stream as nearly perpendicular to the stream flow as possible and must be free from change in grade. Sewer systems must be designed to minimize the number of stream crossings. Trenchless construction technologies should be considered for stream crossings to avoid the impacts of open cut construction.

E. Sewers entering or crossing streams must be constructed so they will remain watertight and free from changes in alignment or grade. The use of a casing pipe to carry the sewer is recommended. Crossings constructed of ductile iron or PVC pipe must have restrained mechanical joints when not encased in concrete. When a casing pipe is not utilized for PVC or HDPE pipe, encasement in concrete is required. Material used to backfill the trench must be stone, coarse aggregate, washed gravel, or other materials that will not readily erode, cause siltation, damage pipe during placement, or corrode the pipe.

F. Valves must be provided at both ends of force main crossings so that the section can be isolated for testing and repair. The valves must be easily accessible, and not subject to flooding.

G. Construction methods that will minimize siltation and erosion must be used. The designer shall include in the project specifications the method(s) to be employed in the installation of sewers in or near streams. Best management practices (BMP's) must be utilized during construction. Such methods must provide adequate control of siltation and erosion by limiting unnecessary excavation, disturbing or uprooting of trees and vegetation, dumping of soil or debris, or pumping of silt-laden water into the stream. Specifications must require that cleanup, grading, seeding and planting or restoration of all work areas begin immediately after the construction has been completed. Exposed areas may not remain unprotected for more than seven days. Any work proposed in streams, wetlands, floodplains, and other water bodies may require a permit from the appropriate regulatory authority. One or more of the following permits may be required: a 124 permit, issued by the Montana Department of Fish, Wildlife and Parks; 318 Permit issued by DEQ; a 310 Permit issued by the Local Conservation District; a 404 Permit issued by the Corps of Engineers; a Navigable Rivers Land Use License issued by the DNRC; a Floodplain Permit issued by the DNRC or Local Floodplain Administrator. Other permits not listed here may be required.

4.1.6.2 Aerial Crossings

A. Sewers supported by piers across ravines or streams will be allowed only when it can be demonstrated that no other practical alternative exists.

B. Support must be provided for all joints in pipes utilized for aerial crossings. The supports must be designed to prevent frost heave, overturning, and settlement. Precautions against freezing, such as insulation and increased slope, must be provided. Expansion jointing must be provided between aboveground and belowground sewers. Where buried sewers change to aerial sewers, special construction techniques must be used to minimize frost heaving.

C. For aerial stream crossings, the impact of flood waters and debris must be considered. The bottom of the pipe should be placed no lower than the elevation of the 50 year flood. Ductile iron pipe with mechanical joints is recommended.

D. Valves must be provided at both ends of force main crossings so that the section can be isolated for testing and repair. The valves must be easily accessible, and not subject to flooding.

E. Where sewers crossing streams are to be attached to bridge structures, the bridge owner must provide written approval that this approach will not structurally impair the bridge and is acceptable to the owner. The sewer must be attached to the bridge in a manner that protects it from vandalism and provides support as defined above for pier crossing systems. This

documentation must be provided with the design submittal.

4.1.6.3 Protection of Water Supplies

A. When wastewater sewers are proposed in the vicinity of any water supply facilities, requirements of Circular DEQ 1, Circular DEQ 3 and ARM Title 17 chapter 36 should be used to confirm acceptable isolation distances. Sewers may not be located within 100 feet of a public water supply well or within 50 feet of all other wells.

B. There may not be any physical connections between a public or private potable water supply system and a sewer, or appurtenance that would permit the passage of any wastewater or polluted water into the potable supply. A water pipe may not pass through or come in contact with any part of a sewer manhole.

C. All existing waterworks units, such as basins, wells, or other treatment units, within 100 feet (31 m) of the proposed sewer must be shown on the plans.

4.1.6.4 Relation to Water Mains

A. Horizontal Separation (Parallel Installation) Water mains must be laid at least 10 feet horizontally from any existing or proposed gravity sanitary or storm sewer, septic tank, or subsoil treatment system. The distance must be measured edge to edge. If the proper horizontal separation as described above cannot be obtained, the designer shall submit a request for a deviation along with a description of the problem and justifying circumstances. If the deviation is granted, the sewer must be designed and constructed with the following minimum conditions:

1. Sewers must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards (DEQ 1) and be pressure tested to minimum 150 psi to assure watertightness, and,

2. Sewer services utilizing in-line fittings and extending to at least property lines must be installed and tested within 10 feet of the encroachment. Saddles are not acceptable.

B. Vertical Separation: Sewer mains crossing water mains must be laid with a minimum vertical separation distance of 18 inches between the outside of the water main and the outside of the sewer. This must be the case where the water main is either above or below the sewer. The crossing must be arranged so that the sewer joints will be equidistant and as far as possible

from the water main joints. Where a water main crosses under a sewer, adequate structural support must be provided for the sewer to maintain line and grade and to prevent damage to the water main.

If the proper vertical separation as described above cannot be obtained, the designer may design the crossing with the following minimum conditions:

1. Vertical separation at crossings between water and sewer mains must be at least 6 (six) inches.

2. Sewers must be constructed of slip-on or mechanical joint pipe complying with public water supply design standards (DEQ 1) and be pressure tested to minimum 150 psi to assure watertightness.

3. At crossings, one standard length of new pipe must be centered at approximately a 90 degree angle in respect to the existing pipe.

4. Sewer services utilizing in-line fittings and extending to at least property lines must be installed and tested within 10 feet of the crossing. Saddles are not acceptable.

5. Either the water or sewer main must be encased in a watertight carrier pipe which extends 10 feet (3m) on both sides of the crossing or the mains must be encased in a minimum of 6 inches of flowable fill for a minimum of 10 feet each side of the crossing pipes.

If the minimum 6 (six) inch separation is not viable, the water line must be relocated, and vertical separation at crossings between water and sewer mains must be at least 18 (eighteen) inches

4.2 PUMPING SYSTEMS

4.2.1 General

This chapter describes pumping systems and appurtenances for both raw wastewater and effluent.

4.2.2 Raw Wastewater Pumping Stations

4.2.2.1 The standards in Section 4.2.2 apply in full to pumping stations receiving raw wastewater that have design flow rates of 5,000 gpd or greater.

4.2.2.2 The standards in Section 4.2.2 apply to pumping stations receiving raw wastewater that have design flow rates less than 5,000 gpd, with the following exceptions.

A. Pumps must be capable of passing spheres of at least 2 inches in diameter, or grinder pumps capable of handling raw wastewater must be provided.

B. Submersible pumps and motors must be designed specifically for totally submerged operation at all times

C. Multiple pumps are not required.

D. Pump suction and discharge piping may be less than 4 inches in diameter.

4.2.2.3 Location, Safety, and Access

A. Wastewater pumping station structures and electrical and mechanical equipment must be protected from physical damage by the 100 year flood. Wastewater pumping stations should remain fully operational and accessible during the 25 year flood.

B. The pumping station must be readily accessible by maintenance vehicles during all weather conditions. The facility should be located off the traffic way of streets and alleys. It is recommended that security fencing and access hatches with locks be provided.

C. Adequate provision must be made to effectively protect maintenance personnel from hazards..

D. Dry wells and valve vaults, including their superstructure, must be separated from the wet well. Common walls must be gastight.

E. Provision must be made to facilitate removing pumps, motors, and other

mechanical and electrical equipment. Individual pump and motor removal must not interfere with the continued operation of remaining pumps.

F. Suitable and safe means of access for persons wearing self-contained breathing apparatus must be provided to dry wells, and to wet wells.

G. For built-in-place pump stations, a stairway or ladder to the dry well must be provided with rest landings at vertical intervals not to exceed 12 feet (3.7 m). For factory-built pump stations over 15 feet (4.6 m) deep, rigidly fixed landings must be provided at vertical intervals not to exceed 10 feet (3 m). Where a landing is used, a suitable and rigidly fixed barrier must be provided to prevent an individual from falling past the intermediate landing to a lower level. A manlift or elevator may be used in lieu of landings in a factory-built station, provided emergency access is included in the design. Where ladders are used, adherence to federal safety standards is mandatory.

4.2.2.4 Design

A. Where high groundwater conditions are anticipated, buoyancy calculations for the wastewater pumping station structures must be considered and, if necessary, adequate provisions must be made for protection.

B. Wastewater pumping stations must be constructed with materials that are capable of withstanding prolonged exposure to hydrogen sulfide and other corrosive gases, greases, oils, and other constituents frequently present in wastewater. This is particularly important in the selection of metals and paints. Contact between dissimilar metals should be avoided. If dissimilar metals are used, construction methods must minimize galvanic action through other means.

4.2.2.5 Pumps and Pneumatic Ejectors

A. Multiple pumps or ejector units must be provided. Where only two units are provided, they must be of the same size. Units must have capacity such that, with any unit out of service, the remaining units will have capacity to handle the design peak hourly flow.

B. Pumps handling combined wastewater must be preceded by readily accessible bar racks to protect the pumps from clogging or damage. Where a bar rack is provided, a mechanical hoist must also be provided. Where the size of the installation warrants, mechanically cleaned and/or duplicate bar racks must be provided.

C. Pumps handling separate sanitary wastewater from 30 inch (762 mm) or larger diameter sewers must be protected by bar racks meeting the above

requirements. Appropriate protection from clogging must also be considered for small pumping stations.

D. Pumps handling raw wastewater must be capable of passing spheres of at least 3 inches (76 mm) in diameter except for grinder pumps which must be capable of passing spheres of at least 1 inch (25.4 mm) in diameter. Pump suction and discharge piping must be at least 4 inches (102 mm) in diameter except for grinder pumps, openings must meet the pump manufacturers requirements for the expected wastewater.

E. The pump must be placed so that under normal operating conditions it will operate under a positive suction head, except as specified for suction lift pumps.

F. Electrical systems and components (e.g., motors, lights, cables, conduits, switch boxes, control circuits, etc.) in raw wastewater wet wells, or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors may be present, must be suitable for use under corrosive conditions. Each flexible cable must be provided with watertight seal and separate strain relief. A fused disconnect switch located above ground must be provided for the main power feed for all pumping stations. When such equipment will be exposed to weather, it must meet the requirements for weatherproof equipment. A 110 volt power receptacle to facilitate maintenance must be provided inside the control panel for lift stations that have control panels outdoors. Ground fault interruption protection must be provided for all outdoor outlets.

G. Each pump must have an individual intake. Wet well and intake design must avoid turbulence near the intake and prevent vortex formation.

H. A sump pump equipped with dual check valves must be provided in the dry well to remove leakage or drainage, with discharge above the maximum high water level of the wet well. Water ejectors connected to a potable water supply will not be approved. All floor and walkway surfaces should have an adequate slope to a point of drainage. Pump seal leakage must be piped or channeled directly to the sump. The sump pump must be sized to remove the maximum pump seal water discharge that would occur from a pump seal failure. An alarm must be activated upon sump pump failure.

I. The pumps and controls of main pumping stations especially pumping stations operated as part of the treatment facility should be selected to operate at varying delivery rates. Insofar as is practicable, such stations should be designed to deliver as uniform a flow as practicable in order to minimize hydraulic surges. The station design peak hourly flow capacity must be designed to handle the peak hourly flow and must be adequate to maintain a minimum cleaning velocity of 2 feet per second (0.61 m/s) in the force main.

J. Control float tubes, bubbler lines, or other controls should be located so as not to be unduly affected by turbulent flows entering the well or by the turbulent suction of the pumps. Bubbler type level monitoring systems must include dual air compressors. Provision must be made to automatically alternate the pumps in use. Suction lift stations must be designed to alternate pumps daily instead of each pump cycle to extend the life of the priming equipment.

4.2.2.6 Valves

A. Shutoff valves must be placed on the suction line of dry pit pumps.

B. With the two exceptions of screw pumps and short discharge lines (10 feet or less), shutoff and check valves must be placed on the discharge line of each pump. The check valve must be located between the shutoff valve and the pump. Check valves must be suitable for the material being handled and must be placed on the horizontal portion of discharge piping, except for ball checks, flapper swing check valves, or flexible disk check valves (body seat constructed at an angle of 45 degrees to the flow line), which may be placed in the vertical run. Valves must be capable of withstanding normal pressure and water hammer.

C. All shutoff and check valves must be operable from the floor level and accessible for maintenance. Outside levers are recommended on swing check valves.

4.2.2.7 Wet Wells

A. Where continuity of pumping station operation is critical, consideration should be given to dividing the wet well into two sections, properly interconnected, to facilitate repairs and cleaning.

B. Pump stations must be designed to operate under the full range of projected system hydraulic conditions, and should have the flexibility to accommodate project phasing if proposed.

The design fill time and minimum pump cycle time must be considered in sizing the wet well. The effective volume of the wet well must be based on design average flow and a filling time not to exceed 30 minutes unless the facility is designed to provide flow equalization. The pump manufacturer's duty cycle recommendations must be utilized in selecting the minimum cycle time. When the anticipated initial flow tributary to the pumping station is less than the design average flow, provisions should be made so the fill time indicated is not exceeded for initial flows. When the wet well is designed for flow equalization as part of a treatment facility, provisions

should be made to prevent septicity.

For constant speed pumps, the minimum volume between pump on and pump off levels can be calculated using

$$t = \frac{4V}{Q}$$

t = minimum time between pump starts (minutes)

V = wet well volume (gallons)

Q = pump capacity (gallons per minute)

C. The wet well floor must have a slope of at least 1 to 1 to the hopper bottom. The horizontal area of the hopper bottom may not be greater than necessary for proper installation and function of the inlet.

4.2.2.8 Safety Ventilation

A. Covered wet wells must have provisions for air displacement such as an inverted "j" tube or other means that vents to the outside.

B. Adequate ventilation must be provided for all pump stations. Where the dry well is below the ground surface, permanent mechanical ventilation is required. If screens or mechanical equipment requiring maintenance or inspection are located in the wet well, permanently installed ventilation is required. There may not be any interconnection between the wet well and dry well ventilation systems.

C. In dry wells over 15 feet (4.6 m) deep, multiple inlets and outlets are desirable. Dampers should not be used on exhaust or fresh air ducts and fine screen or other obstructions in air ducts should be avoided to prevent clogging.

D. Switches for operation of ventilation equipment should be marked and located conveniently. All intermittently operated ventilation equipment must be interconnected with the respective pit lighting system.

E. Consideration should be given also to automatic controls where intermittent operation is used. The manual lighting/ventilation switch must override the automatic controls. For a two-speed ventilation system with automatic switch-over and gas detection equipment, consideration should be given to increasing the ventilation rate automatically in response to the detection of hazardous concentrations of gases or vapors.

F. The fan wheel should be fabricated from non-sparking material. Automatic heating and dehumidification equipment must be provided in all dry wells.

G. Wet well ventilation may be either continuous or intermittent. Ventilation, if continuous, must provide at least 12 complete air changes per hour; if intermittent, at least 30 complete air changes per hour must be provided.

Air must be forced into the wet well by mechanical means rather than exhausted from the wet well. The air change requirements must be based on 100 percent fresh air. Portable ventilation equipment must be provided for use at submersible pump stations and wet wells with no permanently installed ventilation equipment.

H. Dry well ventilation may be either continuous or intermittent. Ventilation, if continuous, must provide at least 6 complete air changes per hour; if intermittent, at least 30 complete air changes per hour must be provided.

A system of two speed ventilation with an initial ventilation rate of 30 changes per hour for 10 minutes and automatic switch over to 6 changes per hour may be used to conserve heat.

I. Suitable devices for measuring wastewater flow should be considered at all pumping stations. Indicating, totalizing, and recording flow measurements and voltage/ampere meters must be provided at pumping stations with a 1200 gpm (76 L/s) or greater design peak flow. Elapsed time meters must be provided for all pumps. Flow meters must be installed when recommended by the manufacturer. A pressure gage should be provided.

J. There may not be any physical connection between any potable water supply and a wastewater pumping station that under any conditions might cause contamination of the potable water supply. If a potable water supply is brought to the station, either a combination of a break tank, pressure pump, and pressure tank must be used, or a backflow preventer device or assembly must be installed. Water must be discharged to the break tank through an air gap at least 6 inches (15.2 cm) above the flood line or the spill line of the tank, whichever is higher. Air gaps and backflow preventer valves must be constructed.

K. A sign must be permanently posted at every hose bib, faucet, hydrant, or sill cock located on the water system beyond the break tank or approved backflow preventer valve or assembly to indicate that the water is not safe for drinking.

4.2.2.9 Suction Lift Pump Station

A. Suction lift pumps must be of the self-priming or vacuum-priming type and must meet the applicable requirements of this chapter. Suction-lift pump

stations using dynamic suction lifts exceeding the limits outlined in the following sections may be approved upon submission of factory certification of pump performance and detailed calculations indicating satisfactory performance under the proposed operating conditions. Such detailed calculations must include static suction-lift as measured from "lead pump off" elevation to center line of pump suction, friction, and other hydraulic losses of the suction piping, vapor pressure of the liquid, altitude correction, required net positive suction head, and a safety factor of at least 6 feet (1.8 m).

B. Self-priming pumps must be capable of rapid priming and repriming at the "lead pump on" elevation. Such self-priming and repriming must be accomplished automatically under design operating conditions. Suction piping should not exceed the size of the pump suction and may not exceed 25 feet (7.6 m) in total length. Priming lift at the "lead pump on" elevation must include a safety factor of at least 4 feet (1.2 m) from the maximum allowable priming lift for the specific equipment at design operating conditions. The combined total of dynamic suction lift at the "pump off" elevation and required net positive suction head at design operating conditions may not exceed 22 feet (6.7 m).

C. Vacuum-priming pump stations must be equipped with dual vacuum pumps capable of automatically and completely removing air from the suction-lift pump. The vacuum pumps must be adequately protected from damage due to wastewater. The combined total of dynamic suction-lift at the "pump off" elevation and required net positive suction head at design operating conditions may not exceed 22 feet (6.7 m).

D. The pump equipment compartment must be above grade or offset and must be effectively isolated from the wet well to prevent the humid and corrosive sewer atmosphere from entering the equipment compartment. Wet well access may not be through the equipment compartment and must be at least 24 inches (610 mm) in diameter. Gasketed replacement plates must be provided to cover the opening to the wet well for pump units removed for servicing. Valving may not be located in the wet well.

4.2.2.10 Submersible Pump Station

A. Submersible pump stations must meet the applicable requirements of this chapter.

B. Submersible pumps and motors must be designed specifically for raw wastewater use, including totally submerged operation during a portion of each pumping cycle. An effective method to detect shaft seal failure or potential seal failure must be provided.

C. Submersible pumps must be readily removable and replaceable without dewatering the wet well or disconnecting any piping in the wet well.

D. Electrical supply, control, and alarm circuits must be designed to provide strain relief and to allow disconnection from outside the wet well. Terminals and connectors must be protected from corrosion by location outside the wet well or through use of watertight seals. If located outside, weatherproof equipment must be used.

E. The motor control center must be located outside the wet well, be readily accessible, and be protected by a conduit seal or other appropriate measures to prevent the atmosphere of the wet well from gaining access to the control center. The seal must be located so that the motor may be removed and electrically disconnected without disturbing the seal .When such equipment is exposed to weather, it must be designed for those conditions

F. Pump motor power cords must be designed for flexibility and serviceability under conditions of extra hard usage in wastewater pump stations. Ground fault interruption protection must be used to de-energize the circuit in the event of any failure in the electrical integrity of the cable. Power cord terminal fittings must be corrosion-resistant and constructed in a manner to prevent the entry of moisture into the cable, must be provided with strain relief appurtenances, and must be designed to facilitate field connecting.

G. Valves required under Section 4.2.2.6 must be located in a separate valve chamber. Provisions must be made to remove or drain accumulated water from the valve chamber. Valve pits may be dewatered to a wet well through a drain line with a gas or water tight valve. Check valves that are integral to the pump need not be located in a separate valve chamber provided that the valve can be removed from the wet well in accordance with Section 4.2.2.3.

4.2.2.11 Screw Pump Stations - Special Considerations

A. Screw pumps must meet the applicable requirements of this chapter

B. Covers should be provided.

C. A positive means of isolating individual screw pump wells must be provided.

D. Submerged bearings must be lubricated by an automated system without pump well dewatering

4.2.2.12 Alarms

Alarm systems with a backup power source must be provided for pumping stations. The alarm must be activated upon power failure, sump pump failure, high and low wet well level, pump failure, unauthorized entry, or any cause of pump station malfunction. Shaft seal failure, moisture and thermal sensors shall be provided on submersible pump motors. Redundant low-level alarms should be considered in high hazard environments. Pumping station alarms, including identification of the alarm condition, must be transmitted (via telemetry) to a municipal facility that is staffed 24 hours a day. If such a facility is not available and a 24-hour holding capacity is not provided, the alarm must be transmitted to municipal offices during normal working hours and to the home of the responsible person(s) in charge of the lift station during off-duty hours. Audio-visual alarm systems with a self-contained power supply may be acceptable in some cases in lieu of a transmitting system outlined above, depending upon location, station holding capacity and inspection frequency.

4.2.2.13 Emergency Operation

A. The objective of any emergency operation is to prevent the discharge of raw or partially treated wastewater to any waters and to protect public health by preventing back-up of wastewater and subsequent discharge to basements, streets, and other public and private property.

B. Emergency pumping capability is required unless on-system overflow prevention is provided by adequate storage capacity. Emergency pumping capability may be accomplished by connection of the station to at least two independent utility substations, or portable or permanent internal combustion engine equipment that will generate electrical or mechanical energy, or by portable pumping equipment. Such emergency standby systems must have sufficient capacity to start up and maintain the total rated running capacity of the station. A riser from the force main with rapid connection capabilities and appropriate valving must be provided for all lift stations to hook up portable pumps.

C. For use during possible periods of extensive power outages, mandatory power reductions, or emergency conditions, consideration should be given to providing a controlled, high-level wet well overflow to supplement alarm systems and emergency power generation in order to prevent backup of wastewater into basements, or other discharges that may cause severe adverse impacts on public interests, including public health and property damage. Where a high level overflow is utilized, it will be necessary to install a storage/detention tank, or basin, which must be made to drain to the station wet well. It is recommended that a minimum of one hour of storage be provided for peak flow conditions. The reviewing authority may require different storage requirements based on site specific conditions.

D. General Emergency Equipment Requirements

1. These general requirements apply to all internal combustion engines used to drive auxiliary pumps, service pumps through special drives, or electrical generating equipment.

   a. The engine must be protected from operating conditions that would result in damage to equipment. Unless continuous manual supervision is planned, protective equipment must be capable of shutting down the engine and activating an alarm on site as provided in Section 4.2.2.12 (Alarms). Protective equipment must monitor for conditions of low oil pressure and overheating, except that oil pressure monitoring is not required for engines with splash lubrication.

   b. The engine must have adequate rated power to start and continuously operate under all connected loads.

   c. Reliability and ease of starting, especially during cold weather conditions, should be considered in the selection of the type of fuel.

   d. Design and installation of fuel storage tanks and piping must comply with all state and federal standards.

   e. The engine must be located above grade with adequate ventilation of fuel vapors and exhaust gases.

   f. All emergency equipment must be provided with instructions indicating the need for regular starting and running of such units at full loads.

   g. Emergency equipment must be protected from damage at the restoration of regular electrical power.

2. Engine-Driven Pumping Equipment

   In addition to the requirements in Section 4.2.2.13.D,1 (General Emergency Equipment Requirements), these requirements apply to permanently-installed or portable engine-driven pumping equipment.

   a. Engine-driven pump(s) must meet the design pumping requirements unless storage capacity is available for flows in excess of pump capacity. Pumps must be designed for anticipated operating conditions, including suction lift if applicable.

b. The engine and pump must be equipped to provide automatic startup and operation of pumping equipment unless manual start-up and operation is justified. Provisions must also be made for manual start-up.

c. Where manual start-up and operation is provided or where part or all of the engine-driven pumping equipment is portable, sufficient storage capacity and an alarm system must be provided to allow time for detection of pump station failure and transportation and hookup of the portable equipment.

3. Engine-Driven Generating Equipment

In addition to the requirements in Section 4.2.2.13.D.1 (General Emergency Equipment Requirements) these requirements apply to permanently-installed or portable engine-driven generating equipment.

a. Generating unit size must be adequate to provide power for pump motor starting current and for lighting, ventilation, and other auxiliary equipment necessary for safety and proper operation of the lift station.

b. The operation of only one pump during periods of auxiliary power supply must be justified. Such justification may be made on the basis of the design peak hourly flows relative to single-pump capacity, anticipated length of power outage, and storage capacity.

c. Special sequencing controls must be provided to start pump motors unless the generating equipment has capacity to start all pumps simultaneously with auxiliary equipment operating.

d. Provisions must be made for automatic and manual start-up and load transfer unless only manual start-up and operation is justified. The generator must be protected from operating conditions that would result in damage to equipment. Provisions should be considered to allow the engine to start and stabilize at operating speed before assuming the load. Where manual start-up and transfer is justified, storage capacity and alarm system must meet the requirements of portable generating equipment in Section 4.2.2.13.D.3.e

e. Where portable generating equipment or manual start-up and transfer is provided, sufficient storage capacity and an

alarm system must be provided to allow time for detection of pump station failure and transportation and connection of generating equipment. The use of special electrical connections and double throw switches is recommended for connecting portable generating equipment.

4. Independent Utility Substations

Where independent substations are used for emergency power, each separate substation and its associated transmission lines must be capable of starting and operating the pump stations at its rated capacity

4.2.2.14 Operation and Maintenance

All raw wastewater pumping stations must have an operation and maintenance plan in accordance with appendix D with a complete set of operational instructions, including emergency procedures, maintenance schedules, tools and such spare parts as may be necessary.

4.2.3 Effluent Pumping Stations

Effluent pumping stations process partially treated wastewater from a primary, advanced or other treatment facility.

4.2.3.1 Wastewater pumping stations must be provided with effluent pumps, controls and wiring that are corrosion-resistant and listed by Underwriters Laboratories, Canadian Standards Association, or other approved testing and/or accrediting agency as meeting the requirements for National Electric Code (NEC) Class I, Division 2 locations. An audible or visible alarm must be provided to indicate high or low water levels. Low level pump deactivation must be provided..

In lieu of meeting the requirements for NEC Class 1, Division 2 locations, pumping stations receiving effluent from five or less living units or non-public commercial units may use submersible pumps and motors designed specifically for totally submerged operation with controls and wiring that are corrosion-resistant.

4.2.3.2 Effluent pumping stations for STEP collection systems must be designed in accordance with Section 4.1.5.

4.2.3.3 Pressure Dosing - Pumping Stations Used to Dose Subsurface Absorption Systems

A. The intent of pressure dosing is the uniform distribution of effluent to a receiving component. Dosing includes both gravity dosing to a distribution box or drop box, and delivery of effluent to a manifold for pressure distribution to a subsurface absorption system.

B. Pressure distribution to a subsurface wastewater treatment system should be utilized whenever practical and must be utilized when the design wastewater flow requires an effective length of more than 500 lineal feet or 1000 square feet of distribution lines. The effective length of the absorption area is the actual length of the trench or bed, calculated prior to any applied reductions and ~~which~~ cannot exceed the length of the pipe by more than one-half the orifice spacing.

C. Dosing may be accomplished with either pumps or siphons. Pumps and siphons must be sized for the distribution system and justification for the pump or siphon model selected included for review. F~~or gravity-dosed systems, the volume of each dose must be at least equal to 75 percent of the internal volume of the distribution lines being dosed.~~

D. The dose volume of a pressure distribution system must be equal to the drained volume of the transport pipe (~~pipe leading from the septic tank or dose tank to the distribution lines~~) and manifold, plus a volume that should be 5 to 10 times the net volume of the distribution pipe. Where the system is designed to operate on a timer, more frequent, smaller doses may be used. The minimum dose volume must ~~still~~ be equal to the drained volume of the transport pipe and manifold, plus a volume equal to at least two times the distribution pipe volume. Where timers are used, additional controls are necessary to prevent pump operation at low-water level. For gravity-dosed systems, the volume of each dose must be at least equal to 75 percent of the internal volume of the distribution lines being dosed.

E. The pressure distribution pipe must be at least Schedule 40 PVC or high density polyethylene (HDPE) with a minimum pressure rating of 160 psi. ~~and all~~ All fittings must be pressure rated to the pipe. ~~and at least Class 160 Schedule 40 PVC pipe~~. The pipe must have a single row of orifices 1/8-inch diameter or larger in a straight line. Design must include orifices to allow for drainage of the pipe and to allow air to be expelled from the pipe. Maximum orifice spacing must be 5 feet. The size of the dosing pumps and siphons must be selected to provide a minimum pressure of 2.2 ~~1~~ psi (5 ~~2.3~~ feet of head) at the end of each distribution line. For orifices smaller than 3/16-inch, the minimum pressure must be 4.3 ~~2.16~~ psi (10 ~~5~~ feet of head) at the end of each distribution ~~line~~ pipe.

F. ~~The duration of each discharge may not exceed 15 minutes to promote uniform distribution~~. A hydraulic analysis demonstrating uniform distribution must be provided for all pressure-dosed systems. The analysis must show no greater than 10 percent variation in distribution of dose

across the entire ~~absorption~~ distribution system ~~or sand filter/sand mound or hydraulic zone of absorption system or sand filter/sand mound~~. Pressure dosed systems installed on a sloping site must include means for controlling pressure differences caused by varying distribution pipe elevations across the entire absorption area.

G. Cleanouts must be provided at the end of every lateral. The cleanouts must be within 6 inches of finished grade and should be made with either a long-sweep elbow or two 45-degree bends. A pressure distribution system designer ~~design engineer~~ may specify the use of capped ends that are replaced after flushing if, in the designer's opinion, this is a more feasible option than long sweep cleanouts. A metal location marker or plastic valve cover must be provided for each cleanout.

H. Dosing tanks

1. Dose tank volumes are not to be included in primary, advanced or other required tank volumes.

2. The reserve storage volume of the dosing tank ~~system~~ must be at least equivalent to 25 percent of the subsurface distribution system design flow. If a duplex pump station is used where each pump doses the entire distribution system, then the reserve storage volume of the dosing tank ~~system~~ may be reduced. The reserve storage volume is computed from the high-level alarm. If the specified pump requires submergence, the tank must also include adequate liquid capacity for pump submergence and the dose volume. The required volume of the dosing tank must not be considered as any portion of the required volume of the septic tank.

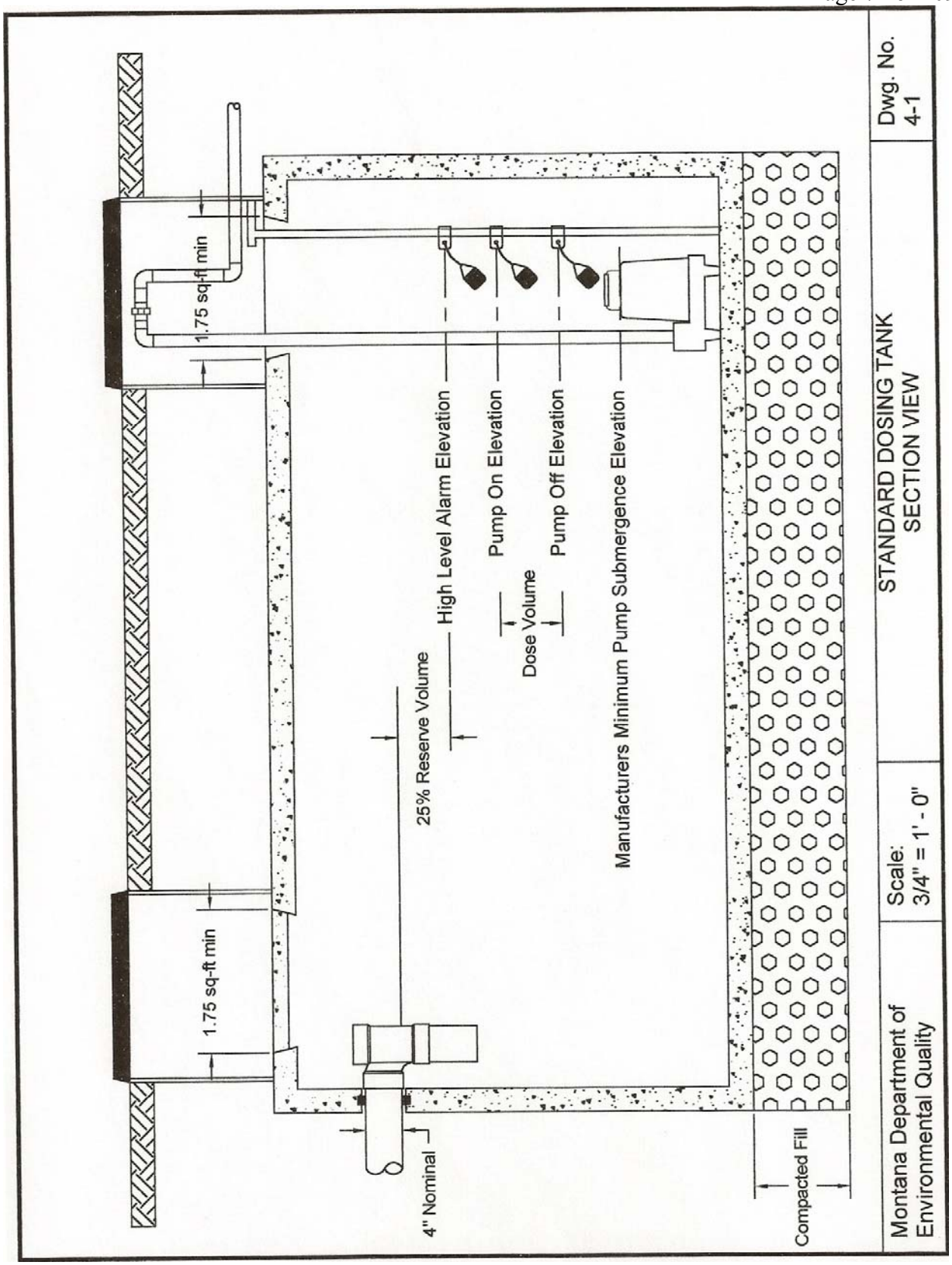
3. The dosing tank must be separated from the septic tank by an air gap to eliminate the possibility of siphoning from the septic tank. Dosing tanks must be provided with access ports sufficiently large to maintain the tank and pumps. Pumps, valves, and other apparatus requiring maintenance must be accessible from the surface without entering the tank or be located in a dry tank adjacent to the wet chamber. The system designer must designate tank depth and riser height prior to installation. Adequate provision must be made to effectively protect maintenance personnel from hazards..

4. Dosing tanks must meet the construction requirements for septic tanks listed in Section 5.1.7. ~~Dosing tanks utilizing pumps must meet the requirements of Section 6.6.3~~

   High-water alarms must be provided for all dosing chambers that utilize pumps.

Dosed systems using a siphon should have a dose counter installed to check for continued function of the siphon.

I. Pressure distribution systems must be field-tested to verify that the pressure across the entire absorption field does not vary by greater than 10%.~~uniform distribution, which is typically done by a test showing approximately equal squirt height~~


1.75 sq-ft min
1.75 sq-ft min
High Level Alarm Elevation
Pump On Elevation
Pump Off Elevation
Dose Volume
25% Reserve Volume
Manufacturers Minimum Pump Submergence Elevation
4" Nominal
Compacted Fill
Montana Department of Environmental Quality
Scale: 3/4" = 1' - 0"
STANDARD DOSING TANK
SECTION VIEW
Dwg. No. 4-1

4.3 EFFLUENT DISTRIBUTION SYSTEMS

4.3.1 General

This chapter applies to the transportation of treated effluent to the subsurface absorption and distribution system.

4.3.2 Pipes

4.3.2.1 Transport pipe

Transport pipes move effluent from the primary or advanced treatment system to the distribution box, drop box or manifold.

Pipes leading into and out of septic tanks, advanced treatment system or pumping chamber must have solid walls. Schedule 40 pipe must be used leading ~~into and~~ out of the septic tank, advanced treatment system or pumping chamber in the area of backfill for a minimum length of at least 10 feet.

Pipes that are either 4 or 6 inches in diameter must ~~and~~ have a minimum downward slope of 1/8 inch per foot. Pipes greater than 6 inches in diameter must have a minimum downward slope of 1/4 inch per foot.

Effluent transport lines must be designed to meet the setback requirements for stream crossings, aerial crossings, water supplies and water lines in accordance with Chapter 4.1.6.

4.3.2.2 Distribution pipe materials

A. Gravity-fed distribution lines must be fabricated from 4-inch diameter ASTM D-3034 sewer pipe with perforations per ASTM D-2729.

B. Coiled, perforated-plastic pipe may not be used for distribution pipe within ~~when installing~~ absorption systems. Straight lengths of pipe must be used ~~instead~~.

C. Pipe used for pressure dosed distribution lines must be at least Schedule 40 and meet ASTM D-1785 or ASTM D-2241or high density polyethylene (HDPE) with a minimum pressure rating of 160 psi. All fittings must be pressure rated to the pipe. Pressure rated fittings compatible with the materials must be used for pressure dosed piping.

D. Other distribution pipe materials may be used with prior approval from the reviewing authority.

4.3.3 Distribution Box, Drop Box and Manifold

Distribution boxes, drop boxes and manifolds collect effluent from either primary or advanced treatment systems for distribution in subsurface absorption systems.

~~A manifold must be installed between the septic tank and the absorption trenches. The~~ Distribution boxes, drop boxes and manifolds must be of watertight construction. ~~Distribution boxes may be used in gravity systems in lieu of manifolds.~~ Manifolds used in gravity systems must be set level and arranged so that effluent is distributed to an equal length of distribution pipe on both sides of the junction of the ~~inlet~~ transport pipe to the manifold. Distribution boxes or drop boxes may be used in gravity systems in lieu of manifolds.

4.3.2.1 Distribution boxes must:

~~If a distribution box is used, it must:~~

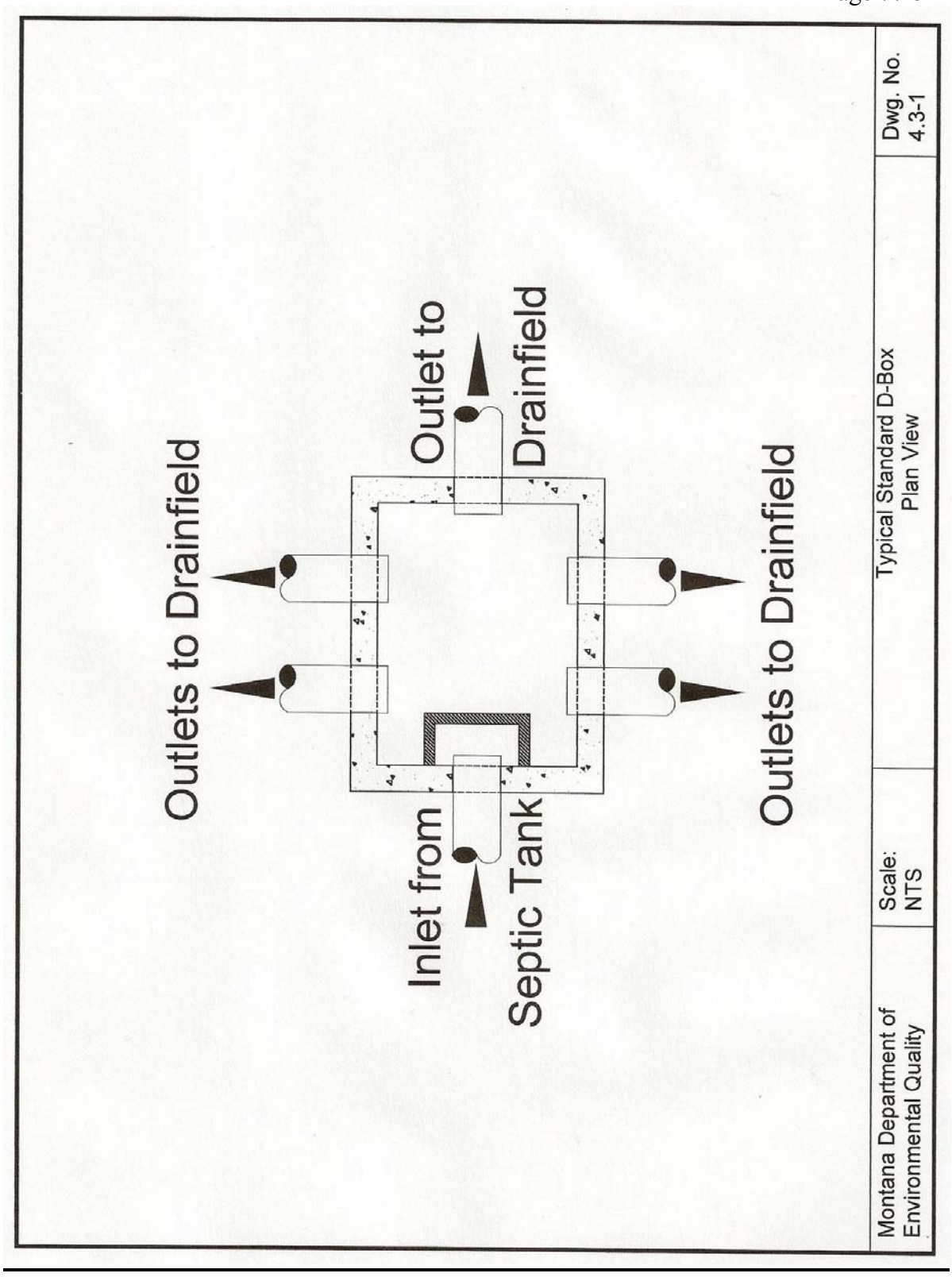
A. be set level and bedded to prevent settling; and,
B. use some flow control or baffling device to ensure equal distribution of effluent; and,
C. be water tested for equal distribution; and,
D. have each outlet serving an equal length of absorption trench; and,
E. if constructed using concrete, the concrete must meet the same requirements as concrete for septic tanks in Section 5.1.7.1.~~7.2.2~~. Minimum wall, floor, and lid thickness for concrete distribution boxes must be 2 inches; and, ~~Reinforcement is not required for concrete distribution boxes.~~
F. have an access for inspection provided either through a riser or is marked with iron or a suitable, durable marker.

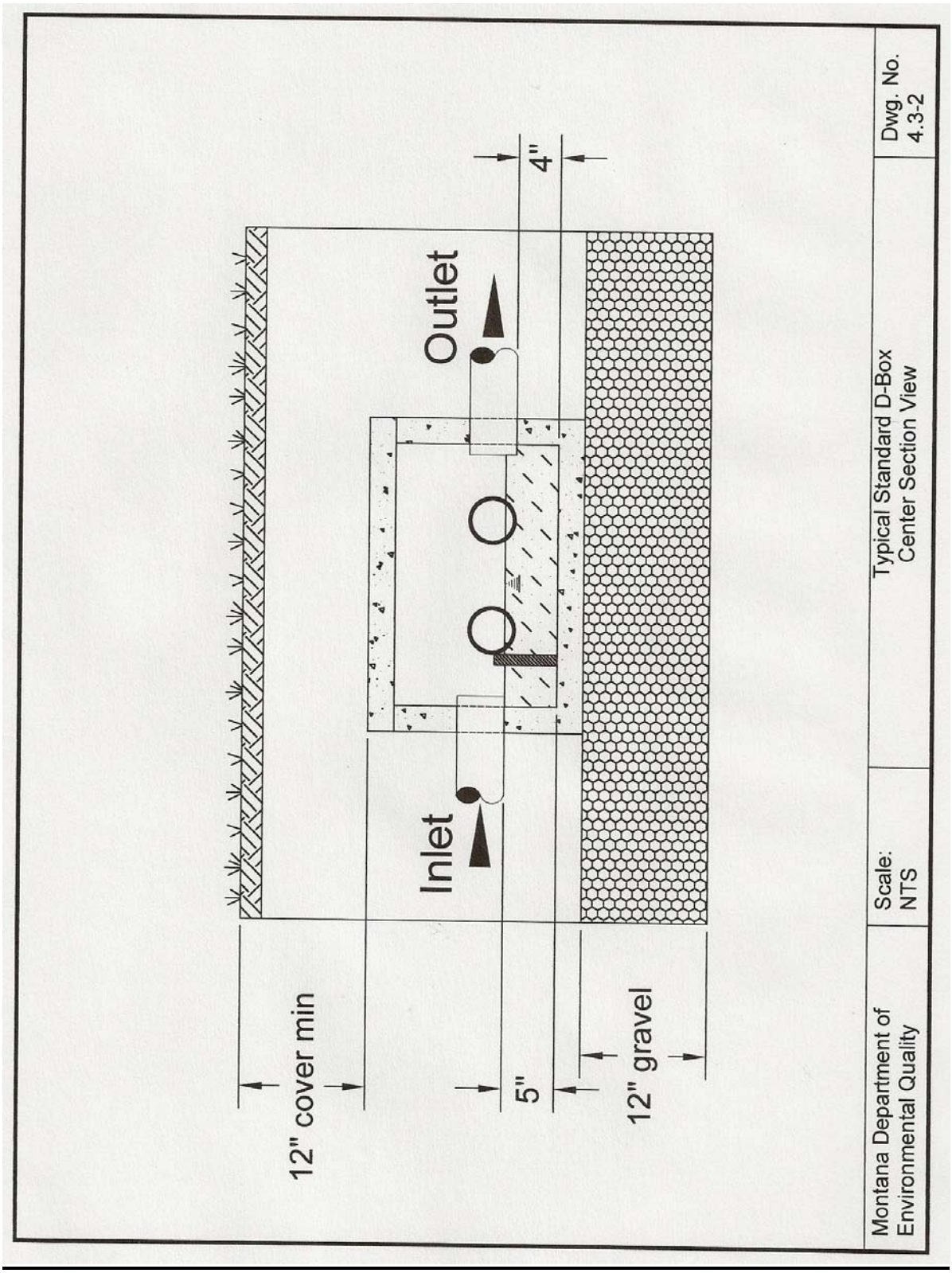
4.3.2.2 Drop boxes must:

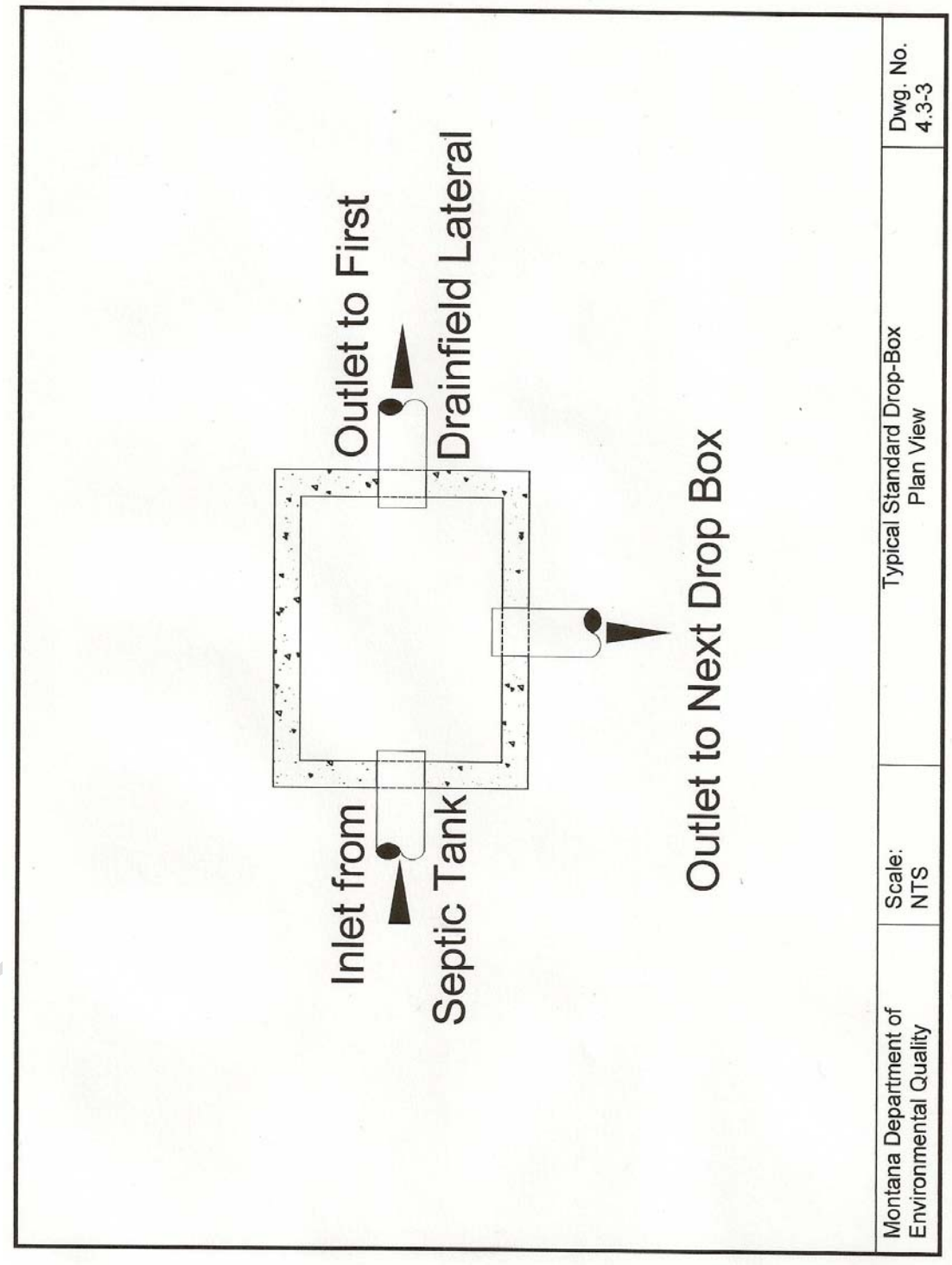
A. Be set level and bedded to prevent settling; and,

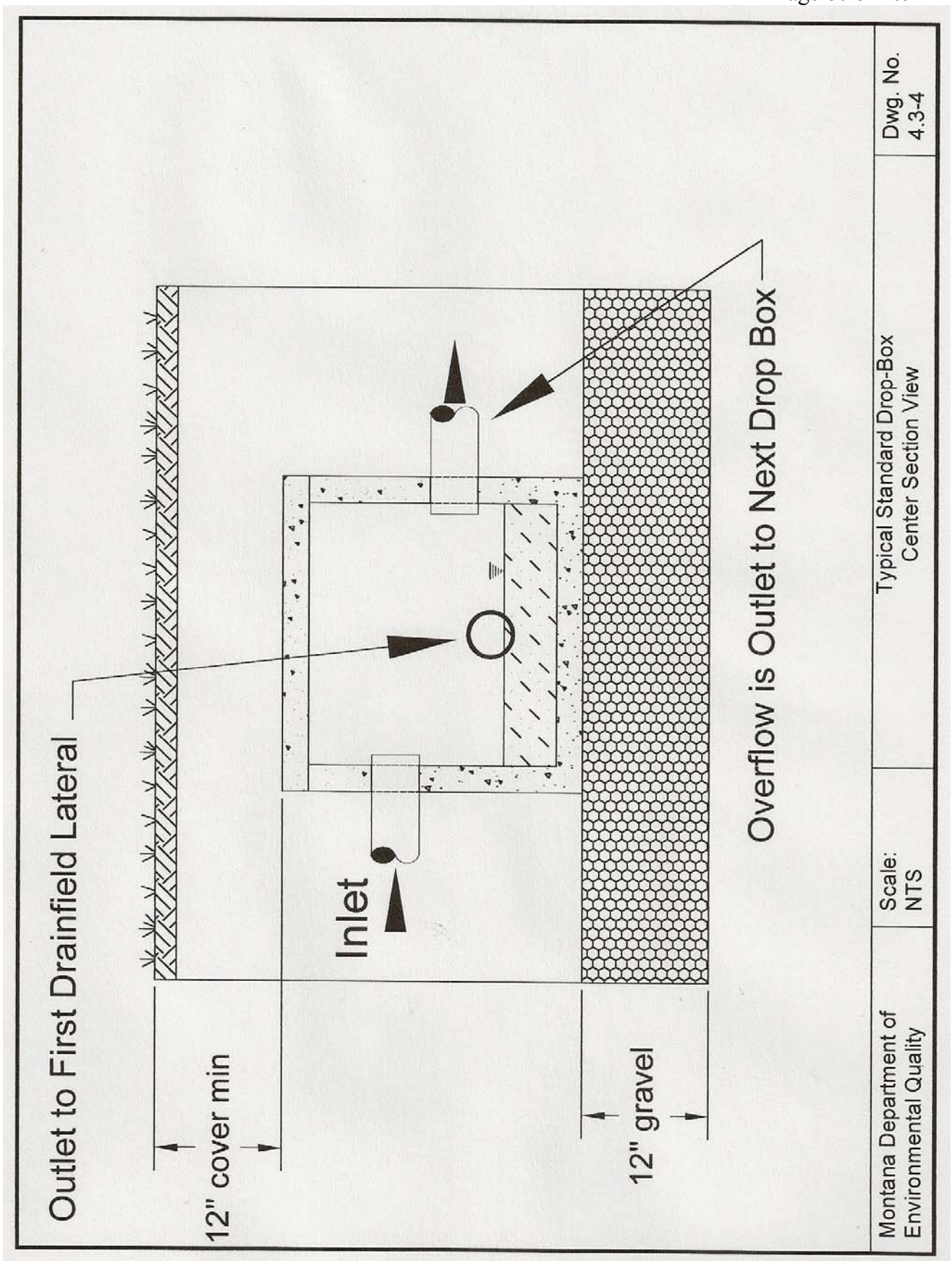
B. if constructed using concrete, the concrete must meet the same requirements as concrete for septic tanks in Section 5.1.7.1.~~7.2.2~~. Minimum wall, floor, and lid thickness for concrete distribution boxes must be 2 inches; and,

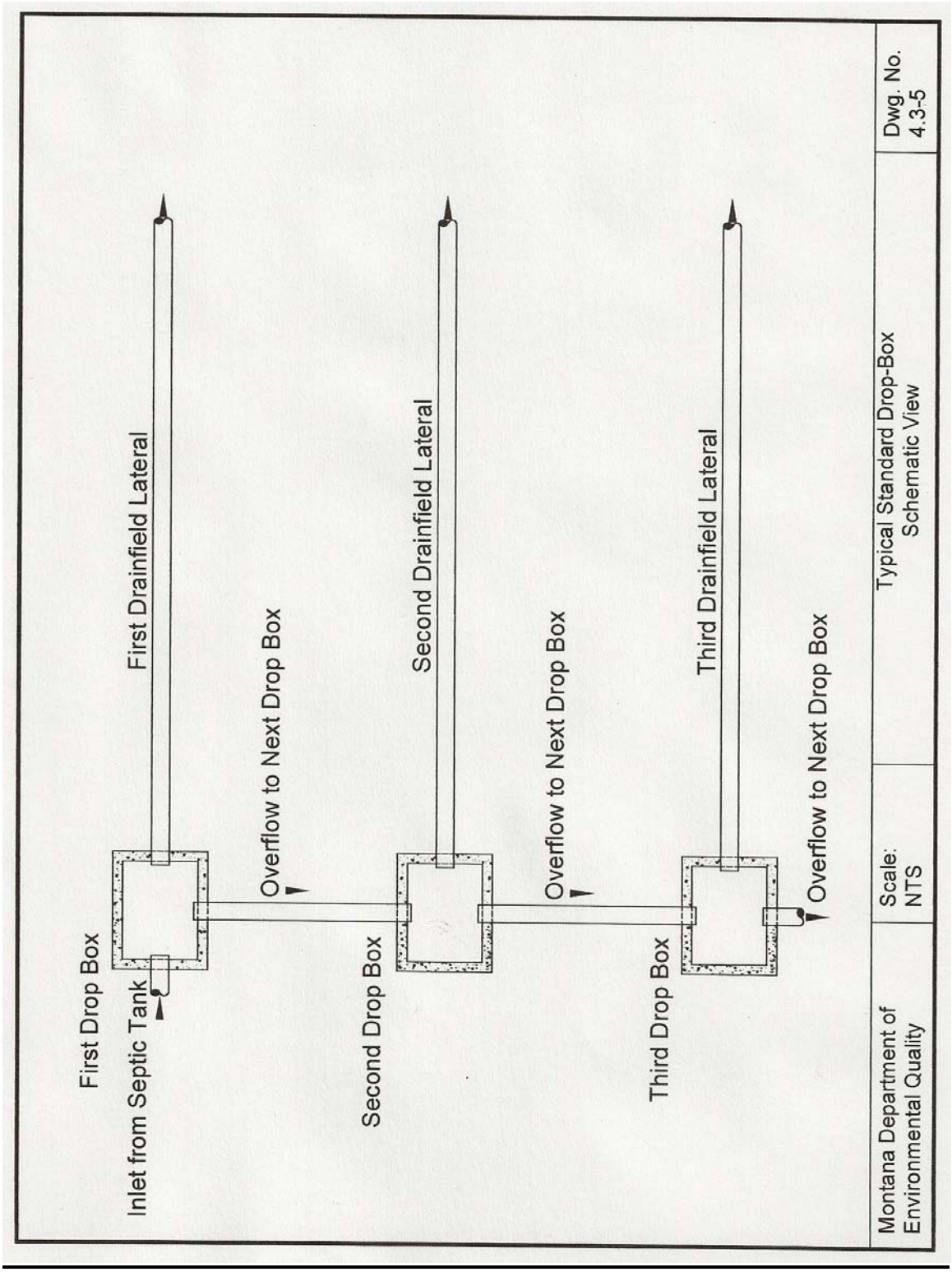
C. have an access for inspection provided either through a riser or is marked with iron or a suitable, durable marker.


Outlets to Drainfield
Outlet to Drainfield
Inlet from Septic Tank
Outlets to Drainfield
Typical Standard D-Box Plan View
Montana Department of Environmental Quality
Scale: NTS
Dwg. No. 4.3-1


Outlet
Inlet
4"
12" cover min
5"
12" gravel
Montana Department of Environmental Quality
Scale: NTS
Typical Standard D-Box Center Section View
Dwg. No. 4.3-2


Outlet to First
Drainfield Lateral
Inlet from
Septic Tank
Outlet to Next Drop Box
Montana Department of
Environmental Quality
Scale:
NTS
Typical Standard Drop-Box
Plan View
Dwg. No.
4.3-3


Outlet to First Drainfield Lateral
12" cover min
Inlet
12" gravel
Overflow is Outlet to Next Drop Box
Montana Department of Environmental Quality
Scale: NTS
Typical Standard Drop-Box Center Section View
Dwg. No. 4.3-4


First Drop Box
Inlet from Septic Tank
First Drainfield Lateral
Overflow to Next Drop Box
Second Drop Box
Second Drainfield Lateral
Overflow to Next Drop Box
Third Drop Box
Third Drainfield Lateral
Overflow to Next Drop Box
Montana Department of Environmental Quality
Scale: NTS
Typical Standard Drop-Box Schematic View
Dwg. No. 4.3-5

5. PRIMARY TREATMENT

5.1 SEPTIC TANKS

~~A septic tank consists of one or more chambers providing primary treatment~~. ~~All wastewater treatment systems must provide at least primary treatment prior to disposal in an absorption system or sand mound.~~

5.1.1 General

All wastewater must discharge into ~~the~~ a septic tank unless otherwise specifically provided in this Circular.

Roof, footing, garage, surface water drainage, and cooling water must be excluded from the septic tank.

~~The wastewater (backwash) from water softeners may only be discharged to a wastewater treatment system if the installed water softener:~~

~~A. regenerates using a demand-initiated regeneration control device; and~~

~~B. is only connected to interior plumbing for potable water usage and not to exterior irrigation water lines.~~

~~Wastewater from water treatment devices including water softeners, iron filters and reverse osmosis units may not be discharged into an aerobic, nonstandard (excluding elevated sand mounds, intermittent sand filters and recirculating sand filters), or proprietary on-site wastewater treatment system unless the quality and quantity of discharge meets the recommended usage, operation and maintenance specifications of the designer or manufacturer of the system. If such specifications are not available, then approval for the discharge must be obtained from the reviewing authority.~~

~~Wastewater from water treatment devices including water softeners, iron filters and reverse osmosis units may be discharged to a dry well, a separate drainfield with pipe or gravelless chambers or onto the ground if not prohibited by other regulations.~~

The septic tank must be located where it is readily accessible for inspection and maintenance and the bottom should not be deeper than 12 feet from finished grade for ease of pumping and maintenance.

Safety basket screens (child catchers) should be installed in all septic tanks.

5.1.2 Design

~~Septic tanks must be made of materials resistant to the corrosive environment found in septic tanks. The empty tank must be structurally sound and capable of withstanding loads created by 6 feet of burial over the top of the tank. Tanks must be installed in accordance with manufacturer's recommendations.~~

~~The walls and floor of concrete tanks must be at least 3 inches thick if adequately reinforced with steel and at least 6 inches thick if not reinforced. Concrete for septic tanks must have a water/cement ratio less than 0.45, a 28-day compressive strength of 4,000 psi, and must be made with sulfate-resistant cement (tricalcium aluminates content of less than 8 percent).~~

~~Concrete covers must be at least 3 inches thick and adequately reinforced. Access lids must be at least 2 inches thick.~~

5.1.2.1 Liquid connection between compartments ~~shall~~ must consist of a single opening completely across the compartment wall or two or more openings equally spaced across the wall. The total area of openings ~~shall~~ must be at least three times the area of the inlet pipe.

5.1.2.2 A septic tank must provide an air space above the liquid level, which must be equal to or greater than ~~20~~ 15 percent of its liquid capacity. Dose tanks do not need to meet the ~~20~~ 15 percent air space requirement. Each compartment of the septic tank must be vented back to the inlet pipe.

5.1.2.3 Inspection ports measuring at least 8 inches in diameter must be provided above each inlet and outlet and marked with rebar. An access at least 1.75 square feet in size must be provided into each compartment. Each access must be extended to within 12 inches of the finished ground surface. ~~An~~ Access ~~of~~ to the effluent filter ~~of a size~~ must be large enough to maintain the filter ~~must be provided~~ and must be extended to the finished ground surface.

5.1.2.4 The nominal length of the septic tank must be at least twice the width (or diameter) of the tank. Dose tanks are excluded from these length, width, and depth requirements.

5.1.2.5 Septic tanks that have less than or equal to a 5,000-gallon liquid capacity must not use depths greater than 78 inches in computing tank capacity.

5.1.2.6 Septic tanks that have a greater than 5,000-gallon liquid capacity must calculate the maximum liquid depth by dividing the liquid length by a factor of 2.5.

5.1.3 Inlets

5.1.3.1 The inlet into the tank must be at least 4 inches in diameter and enter the tank 3 inches above the liquid level. The inlet connection must be watertight.

5.1.3.2 The inlet of the septic tank and each compartment must be submerged by means of a vented tee or baffle. Tees and baffles must extend below the liquid level to a depth where at least 10 percent of the tank's liquid volume is above the bottom of the tee or baffle.

5.1.3.3 Vented tees or baffles must extend above the liquid level a minimum of 7 inches.

5.1.3.4 Baffle tees must extend horizontally into the tank to the nearest edge of the riser access to facilitate baffle maintenance.

5.1.4 Outlets

5.1.4.1 Outlets must include an effluent filter complying ~~approved by the reviewing authority and complying~~ with Section 5.1.5 ~~7.2.7 below.~~ ~~On~~ A combination septic/dosing tank~~s, the septic tank~~ outlet is considered to be in the wall dividing the septic compartment(s) and the dosing compartment. Septic tanks aligned in series require an effluent filter only on the final outlet.

5.1.4.2 The outlet of the tank must be at least 4 inches in diameter. The outlet connection must be watertight.

5.1.4.3 Each compartment of the septic tank must be vented to the atmosphere.

5.1.4.4 ~~Effluent filter inlets must be located below the liquid level at a depth where 30 to 40 percent of the tank's liquid volume is above the intake of the filter.~~

5.1.5 Effluent filters

5.1.5.1 Effluent filters must be used in all systems. ~~prior to secondary treatment devices. unless the reviewing authority approves another filtering device such as a screened pump vault. The effective opening in the effluent filter must be no larger than 1/8-inch.~~

~~The minimum filter must provide a minimum clean water flow rate of 4.2 gallons per minute when tested in a setup that places the filter in its operation position and the clean water head is at the center of a 4-inch sewer line at the septic tank inlet.~~

5.1.5.2 All septic tank effluent must pass through the effluent filter. No by-pass capability may be designed into the effluent filter. A high-water alarm should be installed to signal that the filter has clogged and needs maintenance.

5.1.5.3 Effluent filter inlets must be located below the liquid level at a depth where 30 to 40 percent of the tank's liquid volume is above the intake of the filter.

5.1.5.4 The effluent filter must be secured so that inadvertent movement does not take place during operation or maintenance. Filters must be readily accessible to the

ground surface and the handle must extend to within 2 inches of the access riser lid to facilitate maintenance.

~~Openings developed by penetration, saw cut, or equivalent must be process controlled and all mold flash and penetration burrs removed.~~

~~The effluent filter material must be designed such that the filtering medium maintains structural integrity throughout the life of the device. The filter medium must not tear or otherwise distort so as to make the filter inoperable during normal operation. The entire filter must be constructed of proven corrosion resistant material for use in wastewater applications.~~

5.1.5.5 The effluent filter manufacturer must provide documentation ~~that shows at least three years successful field-testing and operation or~~ that the filter meets the design standard for effluent filters in ANSI/NSF Standard 46. ~~The documentation must show the effluent filter has continuously lowered the Total Suspended Solids (TSS) by a minimum of 30 percent and that under normal use the filter is capable of obtaining a minimum of 3 years between maintenance intervals.~~

5.1.5.6 The effluent filter manufacturer must provide installation and maintenance instructions with each filter. The installer must follow the manufacturer's instructions when installing the filter and must use the manufacturer's recommendations for sizing and application. The installer must provide the owner of the system with a copy of the maintenance instructions.

~~The effluent filter manufacturer must certify to the reviewing authority that the filter meets the requirements of this standard~~.

~~A septic tank must provide an air space above the liquid level, which will be equal to or greater than 20 percent of its liquid capacity. Dose tanks do not need to meet the 20 percent air space requirement. Each compartment of the septic tank must be vented back to the inlet pipe~~.

~~Inspection ports measuring at least 8 inches in diameter must be provided above each inlet and outlet and marked with rebar. An access at least 1.75 square feet in size must be provided into each compartment. Each access must be extended to within 12 inches of the finished ground surface. An access of~~ to the effluent filter ~~of a size large enough to maintain the filter must be provided and must be extended to the finished ground surface.~~

5.1.6 Sizing of septic tanks

~~Minimum capacities are:A The minimum acceptable size of septic tank is 1,000 gallons per living unit for any residential system~~. Septic tanks must meet the following minimum size requirements.

Two single compartment tanks may be connected in series to meet ~~the~~ minimum capacity requirements. Dose tank or other tank volumes included in the design may not be included in the required septic tank minimum capacity. The reviewing authority may have additional maintenance requirements for tanks connected in series or those systems utilizing grinder pump.

5.1.6.1 For residential flows :

A. Residential septic tanks serving an individual living unit must be sized in accordance with the number of bedrooms as described below:

1. For 1 to 3 bedrooms, the minimum size septic tank is 1,000 gallons per living unit.
2. For 4 to 5 bedrooms, the minimum size septic tank is 1,500 gallons per living unit.
3. For 6 to 7 bedrooms, the minimum size septic tank is 2,000 gallons per living unit.
4. For 8 or more bedrooms, the minimum size septic tank is 2,000 gallons per living unit plus 250 gallons for each bedroom greater than 7 bedrooms (i.e. 8 bedrooms requires a 2,250 gallon tank; 9 bedrooms requires a 2,500 gallon tank).

B. When the number of living units on a single or common septic tank is between 2 and 9, the minimum septic tank size will be based on the number of living units and corresponding bedrooms as described in Section 5.1.6.1. A.

C. When the number of living units on a single or common septic tank is 10 or greater, the septic tank must have a capacity of at least 3 times the design flow.

5.1.6.2 For non-residential flows:

A. The minimum acceptable septic tank size is 1,000 gallons for any non-residential system and must have a minimum tank capacity of 3 times the design flow.

~~For non-residential flows less than or equal to 1,500 gallons per day, the tank must have a capacity of at least 2.7 times the design flow.~~

~~For non-residential flows of greater than 1,500 gallons per day, the tank must have a minimum capacity equal to 2.25 times the average daily flow.~~

~~A. For a septic tank less than or equal to 5,000-gallon liquid capacity, depths greater than 78 inches must not be used in computing tank capacity.~~

~~B. For the septic tank greater than 5,000-gallon liquid capacity, the maximum liquid depth is determined by dividing the liquid length by a factor of 2.5.~~

~~Septic tank volume may be sized using nationally recognized plumbing codes, provided that there is adequate volume to store at least 3.5 times the estimated daily wastewater flow, and the sizing is approved by the reviewing authority.~~

~~The nominal length of the septic tank must be at least twice the width (or diameter) of the tank. Dose tanks are excluded from these length, width, and depth requirements.~~

~~Grease traps~~

~~Establishments such as restaurants that produce grease exceeding the limits of residential strength wastewater must be provided with grease traps and meet the requirements of Section 5.4.~~

5.1.7 Construction

5.1.7.1 Concrete Tanks (cast in place tanks and pre-cast tanks)

All concrete tanks must comply with Sections 1, 2, 3, 5 and 6 of ASTM C 1227-09 with the following additional requirements:

A. All concrete tanks must be manufactured with ASTM C 150 Type I, Type I-II or Type V cement and must be made with sulfate-resistant cement (tricalcium aluminates content of less than 8 percent).

B. All concrete tanks must be watertight. Tanks used for commercial facilities, multiple-user systems, public systems or those with a design flow of 700 gallons per day or greater must be tested in place for water tightness using a water pressure test or vacuum test. The reviewing authority or designer may require tanks intended for other uses to be tested. Tanks must be tested using one of the following methods:

1. Vacuum testing - Seal the empty tank and apply a vacuum to 4-in. (100-mm) mercury. The tank is approved if 90% of vacuum is held for 2 minutes; or

2. Water pressure testing – seal the tank, fill with water and let stand for at least 24 hours. Refill the tank. The tank is approvable if it holds water.

C. Repairs of all concrete tanks, when required, must be performed by the manufacturer in a manner ensuring that the repaired structure will conform to the requirements of this Circular.

D. All concrete tank sealants must be flexible sealants employed in the manufacture or installation of tanks sand must conform to ASTM C 990.

E. Pre-cast concrete tanks

A set of complete plans stamped by a professional engineer to certify compliance with this Circular must be on file with the tank manufacturer and made available to the reviewing authority upon request. These plans must show maximum depth of bury, all dimensions, capacities, reinforcing, structural calculations and other such pertinent data for each tank model.

The precast concrete tank manufacturer shall develop manufacturer's recommended installation instructions for each tank model. The manufacturer shall provide a copy of the stamped drawings along with the installation instructions to each tank purchaser.

All precast concrete tanks must be clearly marked within 2 feet of the outlet with the name of the tank manufacturer, tank model (number of gallons), date of manufacture and maximum depth of bury.

F. Cast-in-place concrete tanks

A complete set of plans stamped by a professional engineer to certify compliance with this Circular and ACI 318 must be provided to the reviewing authority. These plans must show maximum depth of bury, all dimensions, capacities, reinforcing, structural calculations and other such pertinent data. The approved stamped plans must be given to the tank purchaser. As-built plans and a letter of certification from a professional engineer must be submitted to the reviewing authority within 90 days of construction of all cast-in-place concrete tanks.

5.1.7.2 Polyethylene and fiberglass tanks

A set of complete plans stamped by a professional engineer to certify compliance with this Circular and IAMPO/ANSI Z1000 must be on file with the tank manufacturer and made available to the reviewing authority upon request. These plans must show maximum depth of bury, all dimensions, capacities, reinforcing, structural calculations and other such pertinent data for each tank model.

The polyethylene and fiberglass tank manufacturer shall develop manufacturer's recommended installation instructions for each tank model. The manufacturer shall provide a copy of the stamped drawings along with the installation instructions to each tank purchaser.

All polyethylene and fiberglass tanks must be clearly marked within 2 feet of the outlet with the name of the tank manufacturer, tank model (number of gallons), date of manufacture and maximum depth of bury.

Tanks used for commercial facilities, multiple-user systems, public systems or those with a design flow of 700 gallons per day or greater must be tested in place for water tightness. The reviewing authority or designer may require tanks intended for other uses to be tested. For pressure testing a fiberglass or polyethylene tank, all inlets, outlets, and access ports must be sealed and adequately secured. The tank must be charged with 5 psig (3 psig for a 12-foot or larger diameter tank). Tank pressure must be allowed to stabilize. The air supply must be disconnected. If there is any noticeable pressure drop in 1 hour, the tank must be rejected or repaired. After repair, the test must be repeated. Air must be carefully released through an appropriate valve mechanism.

5.1.8 Installation

All septic tanks must be installed per the manufacturer's recommendations.

~~7.5 Water Testing~~

~~7.5.1 All tanks must be watertight. All tanks used for commercial facilities, multiple-user systems or public systems (greater than 700 gpd design flow) must be tested in place for water tightness. Water tightness testing for a concrete tank may be conducted using a water test or vacuum test. Water tightness testing for a fiberglass tank may be conducted using a water test, a vacuum test, or a pressure test.~~

~~7.5.2 Water testing must be conducted by sealing the outlets, filling the septic tank to its operational level, and allowing the tank to stand for at least 8 hours. If there is a measurable loss (2 inches or more), refill the tank and let stand for another 8 hours. If there is again a measurable loss, the tank must be rejected.~~

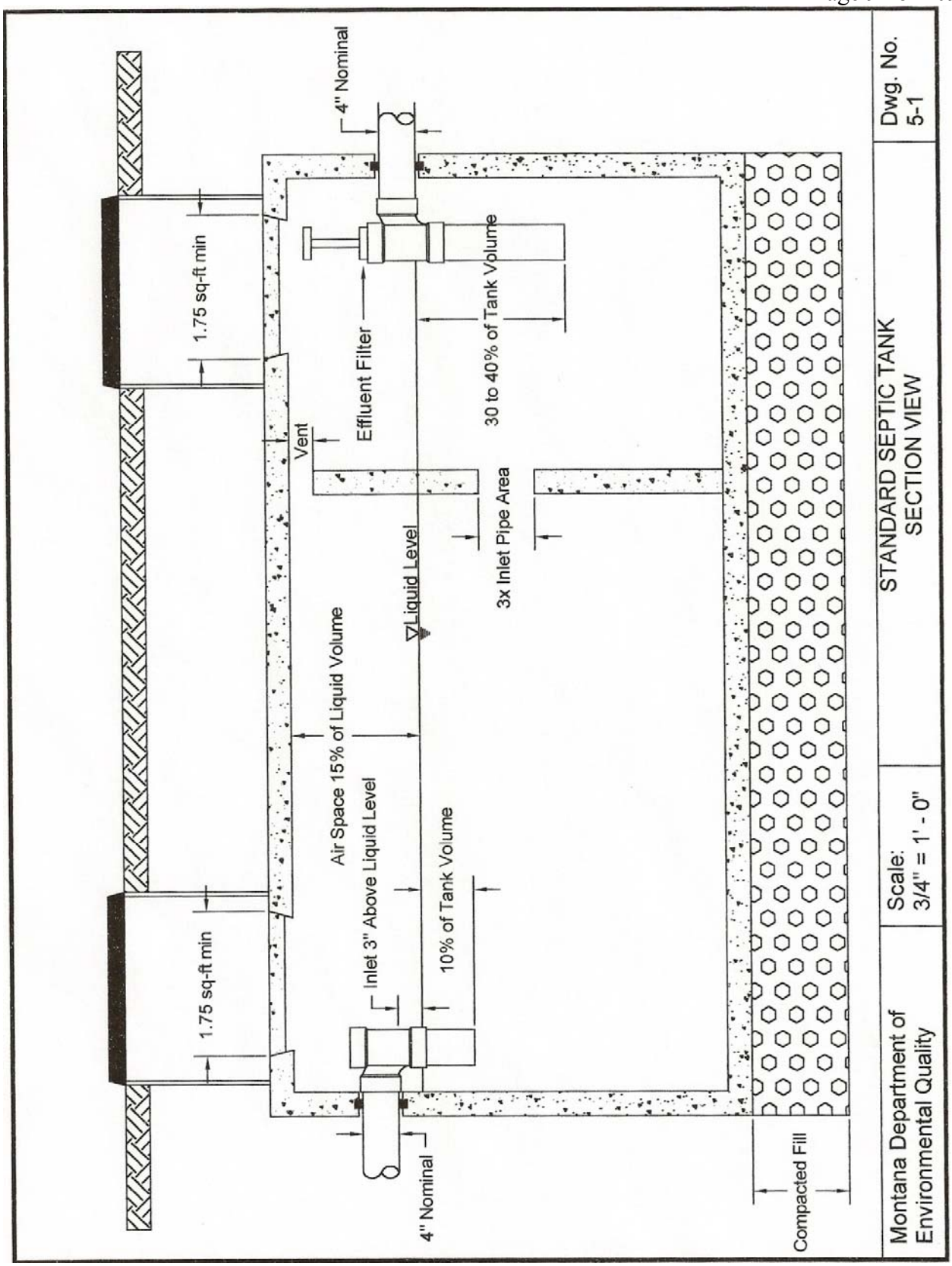
~~7.5.3 Vacuum testing must be conducted by sealing all inlets, outlets, and accesses, then introducing a vacuum of 4 inches of mercury. If the vacuum drops in the first 5 minutes, it must be brought back to 4 inches of mercury. If the septic tank fails to hold the vacuum at 4 inches of mercury for 5 minutes, the tank must be rejected.~~

~~7.5.4 For pressure testing a fiberglass tank, all inlets, outlets, and access ports must be sealed and adequately secured. The tank must be charged with 5 psig (3 psig for a 12-foot diameter tank). Allow tank pressure to stabilize. Disconnect the air supply. If there is any noticeable pressure drop in 1 hour, the tank must be rejected or~~

~~repaired. Repeat the test after repair. Release air carefully through an appropriate valve mechanism.~~

5.1.9 Maintenance

Owners of septic systems should obtain septic tanks maintenance recommendations published by Montana State University Extension Service, which are available through Montana County Extension Service offices located in each county. Two of these publications are Septic Tank and Drainfield Operation and Maintenance and Septic System Inspection and Troubleshooting. Those who own ~~the~~ systems with siphons, pumps~~,~~ or controls should carefully adhere to manufacturer's recommendations for operation and maintenance and seek guidance from the county extension service or local health department.


4" Nominal
1.75 sq-ft min
Effluent Filter
30 to 40% of Tank Volume
Vent
3x Inlet Pipe Area
Liquid Level
Air Space 15% of Liquid Volume
Inlet 3" Above Liquid Level
10% of Tank Volume
1.75 sq-ft min
4" Nominal
Compacted Fill
Montana Department of Environmental Quality
Scale: 3/4" = 1' - 0"
STANDARD SEPTIC TANK SECTION VIEW
Dwg. No. 5-1

6. SOIL ABSORPTION SYSTEMS

6.1 STANDARD ABSORPTION TRENCHES

6.1.1 General

The satisfactory operation of the wastewater treatment system is largely dependent upon wastewater quality, proper site selection and the design and construction of absorption trenches.

All new and replacement ~~drainfields~~ absorption systems must be designed to accept and treat residential strength waste. High strength waste or water treatment waste residuals must comply with Chapters 3.3. ~~that receive wastewater discharged from water treatment devices including water softeners, iron filters and reverse osmosis units must be designed to adequately dispose of the additional flow. The sizing of absorption systems is addressed in Section 8.4.2. Discharge of wastewater from water softeners into absorption trenches in clay soils with shrink/swell properties could result in premature system failure. Area-specific information on potential adverse impacts should be obtained from local health officials before connecting water softener backwash lines to on-site wastewater treatment systems with absorption trenches in clay soils with shrink/swell properties.~~

6.1.2 Location

Absorption trenches must meet the location criteria in ARM Title 17, 36, subchapter 3 or 9.

All absorption trenches must meet the site requirements of Chapter 2.

6.1.3 Trench Design

6.1.3.1 The minimum area in any absorption trench system must be based upon the flow as determined in Chapter 3 ~~5~~ and sized by the soil type and percolation rate if percolation testing is required by the reviewing authority, whichever results in a larger absorption system, in accordance with Table 2.1-1, Section 6.1.4 and , Appendix B. ~~9-1 and 9-2~~. The reviewing authority may require a percolation test when the soils are variable or other conditions create the need to verify trench sizing.

6.1.3.2 An area that can be used as a replacement area for the original absorption trench system must be designated. Interim use of the area must be compatible with future absorption system use. The replacement area should ~~must~~ be located separately from the primary area and must not be interlaced within the primary area. ~~If interlaced, minimum separation must be 14 feet between primary lines.~~

6.1.3.3 Gravity-fed and gravity-dosed absorption trenches must be separated by at least 5 feet between trench walls. Pressure dosed absorption trenches must be separated by at least 4 feet between trench walls.

6.1.3.4 Gravity-fed and gravity-dosed absorption trenches must be at least 18 inches wide. Systems utilizing pressure distribution may have absorption trenches 36 inches wide. For the purposes of sizing, gravity-fed and gravity-dosed trenches ~~must~~ may not be considered more than 24 inches wide.

6.1.3.5 The bottom of the absorption trenches must be at least ~~12~~ 24 inches and no more than 36 inches below the natural ground surface. There must be a minimum of 12 inches of soil or fill material above the drain rock. ~~When the trench is less than 24 inches below ground, a cap above the natural ground surface is required. The cap must be tapered from the edge of the outermost trench wall with a 3 horizontal to 1 vertical or flatter slope. The cap must be sloped to provide positive drainage away from the center of the absorption system.~~

6.1.3.6 Gravity-fed absorption trenches may not exceed 100 feet in length from where effluent is first applied to the soil. Gravity-fed absorption trenches may be connected through a manifold to accommodate serial configurations.

~~Gravity-fed absorption field distribution lines must be 4 inches in diameter.~~

6.1.4 ~~Application rates for~~ Sizing of the absorption system

6.1.4.1 Application rates and absorption system length used for sizing onsite wastewater absorption systems can be determined ~~by~~ using soil descriptions in accordance with Table 2.1-1, Appendix B ~~8-1 for residential systems and Table 8-2 for nonresidential facilities with~~ and the formula in Section 6.1.4.2 ~~8.4.2.~~ Comparison of the soil profile descriptions (at or near the depth of the infiltrative surface), percolation rate (if conducted), and USDA soils report must be used to select the most conservative application rate. ~~The residential tables have been calculated for a three bedroom residence, for more or less bedrooms (use the formula in Section 8.4.2). The commercial tables have been calculated for 100 gallons per day (gpd) flow rate, for flows other than 100 gpd, use the formula in Section 8.4.2. Comparison of the soil profile report, percolation rate, and USDA soils report will be used to select the applicable square footage for an absorption system. The application rate (gpd/ft²) is the maximum application rate for each soil type listed in Table 8-1 and Table 8-2.~~

6.1.4.2 ~~For determining~~ Absorption system sizing must be determined using the following formula: ~~, the following formula may must be used:~~

The total square feet of the absorption system area is determined using the design wastewater flow rates from Chapter 3 ~~5~~ (gpd) divided by the application rate in Table 2.1-1 ~~8-1 or Table 8-2~~ (gpd/ ft²) ~~= Absorption system length area (ft²)~~ or expressed as a mathematical formula:

gpd (design wastewater flow rate) = ft² (total absorption area)
gpd/ft² (application rate)

Total trench length is calculated by dividing the total square feet of the absorption system area by the trench width or expressed as a mathematical formula:

ft² (total absorption area) = ft (length of trench)
ft (trench width)

6.1.4.3 Systems that provide documentation or demonstrate through a third independent party that the unit is able to meet the testing criteria and performance requirements for NSF Standard No. 40 for Class 1 certification or meet the testing requirements outlined in ARM 17.30.718 for 30 mg/L BOD and 30 mg/L TSS, testing for other continuants is not required, may utilize a reduced absorption area in accordance with the following criteria:

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 ~~60~~ minutes per inch as described in Chapter 2 and Appendix B, the final absorption are may be reduced by 50%;

B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 minutes per inch as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25%.

A full sized separate subsurface absorption replacement area, sized without reduction, must be designated for each site;

Further reductions in subsurface absorption system sizing beyond those listed in Section 6.1.4.3 A or B are not permissible.

T~~ABLE 8-1 (Residential)~~

~~Texture~~	~~Square feet for three bedroom (ft2)~~	~~Estimated Perc rate (min/in)~~	~~Application rate (gpd/ft2)~~
~~Gravelly sand or very coarse sands (a)~~	~~375~~	~~< 3 (a)~~	~~0.8(a)~~
~~Loamy sand, coarse sand~~	~~375~~	~~3 - < 6~~	~~0.8~~
~~Medium sand, sandy loam~~	~~500~~	~~6 - <10~~	~~0.6~~
~~Fine sandy loam, loam, silt loam~~	~~600~~	~~10 - <16~~	~~0.5~~
~~Very fine sand, sandy clay loam~~	~~750~~	~~16 - <31~~	~~0.4~~
~~Clay loam, silty clay loam~~	~~1000~~	~~31 - <51~~	~~0.3~~
~~Sandy clay, clay, or silty clay~~	~~1500(b)(c)~~	~~51 - <121~~	~~0.2~~
~~Clays, silts, silty clays (soil is reported~~	~~2000(d)~~	~~≥ 121~~	~~0.15~~

throughout the soil profile) (USE EVTA BED)			
Clays or silts, pan evaporation rates do not allow for EVTA use		≥ 121	NP

(a) If the soil for 3 feet below the infiltrative surface is gravelly sand or very coarse sands, or there is less than 6 feet separation between the bottom of the trench and a limiting layer, the trench must be pressured-dosed or other treatment provided as approved by the reviewing authority. If the soil for 3 feet below the infiltrative layer is very gravelly sand or coarser textured, the trench also must be sand-lined or other treatment as approved by the reviewing authority.
(b) Pressure distribution will be required if more than 500 lineal feet (or 1000 square feet) of distribution line is needed.
(c) Comparison of soils profile report, percolation rate, and USDA soils report will be used to select applicable square footage.
(d) Square footage is increased because the trench sidewall is not available in EVTA bed systems.
NP Not permitted

TABLE 8-2 (Nonresidential Facilities)

Texture	Square feet for 100 gpd (ft^2)	Estimated Perc rate (min/in)	Application rate (gpd/ft^2)
Gravelly sand or very coarse sands (a)	125	< 3 (a)	0.8 (a)
Loamy sand, coarse sand	125	3 - < 6	0.8
Medium sand, sandy loam	167	6 - <10	0.6
Fine sandy loam, loam, silt loams	200	10 - <16	0.5
Very fine sand, sandy clay loam	250	16 -<31	0.4
Clay loam, silty clay loam	333	31 - <51	0.3
Sandy clay, clay or silty clay	500(b)(c)	51 - < 121	0.2
Clays, silts, silty clays (soil is reported throughout the soil profile) (USE EVTA BED)	667 (d)	≥ 121	0.15
Clays or silts, pan evaporation rates do not allow for EVTA use	NP	≥ 121	NP

(a) If the soil for 3 feet below the infiltrative surface is gravelly sand or very coarse sands, or there is less than 6 feet separation between the bottom of the trench and a limiting layer, the trench must be pressured-dosed or other treatment provided as approved by the reviewing authority. If the soil for 3 feet below the infiltrative layer is very gravelly sand or coarser textured, the trench also must be sand-lined or other treatment as approved by the reviewing authority.
(b) Pressure distribution will be required if more than 500 lineal feet (or 1,000 square feet) of distribution line is needed.

~~(c) Comparison of soils profile report, percolation rate, and USDA soils report will be used to select applicable square footage.~~
~~(d) Square footage is increased because the trench sidewall is not available in EVTA bed systems.~~
~~NP – Not permitted~~

~~Slope~~

~~Gravity-fed and gravity-dosed absorption field distribution lines pipes and trenches must be level. Pressure-dosed distribution lines pipes in a sand filter or absorption system must be level, unless a hydraulic analysis indicates uniform distribution of effluent will occur with a sloped line.~~

~~Material~~

~~The material used to cover the top of the drain rock must be synthetic drainage fabric or several (two to four) layers of untreated building paper. A 2-inch layer of straw may be substituted when these materials are unavailable. Nonporous plastic or treated building paper may not be used.~~

~~Distribution boxes~~

~~If a distribution box is used, it must:~~

~~A. Be set level and bedded to prevent settling.~~
~~B. Use some flow control or baffling device to ensure equal distribution of effluent.~~
~~C. Be water tested for equal distribution.~~
~~D. Have each outlet serving an equal length of absorption trench.~~
~~E. If constructed using concrete, the concrete must meet the same requirements as concrete for septic tanks in 7.2.2. Minimum wall, floor, and lid thickness for concrete distribution boxes must be 2 inches. Reinforcement is not required for concrete distribution boxes.~~
~~F. Have an access for inspection provided either through a riser or be marked with iron or a suitable, durable marker.~~

6.1.5 Construction

~~Pipes leading into and out of septic tanks must have solid walls. Schedule 40 pipe must be used leading into and out of the septic tank in the area of backfill around the tank for a minimum length of at least 10 feet. Pipes that are either 4 or 6 inches in diameter must and have a minimum downward slope of 1/8 inch per foot. Pipes greater than 6 inches in diameter must have a minimum downward slope of 1/4 inch per foot.~~

~~A manifold must be installed between the septic tank and the absorption trenches. The manifold must be of watertight construction. Distribution boxes may be used in gravity systems in lieu of manifolds. Manifolds used in gravity systems must be set level and arranged so that effluent is distributed to an equal length of distribution pipe on both sides of the junction of the inlet discharge pipe to the manifold. Distribution boxes may be used in gravity systems in lieu of manifolds.~~

~~Distribution boxes~~

~~If a distribution box is used, it must:~~

~~A. Be set level and bedded to prevent settling.~~
~~B. Use some flow control or baffling device to ensure equal distribution of effluent.~~
~~C. Be water tested for equal distribution.~~
~~D. Have each outlet serving an equal length of absorption trench.~~
~~E. If constructed using concrete, the concrete must meet the same requirements as concrete for septic tanks in 5.1.7.1.7.2.2. Minimum wall, floor, and lid thickness for concrete distribution boxes must be 2 inches. Reinforcement is not required for concrete distribution boxes.~~
~~F. Have an access for inspection provided either through a riser or be marked with iron or a suitable, durable marker.~~

6.1.5.1 Gravity-fed and gravity-dosed absorption field distribution pipes and trench bottoms must be level. Pressure-dosed distribution pipes in an absorption system or sand filter must be level, unless a hydraulic analysis indicates uniform distribution of effluent will occur with a sloped line.

6.1.5.2 When the trenches have been excavated, the sides and bottom must be raked to scarify any smeared soil surfaces. Construction equipment not needed to construct the system should be kept off the area to be utilized for the absorption trench system to prevent undesirable compaction of the soils. Construction must not be initiated when the soil moisture content is high.

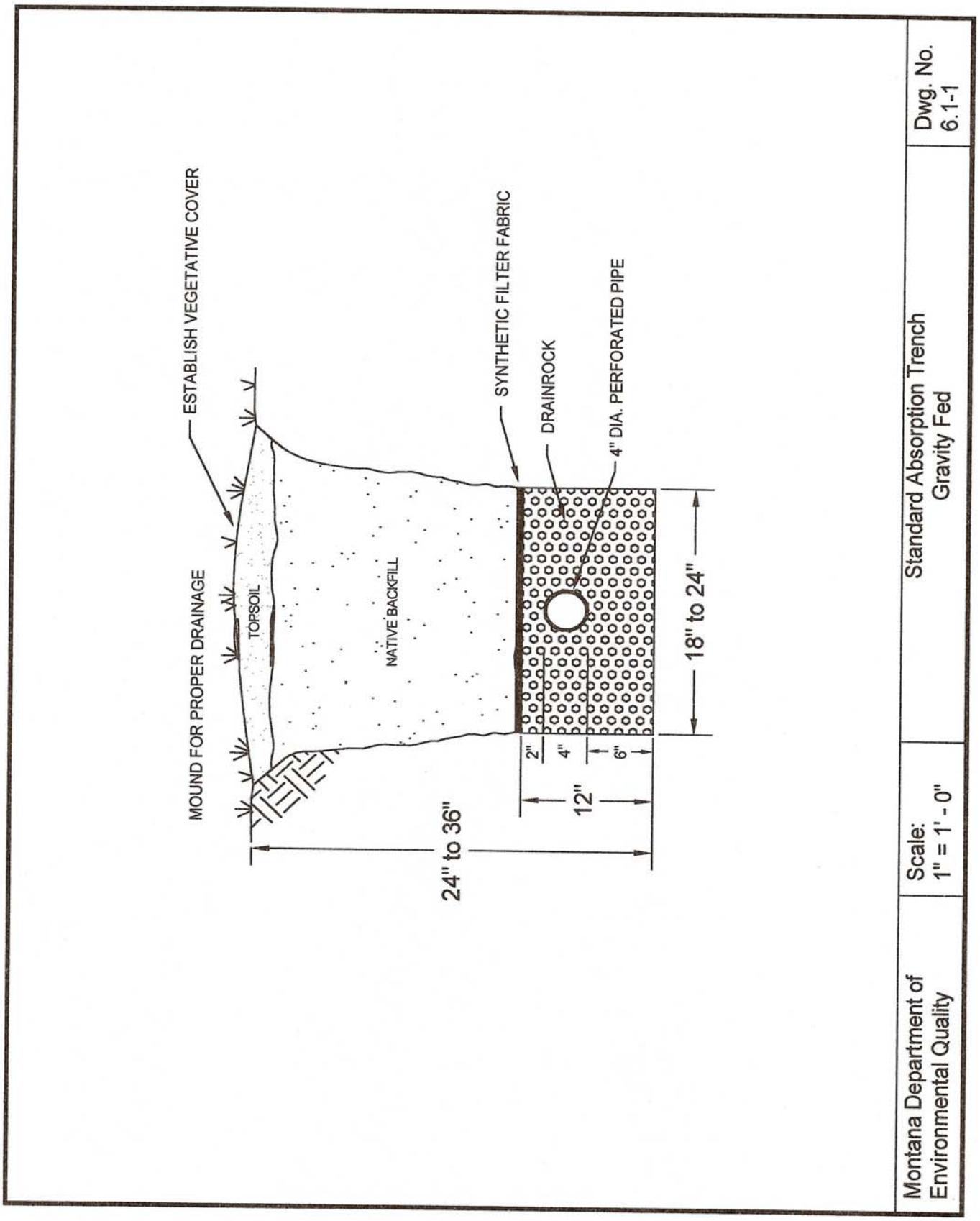
Note: If a sample of soil within the working depth can be easily rolled into the shape of a wire or ribbon ~~east~~, the soil moisture content is too high for construction purposes.

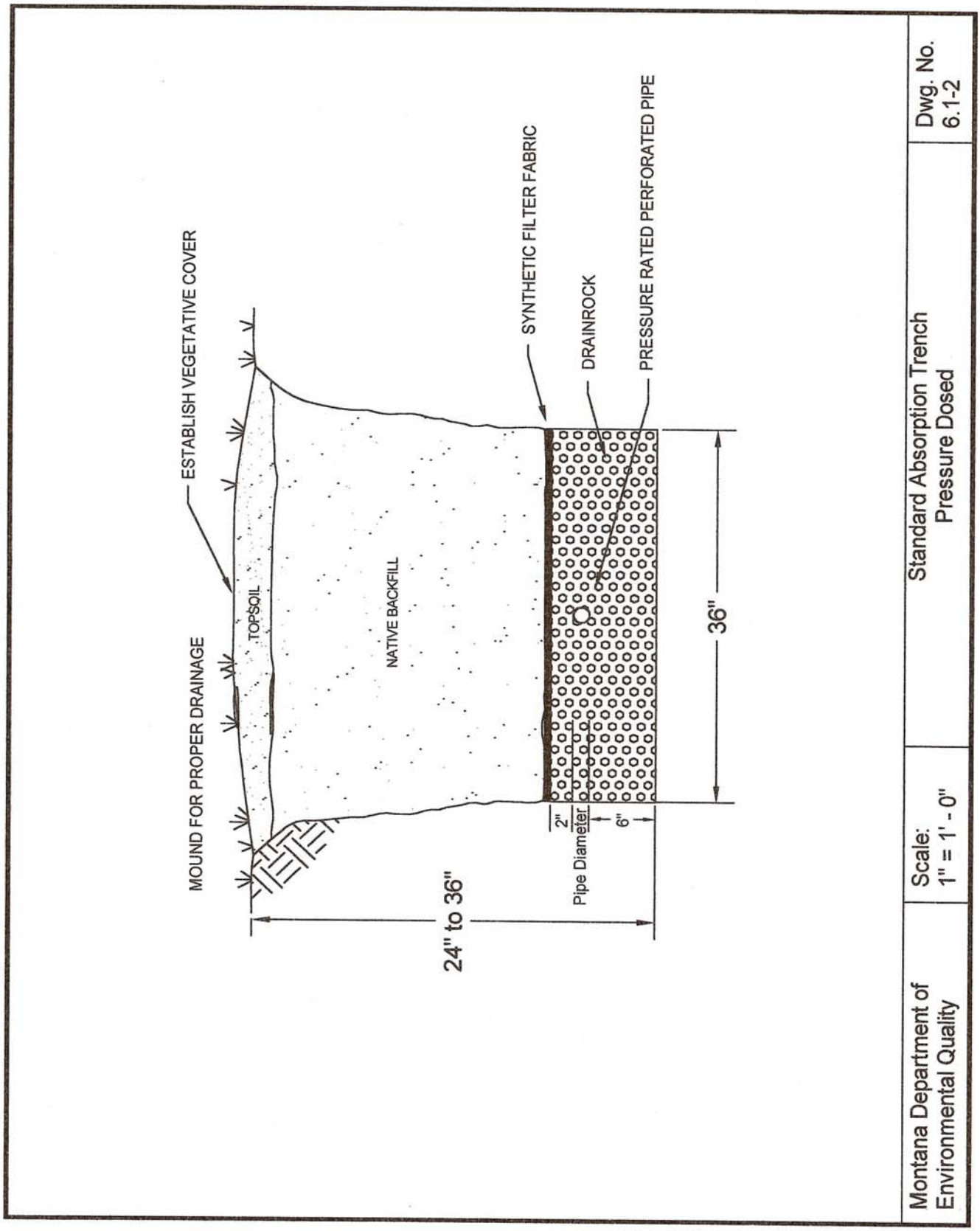
6.1.5.3 At least 6 inches of drain rock must be placed in the bottom of the trench.

6.1.5.4 The distribution pipe must be covered with at least 2 inches of drain rock. An appropriate geotextile fabric, untreated building paper, or straw must be placed over the drain rock and covered with a minimum of 12 inches of soil or fill.

6.1.5.5 The ends of the distribution pipes must be capped or plugged. ~~when they are at equal elevations, they should be connected.~~

6.1.5.6 ~~Leaching chambers~~ Gravelless trenches and other absorption systems may be used in place of distribution pipe and drain rock in accordance with Chapter 6.5 ~~13~~.


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
SYNTHETIC FILTER FABRIC
DRAINROCK
4" DIA. PERFORATED PIPE
18" to 24"
2"
4"
6"
12"
24" to 36"
Montana Department of Environmental Quality
Scale: 1" = 1' - 0"
Standard Absorption Trench
Gravity Fed
Dwg. No. 6.1-1


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
SYNTHETIC FILTER FABRIC
DRAINROCK
PRESSURE RATED PERFORATED PIPE
36"
2"
Pipe Diameter
6"
24" to 36"
Montana Department of Environmental Quality
Scale: 1" = 1' - 0"
Standard Absorption Trench
Pressure Dosed
Dwg. No. 6.1-2

6.2 SHALLOW CAPPED ABSORPTION TRENCHES

6.2.1 General

A shallow capped absorption trench is used to maintain a 4-foot separation between the bottom of the infiltrative surface and a limiting layer and/or to increase vertical separation distances in porous soils. Shallow capped absorption trenches must meet the same requirements as a Standard Absorption Trench, Chapter 6.1, and if applicable Gravelless and Other Absorption Systems Methods, Chapter 6.5 except where specifically modified in this chapter.

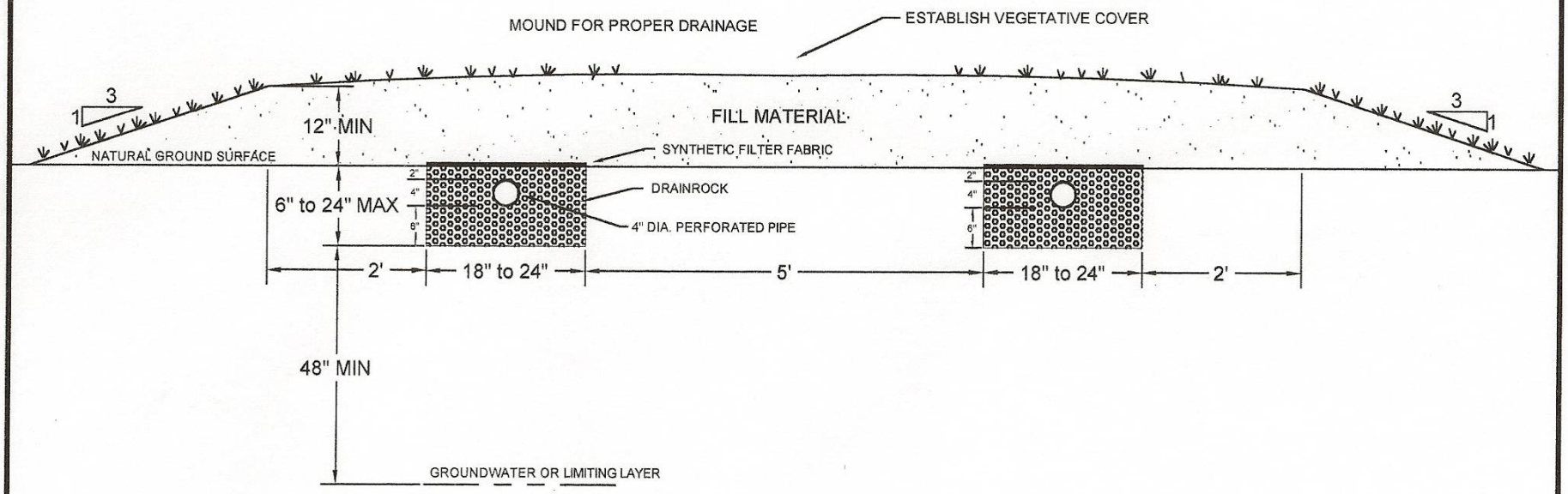
6.2.2 Design

6.2.2.1 Shallow capped absorption trenches must be 6 inches to 24 inches below the natural ground.

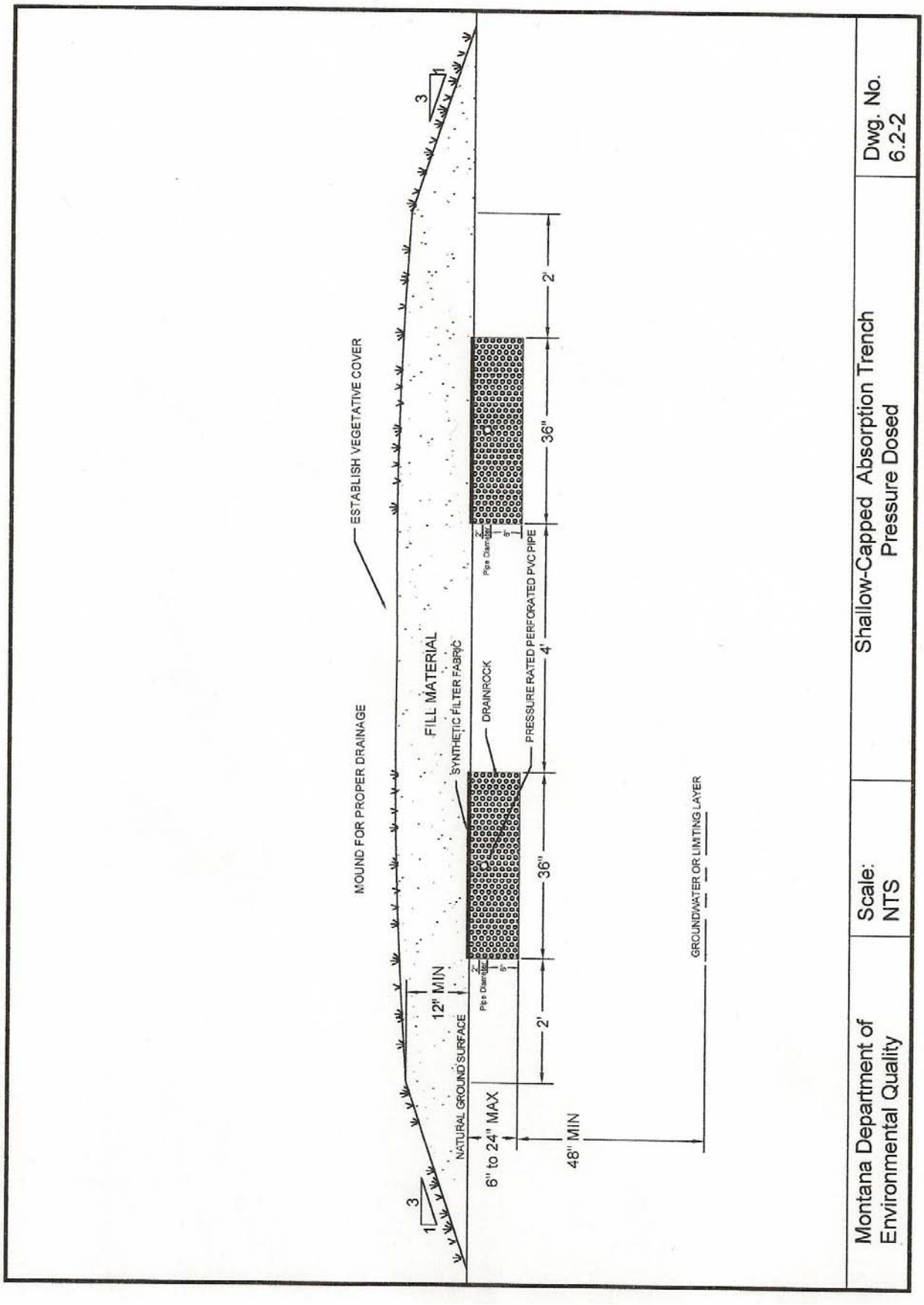
6.2.3 Construction

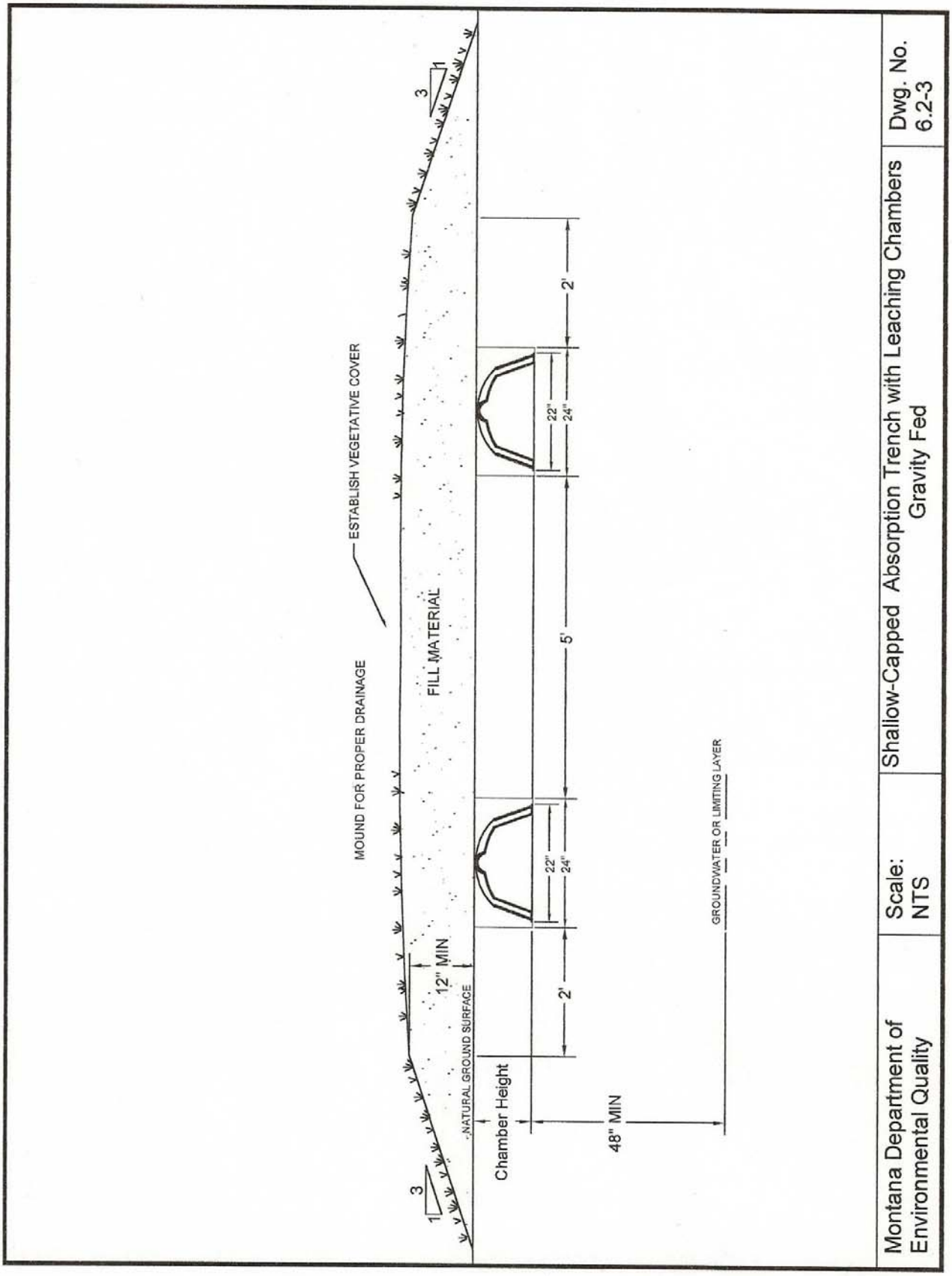
6.2.3.1 Shallow capped absorption trench systems require a cap of topsoil material a minimum of 12 inches deep. This cap must be loamy sand or sandy loam and must extend 2 feet beyond the edges of the required absorption area before the sides are shaped to a 3 horizontal to 1 vertical or lesser slope. The cap must be sloped to provide positive drainage away from the center of the absorption system. The entire mound must be seeded, sodded, or otherwise provided with shallow-rooted vegetative cover to ensure stability of the installation.

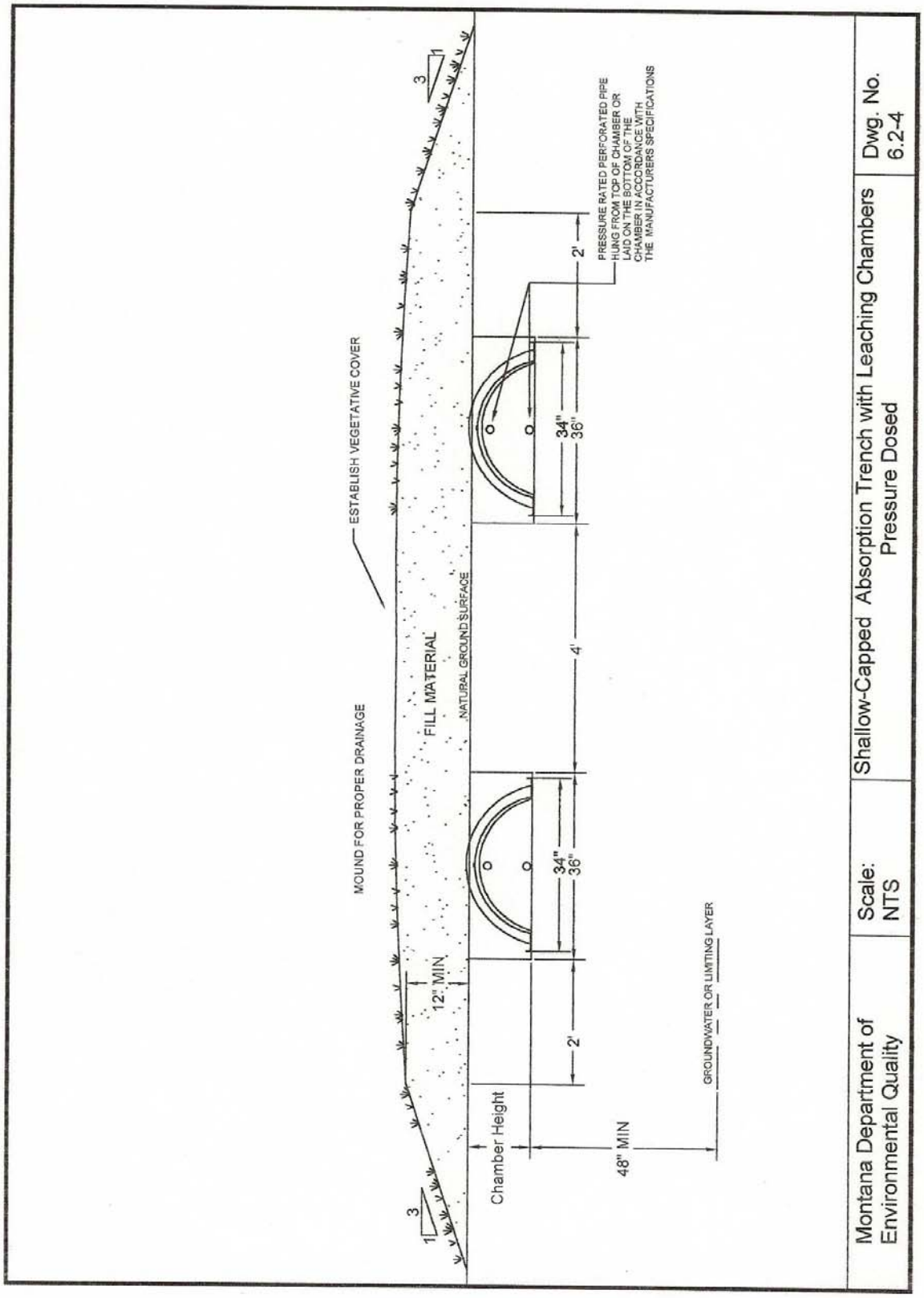
6.2.3.2 If gravelless or other absorption trenches are used, depth of bury must be in accordance with manufacturer's recommendations but the top of the chamber must be no less than the level of the natural ground.



Montana Department of Environmental Quality	Scale: NTS	Shallow-Capped Absorption Trench Gravity Fed	Dwg. No. 6.2-1


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
FILL MATERIAL
SYNTHETIC FILTER FABRIC
DRAINROCK
PRESSURE RATED PERFORATED PVC PIPE
Pipe Diameter
12" MIN
NATURAL GROUND SURFACE
6" to 24" MAX
48" MIN
GROUNDWATER OR LIMITING LAYER
2'
36"
4'
36"
2'
3
1
3
1
Montana Department of Environmental Quality
Scale: NTS
Shallow-Capped Absorption Trench
Pressure Dosed
Dwg. No. 6.2-2


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
FILL MATERIAL
3
1
3
1
12" MIN
NATURAL GROUND SURFACE
Chamber Height
2'
22"
24"
5'
22"
24"
2'
48" MIN
GROUNDWATER OR LIMITING LAYER
Montana Department of Environmental Quality
Scale: NTS
Shallow-Capped Absorption Trench with Leaching Chambers Gravity Fed
Dwg. No. 6.2-3


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
FILL MATERIAL
NATURAL GROUND SURFACE
12" MIN
3
1
3
1
Chamber Height
48" MIN
2'
4'
2'
34"
36"
34"
36"
PRESSURE RATED PERFORATED PIPE HUNG FROM TOP OF CHAMBER OR LAID ON THE BOTTOM OF THE CHAMBER IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS
GROUNDWATER OR LIMITING LAYER
Montana Department of Environmental Quality
Scale: NTS
Shallow-Capped Absorption Trench with Leaching Chambers
Pressure Dosed
Dwg. No. 6.2-4

~~AT-GRADE ABSORPTION TRENCHES~~

~~General~~

~~At-grade systems may be used only for residential strength wastewater and where the design flow does not exceed 500 gallons per day. At-grade systems must not be installed on land with a slope greater than 6 percent or where the percolation rate is slower than 40 minutes per inch.~~

~~Effective area~~

~~The effective area is that area which is available to accept effluent. Effective length of the absorption area is the actual length of the trench, which cannot exceed the length of the pipe by more than one-half the orifice spacing. The effective width is the actual of the washed rock below the distribution pipe. s not to exceed 3 feet for each pipe.~~

~~The effective area must be 1.5 times the area required for a standard absorption trench, as described in Table 9-1. Percolation tests must be conducted at a depth of not more than 12 inches below ground surface.~~

~~Pressure distribution is required for at-grade systems.~~

~~Construction~~

~~The ground surface where the system is to be placed must be plowed, scarified, or trenched less than 12 inches in depth. Trenching is preferred to plowing or scarifying to prevent horizontal migration of the effluent. There must be at least four feet of natural soil between the scarified layer and groundwater or other limiting layer. The absorption "trench" is constructed by placing drain rock on the scarified ground. with a minimum width of 24 inches at the bottom of the distribution pipe. A minimum of 6 inches of drain rock must be placed under the distribution pipe and a A minimum of 2 inches of drain rock must be placed over the distribution pipe. Leaching chambers may be used in place of distribution pipe and drain rock in accordance with Chapter 13.~~

~~An appropriate geotextile fabric must be placed over the drain rock and covered with approximately 1 foot of soil.~~

~~The fill over the distribution pipe must extend on all sides at least 5 feet beyond the edge of the aggregate below the distribution pipe.~~

~~Construction equipment which would cause undesirable compaction of the soils must not be moved across the plowedsurface, or the effluent disposal area.. Construction and/or plowing must not be initiated when the soil moisture content is high.~~

~~Note: If a sample of soil within the working depth can be easily rolled into the shape of a wire or cast, the soil moisture content is too high for construction purposes.~~

6.3 DEEP ABSORPTION TRENCHES

6.3.1 General

Deep absorption trenches are systems that have trenches excavated ~~may be used to break~~ through a less permeable soil layer to allow effluent to infiltrate into a deeper and more permeable soil. The trench is then backfilled with a sandy soil to the depth of a standard absorption trench, twenty four to thirty six inches below natural ground surface. The bottom of the deep absorption trench must not be more than 5 feet below natural ground surface. Deep absorption trenches must meet the same requirements as a standard absorption trench as described in Chapter 6.1, except where specifically modified in this chapter.

6.3.2 Location

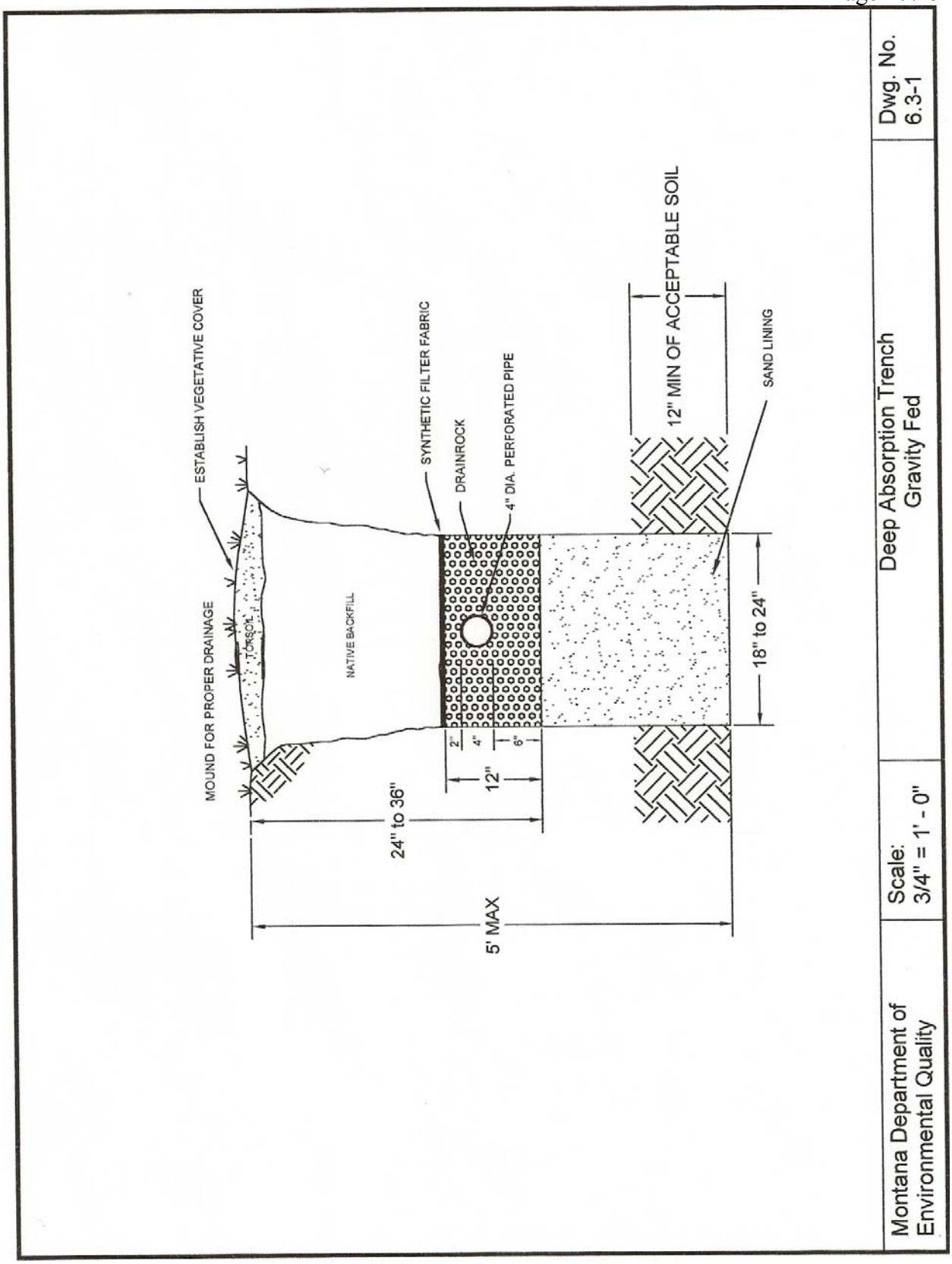
The site evaluation as outlined in Chapter 2 must also include soil profile descriptions of at least two soil observation pits excavated to a minimum depth of 4 feet below the proposed deep absorption trench bottom. ~~All separation distances in ARM Title 17, Chapter 36, subchapter 3 or 9 must be maintained. Monitoring to establish depth to seasonally high ground water may be required where the reviewing authority has reason to believe that ground water is within 6 feet of the bottom of the absorption trench.~~

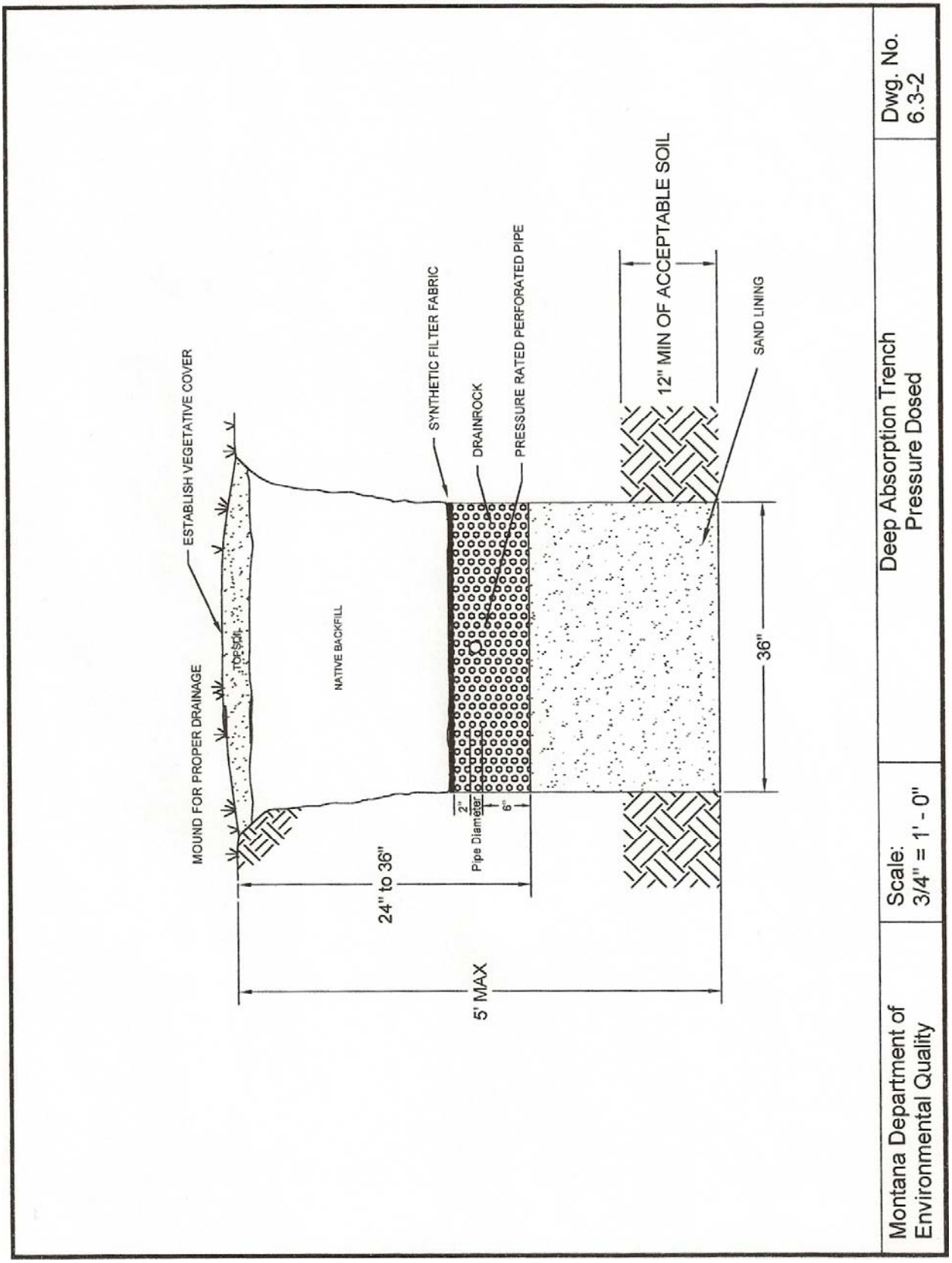
6.3.3 Construction

~~Deep absorption trenches must be constructed at least 1 foot into suitable soil.~~ The deep trench must be ~~dug~~ excavated 1 foot into the acceptable soil and backfilled with medium sand (with no more than 3 percent finer than the No. 100 sieve), ~~drain rock,~~ or other approved material to the level of a standard absorption trench. The system must be sized based on the most conservative application rate when comparing the deep trench infiltrative surface or the backfill sand.

6.3.4 ~~The bottom (invert) of the distribution pipe for a deep absorption trench must be installed no deeper than 30 inches from the ground surface. The deep trench must be dug 1 foot into the acceptable soil and backfilled with a medium sand (with no more than 3 percent finer than the No. 100 sieve), drain rock, or other approved material to the level of a standard absorption trench. The system must be sized based on the lesser application rate for the soil infiltrative surface or the backfill sand.~~

6.3.5 ~~Leaching chambers may be used in place of distribution pipe and drain rock in accordance with Chapter 13.~~


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
SYNTHETIC FILTER FABRIC
DRAINROCK
4" DIA. PERFORATED PIPE
12" MIN OF ACCEPTABLE SOIL
SAND LINING
18" to 24"
2"
4"
6"
12"
24" to 36"
5' MAX
Montana Department of Environmental Quality
Scale: 3/4" = 1' - 0"
Deep Absorption Trench
Gravity Fed
Dwg. No. 6.3-1


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
SYNTHETIC FILTER FABRIC
DRAINROCK
PRESSURE RATED PERFORATED PIPE
12" MIN OF ACCEPTABLE SOIL
SAND LINING
36"
2" Pipe Diameter
6"
24" to 36"
5' MAX
Montana Department of Environmental Quality
Scale: 3/4" = 1' - 0"
Deep Absorption Trench
Pressure Dosed
Dwg. No. 6.3-2

6.4 SAND-LINED ABSORPTION TRENCHES

6.4.1 General

Sand-lined absorption trenches are used for rapid permeability situations. The trench below the drain rock is lined with sand to provide additional treatment. Sand-lined absorption trenches must meet the same requirements as a standard absorption trench as described in Chapter 6.1, except where specifically modified in this chapter.

6.4.2 Design

Trenches must be lined with a minimum of 12 inches of fine to medium sand or loamy sand below the constructed absorption system. ~~For rapid permeability situations,~~ The system is to be sized in accordance with Chapter ~~8~~ 2 and Section 6.1.4 using the most conservative application rate when comparing the natural soils and the sand used for lining the trench.

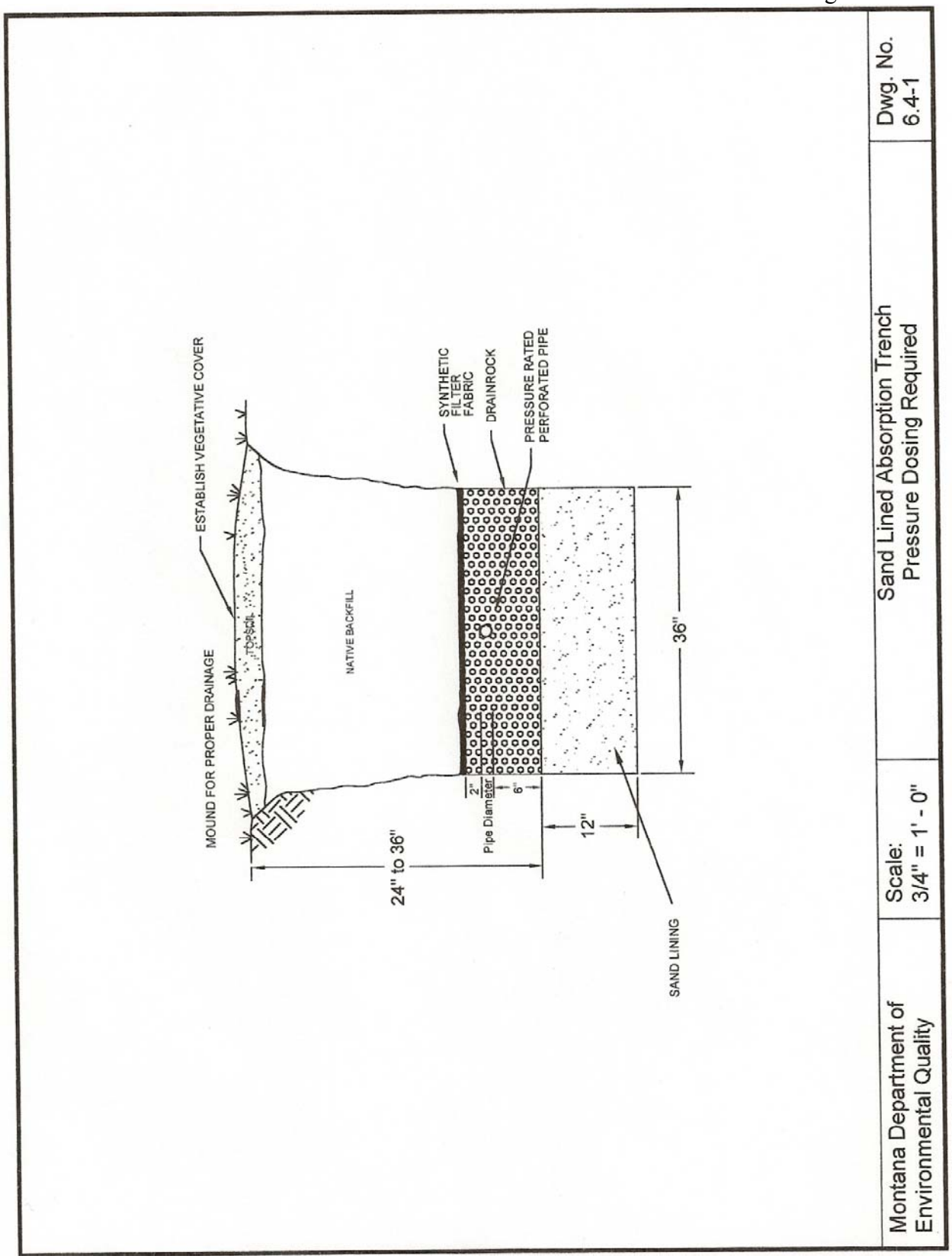
Uniform pressure distribution must be provided for all sand-lined absorption trenches.

~~.for soils with percolation rates faster than 3 minutes per inch. For slow permeability situations, the system is to be sized according to the percolation rate of the soils below the trench in accordance with Chapter 8. Where systems are placed in soils with a percolation rate faster than 3 minutes per inch and the underlying soil is gravelly sand or very coarse sands, or the depth to a limiting layer is less than 6 feet from the bottom of the trench, he system must be designed using pressure distribution. or other treatment provided as approved by the reviewing authority. If pressure distribution is not used, the side walls of the trench must also be sand-lined a minimum of 6 inches to a point 2 inches above the pipe. As an alternative to placing sand on the side walls of the trench, a 24-inch wide trench with gravity distribution may be constructed with the sand placed such that the elevation of the sand at the center of the trench is at least 6 inches lower than the sand at the edge of the trench (i.e., form a V-ditch with the sand). The sand at the center of the trench must still be at least 12 inches in depth.~~

~~Construction~~

~~Where the side walls of the trench must be sand-lined, the trenches must be a minimum of 36 inches wide. Detailed construction specifications will be required showing how side walls will be lined. Sand must not be allowed to enter into the washed gravel zone during construction.~~

6.4.3 ~~Leaching chambers may be used in place of distribution pipe and drain rock in accordance with Chapter 13.~~


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
SYNTHETIC FILTER FABRIC
DRAINROCK
PRESSURE RATED PERFORATED PIPE
2" Pipe Diameter
6"
24" to 36"
12"
36"
SAND LINING
Montana Department of Environmental Quality
Scale: 3/4" = 1' - 0"
Sand Lined Absorption Trench
Pressure Dosing Required
Dwg. No. 6.4-1

6.5 GRAVELLESS TRENCHES AND OTHER ABSORPTION METHODS

6.5.1 General

Gravelless trenches and other absorption systems include infiltration or leaching chambers and other wastewater distribution systems (single and multiple pipes, gravel substitutes, geo-composites, etc.). The purpose of these gravelless systems is to meet or exceed the characteristics, function and performance of gravel in conventional gravel-filled absorption systems. ~~Absorption trenches for these~~ Gravelless trenches and other absorption systems must meet the same requirements as a standard absorption trenches~~,~~ as described in Chapter 6.1, except where specifically modified in this chapter.

Gravelless trenches and other absorption systems may be used in lieu of pipe and drain rock for standard absorption trenches, deep absorption trenches, ~~at-grade absorption trenches,~~ sand-lined absorption trenches, intermittent sand filters, recirculating sand filters, evapotranspiration systems, ~~and~~ evapotranspiration absorption systems, sand mounds, and absorption beds.

Pressure dosed gravelless or other absorption trench systems must meet the design requirements of Chapter 4.3.

Gravelless or other absorption systems must be installed according to the manufacturer's requirements and specifications. Specific absorption bed siting and minimum sizing requirements of this circular override manufactures recommendations.

6.5.2 Leaching chambers

6.5.2.1 Distribution materials

A. Leaching chambers are chambers with an open bottom structurally designed to carry the earth loading.

B. Leaching chambers must ~~consist~~ be constructed of high-density polyolefin or other approved material and must comply with IAPMO PS 63. ~~be structurally sound for their intended use. Products must maintain at least 90 percent of their original height (vertical deflection shall not exceed 10 percent of original product height) when installed according to manufacturer's installation guidelines and subjected to a 4,000-pound axle load. Vertical deflection is the combined product height deflection due to installation (soil dead load) and the 4,000-pound axle load measured when the tire is directly over the product.~~

6.5.2.2 Design

The maximum trench width for leaching chambers is 36 inches. Uniform pressure distribution must be provided for all trenches greater than 24 inches wide. ~~If the trench width exceeds 24 inches, pressure distribution will be require~~

6.5.2.3 Construction

The total bottom area of the c~~hamber~~ trench will be used to calculate the infiltration area. The absorption system size in square footage as described in ~~Chapter~~ Section 6.1.4 ~~8~~ may be reduced in size by 25 percent when using infiltration or leaching chambers. ~~Chambers that are 15 inches in width will be equal to an 18-inch trench width, a 22-inch width chamber will be equal to a 24-inch trench width, and 34-inch width chambers will be equal to a 36-inch width trench for calculating absorption system sizing~~. The size of the replacement absorption system must be large enough to accommodate a standard absorption system. ~~even though this full area will not be used as part of the primary system.~~

~~Chambers may be used in lieu of pipe and drain rock for standard absorption trenches, deep absorption trenches, at-grade absorption trenches, sand-lined absorption trenches, intermittent sand filters, recirculating sand filters, evapotranspiration systems, and evapotranspiration absorption systems, sand mounds, and absorption beds.~~

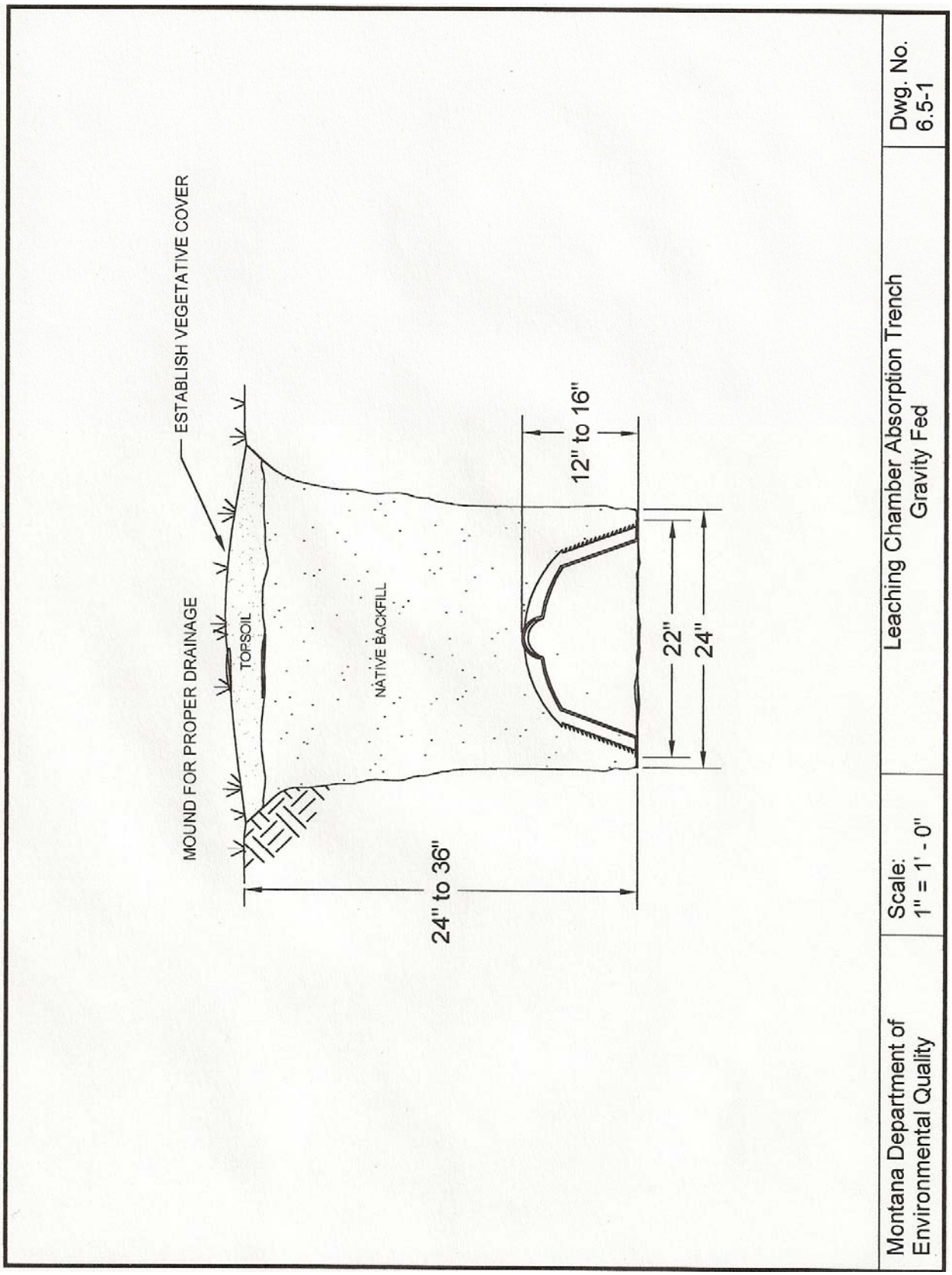
6.5.3 Other absorption systems

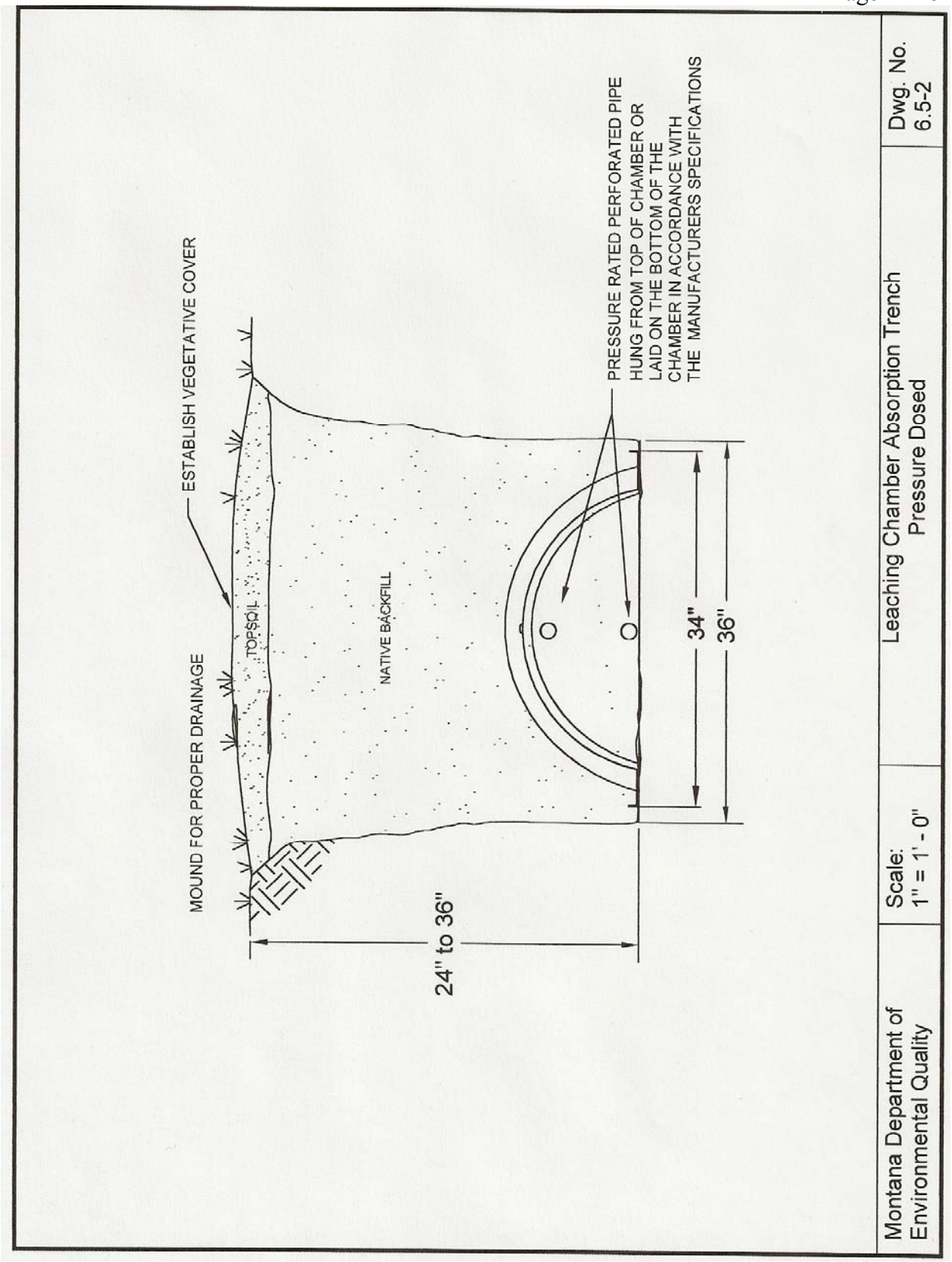
6.5.3.1 Other absorption systems must be able to meet or exceed the typical pore space of gravel in a standard absorption system with documentation presented by a third independent party.

6.5.3.2 Other absorption systems must be able to handle the pertinent depth of burial.

6.5.3.3 All other absorption systems must be installed in accordance with manufacturer's recommendations although specific proprietary designs which conflict with requirements of this circular will require reviewing authority review prior to approval.

6.5.3.4 Approval for a reduction in the other absorption system sizing may be allowed on a case-by-case basis as supported by documentation and justification submitted by the manufacturer to the reviewing authority for review.


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
12" to 16"
22"
24"
24" to 36"
Montana Department of Environmental Quality
Scale: 1" = 1' - 0"
Leaching Chamber Absorption Trench
Gravity Fed
Dwg. No. 6.5-1


ESTABLISH VEGETATIVE COVER
MOUND FOR PROPER DRAINAGE
TOPSOIL
NATIVE BACKFILL
24" to 36"
PRESSURE RATED PERFORATED PIPE HUNG FROM TOP OF CHAMBER OR LAID ON THE BOTTOM OF THE CHAMBER IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS
34"
36"
Montana Department of Environmental Quality
Scale: 1" = 1' - 0"
Leaching Chamber Absorption Trench
Pressure Dosed
Dwg. No. 6.5-2

6.6 ELEVATED SAND MOUNDS

6.6.1 General

Elevated sand mounds are used to achieve separation distance between the treatment system and a limiting layer.

Uniform pressure distribution must be provided for all elevated sand mounds

If an advanced wastewater treatment system is used prior to distribution in an elevated sand mound, the final absorption area may be downsized in accordance with the most conservative native soils found within 12 inches of the natural ground surface.

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 ~~60~~ minutes per inch as described in Chapter 2 and Appendix B, the final absorption are may be reduced by 50%;

B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 minutes per inch as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25%.

Gravelless trenches and other absorption systems installed in accordance with Section 6.5 may be used in lieu of pipe and gravel but no reduction in sizing will be permitted for the use of this technology.

6.6.2 Location

6.6.2.1 Elevated sand mounds must meet all of the site requirements of Chapter 2.

6.6.2.2 Elevated sand mounds must meet all minimum separation distances as stated in ARM Title 17, Chapter 36, subchapter 3 or 9. Separation distances must be measured from the outside of the mound where the topsoil fill meets the natural ground surface. ~~or, if the design uses a lesser slope for landscaping purposes, where the toe of the mound would be if the 3:1 slope specified in Section 14.2.7 were used~~.

6.6.2.3 Elevated sand mounds must be constructed only upon undisturbed, naturally occurring soils.

6.6.2.4 Elevated sand mounds with a basal soil application rate of 0.4-0.8 gpd/ft2, as describe in Table 2.1-1 and Appendix B, may not be installed on land with a slope greater than 12 percent. ~~on for soils with a percolation rate faster than 30 minutes per inch nor~~

Elevated sand mounds with a basal soil application rate of 0.3-0.2 gpd/ft2, as described in Table 2.1-1 and Appendix B, may not be installed on land with a slope greater than 6 percent. ~~on soils with a percolation rate between 30 and 120 minutes per inch~~.

The land area 25 feet from the toe of the infiltrative surface on all the down gradient side of the elevated sand mound must not be disturbed.

~~Where trenches are used, the trenches must be installed with the long dimension parallel to the land contour~~.

6.6.2.5 A separate replacement area must be designated for each elevated sand mound and must be sized in accordance with this chapter.

6.6.3 Design

6.6.3.1 *The Wisconsin Mound Soil Absorption System Siting, Design, and Construction Manual*, January 2000, is recommended as a procedural guideline in the design of elevated sand mounds. The requirements of this Circular may be different from those in this reference document, and the requirements of this Circular will govern in those cases.

6.6.3.2 The wastewater strength discharged to the mound must not exceed residential strength wastewater.

6.6.3.3 The required basal area of the mound must be based upon the method described in Section 6.1.4 at a soil depth no greater than 12 inches,

6.6.3.4 The required bottom area of the bed must be based upon flows as determined in Chapter 3 with an application rate of 0.8 gallons/day/square foot.

With the prior approval of the reviewing authority, the application rate may be increased for the use of finer sand than specified in this chapter.

6.6.3.5 There must be a minimum total depth of 21 inches of sand fill above the natural soil surface and 12 inches of sand fill between the bottom of the ~~trench or~~ absorption area and the natural soil surface. Sand must be washed free of silts and clays. The in-place fill material must meet one of the following specifications:

A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or

B. Fit within the following particle size distribution:

Sieve	Particle Size (mm)	Percent Passing
3/8 in	9.50	100
No. 4	4.75	95 to 100

No. 8	2.36	80 to 100
No. 16	1.18	45 to 85
No. 30	0.60	20 to 60
No. 50	0.30	10 to 30
No. 100	0.15	0 to 2

C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.

6.6.3.6 Drain rock must be washed and range in size from ¾ to 2-1/2 inches. ~~A design engineer may specify a specific size of drain rock if evidence is provided demonstrating the specific size will function equal to the washed rock that ranges in size from ¾ to 2-1/2 inches. Drain rock~~ It must be at least 9 inches deep and must be covered with filter fabric.

~~14.2.4 The minimum spacing between trenches must be 4 feet, and the trench width must be 3 feet. Where beds are used, the distribution pipes must be installed parallel to the land contour, with spacing between pipes of at least 3 feet and no more than 5 feet. If using gravelless chambers, the minimum spacing must be 4 feet between the center of each chamber.~~

~~14.2.5 The required bottom area of the trench or trenches or gravel area for beds must be based upon flows and application rates as determined in Chapter 5 and Chapter 9, with an application rate of 1.0 gallons/day/square foot. A maximum flow per orifice should not create a saturated flow for the depth of the sand fill.~~

~~14.2.6 The length of the absorption trenches should be at least three times the width of the mound.~~

6.6.3.7 The distribution pipes must be installed parallel to the land contour, with spacing between pipes of at least 3 feet and no more than 5 feet. The length of a sand bed must be at least three times the width of the sand bed. Leaching chambers must be placed edge to edge. The width and length of the sand bed may need to be greater than 3 times the width to accommodate the next nearest size standard chamber.

~~For soils with percolation rates between 61 and 120 minutes per inch~~ and ~~with slopes of 1 to 2 percent, the land area 25 feet on all sides of the elevated sand mound must not be disturbed. A mound system that is constructed on slopes of 3 to 12 percent the effluent dispersal area is considered 50 feet on the down slope side, and the soil in this area may not be removed or disturbed except as specified. For soils with percolation rates faster than 61 minutes per inch, the land area 25 feet down slope of the elevated sand mound may not be removed or disturbed except as specified.~~

6.6.3.8 The area of sand fill must be sufficient to extend 2 feet beyond the edges of the required absorption area before the sides are shaped to a 3 horizontal to 1 vertical

or lesser slope. ~~On sloping sites, the down slope setback must be based on the soil percolation rate (see 14.2.7).~~

6.6.3.9 The mound must be covered with a minimum of 12 inches ~~(~~at the center of the mound~~)~~ and 6 inches ~~(~~at the edge of the mound~~)~~ of a suitable medium, such as sandy loam, loamy sand or silt loam, to provide drainage and aeration. These depths are measured after settling.

6.6.4 Construction

6.6.4.1 The ground surface where a mound is to be placed must be plowed, ~~or~~ scarified or ~~the sand mound may be~~ keyed into the natural ground 4 inches to 8 inches parallel to the land contour. This must be achieved by removing a portion of the topsoil with the plow throwing the soil up slope to provide a proper interface between the fill and natural soils. When mounds are keyed in, the removed soil must be replaced with the same sand as required for the rest of the mound, and this sand will not count as part of the required 21 inches of sand in the mound as described in Section ~~14.2.2~~ 6.6.3.5.

6.6.4.2 Construction equipment that would cause undesirable compaction of the soils must not be moved across the plowed surface or the effluent disposal area until. ~~However, after placement of~~ a minimum of 6 inches of sand fill has been placed over the plowed area. ~~, construction equipment may be driven over the protected surface to expedite construction.~~ Construction and/or plowing must not be initiated when the soil moisture content is high.

Note: If a sample of soil within the working depth can be easily rolled into the shape of a wire or ribbon ~~east~~, the soil moisture content is too high for construction purposes.

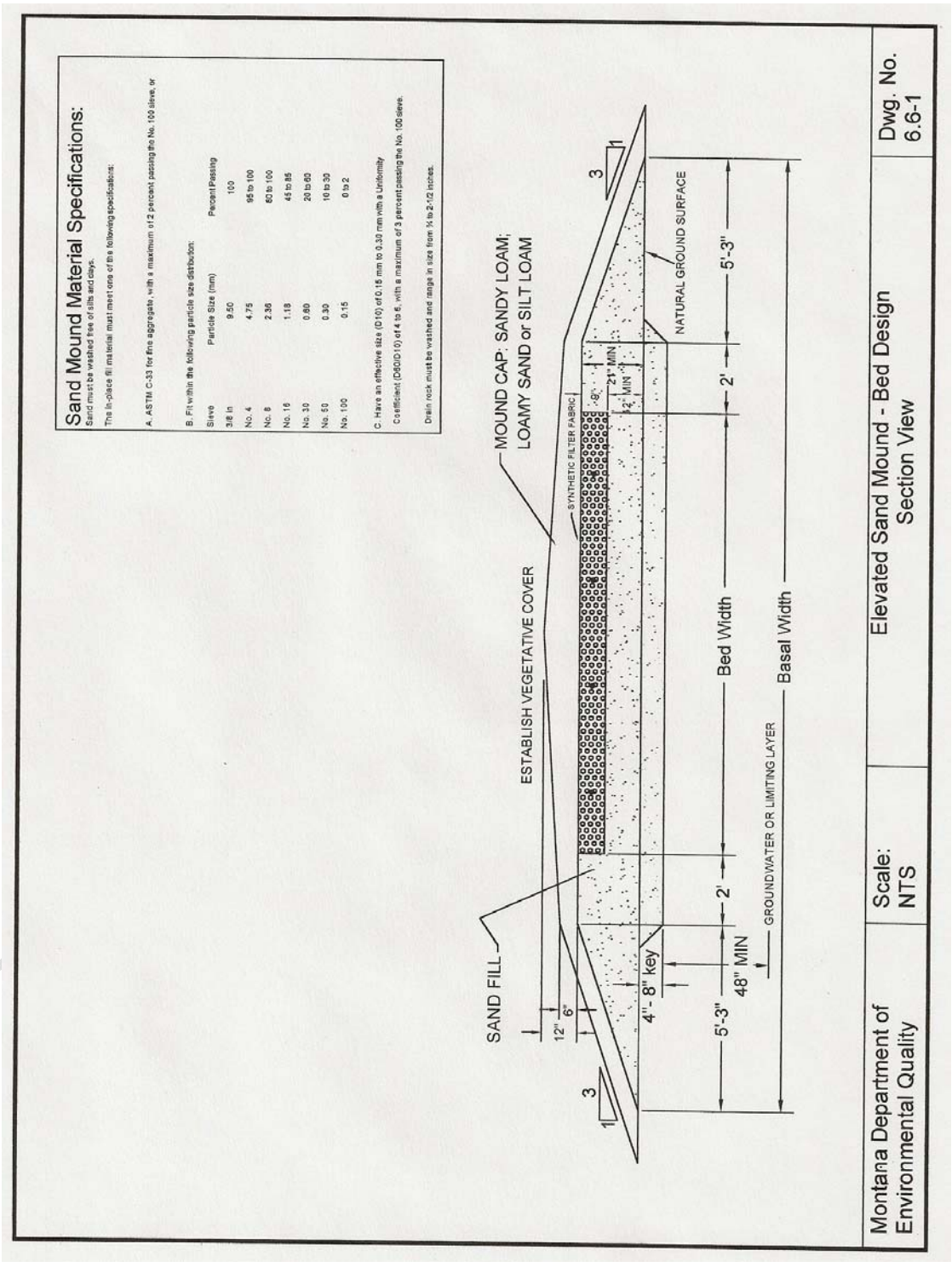
6.6.4.3 Aboveground vegetation must be closely cut and removed from the ground surface throughout the area to be utilized for the placement of the fill material. Tree stumps should be cut flush with the surface of the ground, and roots should not be pulled. Trees may be left in place within the 3:1 side sloped portion of the fill ~~The fill that is the portion of the 3 to 1 side slope may have trees left in place~~ if, in the opinion of the designer, the trees will enhance the nutrient uptake of the mound. ~~Prior to plowing or scarifying, the dosing pump discharge line from the pump chamber to the point of connection with the distribution piping header must be installed. The area must then be plowed, scarified, or keyed in to a depth of 4 to 8 inches, parallel to the land contour, with the plow throwing the soil up slope to provide a proper interface between the fill and natural soils. Tree stumps should be cut flush with the surface of the ground, and roots should not be pulled.~~

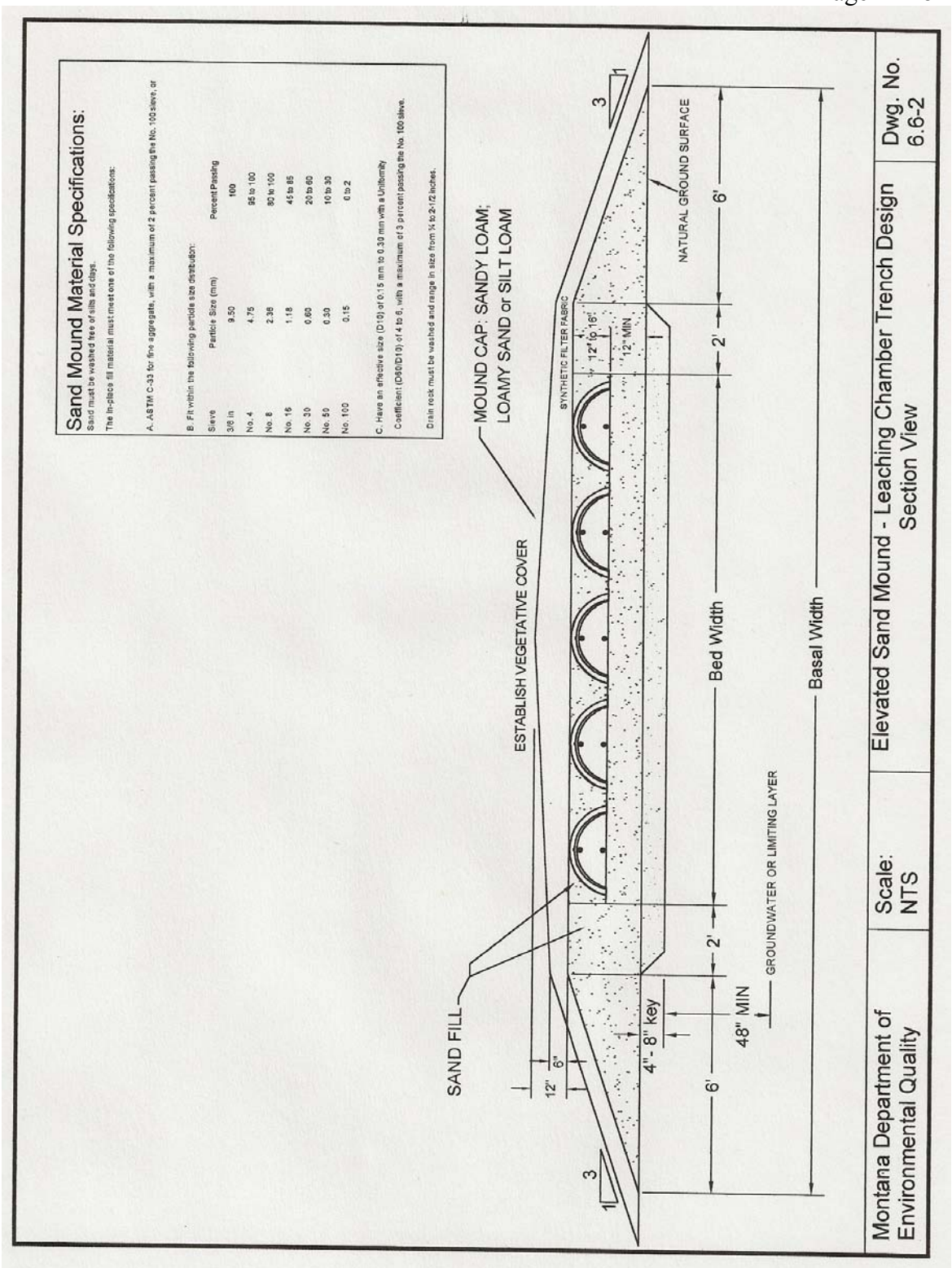
6.6.4.4 The area surrounding the elevated sand mound must be graded to provide ~~for~~ diversion of surface runoff waters.

6.6.4.5 Construction should be initiated immediately after preparation of the soil interface by placing ~~all of~~ the sand fill needed for the mound ~~(to the top of the trench)~~ to a minimum depth of 21 inches above the plowed surface. This depth will permit excavation ~~of trenches~~ in the sand fill to accommodate the 9 inches of drain rock necessary for the distribution piping. After hand leveling ~~of~~ the absorption area, the drain rock should be placed ~~into the trench~~ and hand leveled. An observation port into the gravel is recommended but not required. Filter fabric must be placed over the drain rock to separate the drain rock from the soil cover. After installation of the distribution system, the entire mound should be covered with 6 inches of a finer textured soil material, such as sandy loam to loam. A 4- to 6- inch layer of topsoil should then be added. The entire mound should be sloped to drain, either by providing a crown at the center or a uniform slope across the mound, with a minimum slope of 1 percent in either case. The entire mound must be seeded, sodded, or otherwise provided with shallow-rooted vegetative cover to ensure stability of the installation.

6.6.4.6 ~~The installation of the mound system must be inspected by the designer, who must certify that the system has been installed according to the approved design.~~ As-built plans may be required by the reviewing authority prior to final approval of the system.

~~14.1 Dosing system design Pressure distribution is required for the elevated sand mound system.~~


Sand Mound Material Specifications:
Sand must be washed free of silts and clays.
The in-place fill material must meet one of the following specifications:
A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or
B. Fit within the following particle size distribution:
Sieve
Particle Size (mm)
Percent Passing
3/8 in
9.50
100
No. 4
4.75
95 to 100
No. 8
2.36
80 to 100
No. 16
1.18
45 to 85
No. 30
0.60
20 to 60
No. 50
0.30
10 to 30
No. 100
0.15
0 to 2
C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.
Drain rock must be washed and range in size from ¾ to 2-1/2 inches.
SAND FILL
ESTABLISH VEGETATIVE COVER
MOUND CAP: SANDY LOAM; LOAMY SAND or SILT LOAM
SYNTHETIC FILTER FABRIC
NATURAL GROUND SURFACE
12"
6"
8"
21" MIN
12" MIN
3
1
4" - 8" Key
5'-3"
48" MIN
2'
Bed Width
GROUNDWATER OR LIMITING LAYER
Basal Width
Montana Department of Environmental Quality
Scale: NTS
Elevated Sand Mound - Bed Design
Section View
Dwg. No. 6.6-1


Sand Mound Material Specifications:
Sand must be washed free of silts and clays.
The in-place fill material must meet one of the following specifications:
A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or
B. Fit within the following particle size distribution:
Sieve
Particle Size (mm)
Percent Passing
3/8 in
9.50
100
No. 4
4.75
95 to 100
No. 8
2.38
80 to 100
No. 16
1.18
45 to 85
No. 30
0.60
20 to 60
No. 50
0.30
10 to 30
No. 100
0.15
0 to 2
C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.
Drain rock must be washed and range in size from ¼ to 2-1/2 inches.
MOUND CAP: SANDY LOAM; LOAMY SAND or SILT LOAM
ESTABLISH VEGETATIVE COVER
SAND FILL
SYNTHETIC FILTER FABRIC
12" to 16"
12" MIN
NATURAL GROUND SURFACE
3
1
12"
6"
4" - 8" key
6'
2'
Bed Width
6'
2'
48" MIN
GROUNDWATER OR LIMITING LAYER
Basal Width
Montana Department of Environmental Quality
Scale: NTS
Elevated Sand Mound - Leaching Chamber Trench Design
Section View
Dwg. No. 6.6-2

6.7 EVAPOTRANSPIRATION ABSORPTION AND EVAPORTANSPIRATION SYSTEMS

6.7.1 General

Evapotranspiration absorption (ETA) systems are used where slow percolation rates or soil conditions would preclude the use of a standard absorption system.

Percolation tests conducted in accordance with Appendix A must be conducted for all ETA systems, at the depth of the bottom of the bed, and must include at least a 24 hour presoak of the hole prior to the test.

Evapotranspiration systems (ET) are used where slow percolation rates or soil conditions would preclude the use of a soil absorption system or where discharge to the receiving soils is undesirable.

The primary difference between the ETA and ET system is the inclusion of a liner in ET systems.

ETA and ET systems should be used in conjunction with wastewater flow reduction strategies.

6.7.2 Location

6.7.2.1 ~~Evapotranspiration absorption (ETA)~~ ETA and ET systems must meet all minimum separation distances as stated in ARM Title 17, Chapter 36, subchapter 3 or 9. Distances must be measured from the edge of the system.

6.7.2.2 ETA and ET systems must meet all of the site requirements of Chapter 2.

6.7.2.3 ETA and ET systems ~~beds~~ must be level and must not be installed on land with a slope greater than 15 ~~6~~ percent. Protective berms or drainage trenches must be installed to divert storm drainage and snow-melt run-off away from the system.

6.7.3 Design

6.7.3.1 ETA and ET systems must not be deeper than 30 inches from finished grade.

6.7.3.2 The fill material in the ETA and ET system ~~must be at least 24 inches deep below the laterals and~~ must be washed coarse sand, drain rock or other inert media approved by the reviewing authority. ~~Testing~~ Information must be provided to document the void ratio used and the wicking characteristics of the material. ~~In this~~

~~application, drain rock larger than the orifice size up to a maximum of 6 inches in diameter may be used. ETA systems must utilize pressure distribution design~~.

6.7.3.3 ~~The beds~~ ETA and ET system must be installed with the long dimension parallel to the land contour. ~~A minimum of one lateral per ten feet of bed width is required.~~

6.7.3.4 ET systems must include a watertight liner of at least 30-mil thickness to contain the effluent. Seams for a synthetic liner must be completely sealed in accordance with the manufacturer's recommendations and the liner must be keyed into the native soils at its edges.

6.7.3.5 There must be a minimum of 2 inches of sand fill between the native soil surface and/or any projecting rocks and the liner.

6.7.3.6 Standard absorption trenches, gravelless trenches, other absorption trenches or distribution pipes may be used to distribute effluent in an ETA and ET system.

Standard absorption trenches, gravelless trenches and other absorption trenches must be constructed in accordance with Chapter 6.1 or Chapter 6.5 and this chapter. No reduction in absorption area sizing will be allowed for the use of gravelless or other trench technology in ETA or ET systems.

~~The distribution pipes must have drain rock extending to the bottom of the system. and be covered with a minimum of 2 inches of drain rock.~~

The spacing between standard absorption trenches, gravelless trenches, other trenches or distribution pipes in an ETA or ET system must be a minimum of 6 feet and maximum of 8 feet.

6.7.3.7 Soils with a percolation rate of 240 minutes per inch or faster must have an ETA system sized upon an application rate of at least 0.15 gpd/ft2. All calculations must be submitted for review.

Soils with a percolation rate of 241 minutes per inch or slower must have an ETA system sized upon a site specific application rate as determined in the field using the ASTM D5093-02 test procedure; however, the area of the ETA may not be smaller than one sized upon an application rate of 0.15 gpd/ft2. All calculations must be submitted for review.

6.7.3.8 Wastewater flow rates must be determined in accordance with Chapter 3.

6.7.3.9 Calculated storage capacity must provide a factor of safety of at least 1.5 for storage loss over time caused by plugging of the voids due to evaporated salts and residuals wastewater flow rates.

6.7.3.10 Water balance sizing calculations for ETA and ET systems must be based on a one year period. A water balance analysis may include: pan evaporation data,

precipitation for the wettest year in a 10-year period, ~~average precipitation for a 10-year period~~, ~~and~~ soils absorption information from the site, transpiration, and other site-specific design information.

A. Pan evaporation information may be included in the water balance where it can be adequately demonstrated. Very few locations exist where data has been tabulated in Montana and calculations must address site specific pan evaporation conditions.

B. A soil application rate must be determined in accordance to the criteria of Section 6.7.3.7.

C. The design must show that total water lost through evaporation and absorption equals or exceeds the total water gained through precipitation and effluent discharge. Precipitation information used must be for the wettest year in a 10-year period ~~Due to lack of pan evaporation data, published information on pan evaporation, or data from a similar climatic location, may be used. Typically, The design must include a water balance for a one-year period~~. Storage capacity must be built into the system to accommodate months with low evaporation.

D. Transpiration may be included in the water balance where it can be adequately demonstrated.

E. Other site specific design information such as shade, area topography, or manmade structures may need to be considered.

6.7.4 Construction

6.7.4.1 Construction of an ET system must be initiated immediately after preparation of the liner.

6.7.4.2 Excavation for ETA systems may proceed only when the moisture content is below the soil's plastic limit. If a sample of soil taken at the depth of the proposed bottom of the system forms a ribbon ~~wire~~, instead of crumbling, when one attempts to roll it between the hands, the soil is too wet to excavate.

6.7.4.3 ~~The~~ ETA construction must be completed in such a manner to prevent compaction. ~~of the bed surface. The maximum depth from the top of the laterals distribution pipe to the surface of the topsoil must not exceed 18 inches.~~

~~The ETA construction must be completed in such a manner to prevent compaction of the bed surface. The maximum depth from the top of the laterals distribution pipe to the surface of the topsoil must not exceed 18 inches.~~

6.7.4.3 The ~~drain rock~~ fill material must be covered completely with drainage fabric, ~~layers of untreated construction paper,~~ or 2 inches of straw to prevent the soil cover from entering the media.

~~The backfill topsoil material must be loamy sand or sandy loam. The maximum depth from the top of the laterals to the surface of the topsoil must not exceed 18 inches. The topsoil cap must be between 6 to 12 inches in depth. It must be mounded above natural grade, with a minimum of one percent slope, to allow for settling and to direct runoff away from the system.~~

6.7.4.4 A 4-inch diameter, standing check pipe with both ends capped (only the bottom cap should be glued) must be installed. Several 1/8-inch to ¼-inch diameter holes should be drilled in the bottom half of the pipe and covered with a filter cloth sock. Check pipe should be anchored in fill material to prevent the pipe from being pulled out of the ~~bed~~ system.

6.7.4.5 The ETA and ET system must be covered with a minimum of 12 inches at the center of the system and 6 inches at the edge of the system of a suitable medium, such as sandy loam, loamy sand or silt loam, to provide drainage and aeration. These depths are measured after settling.

The topsoil cap must be immediately vegetated after construction with sod or other appropriate method.

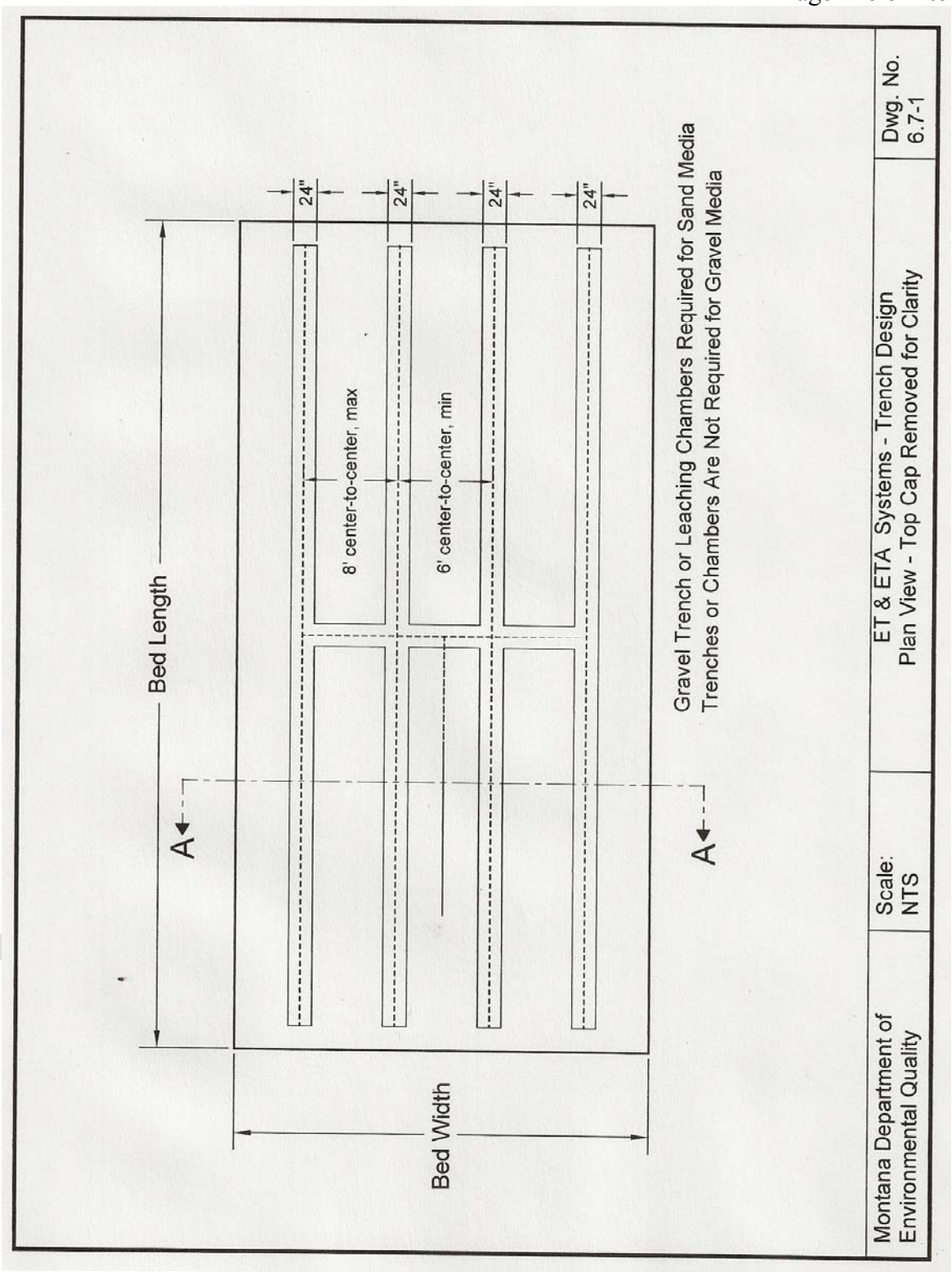
6.7.4.6 A berm surrounding the ~~bed~~ system must be constructed to ensure that storm water or other runoff does not enter the ~~bed~~ system.

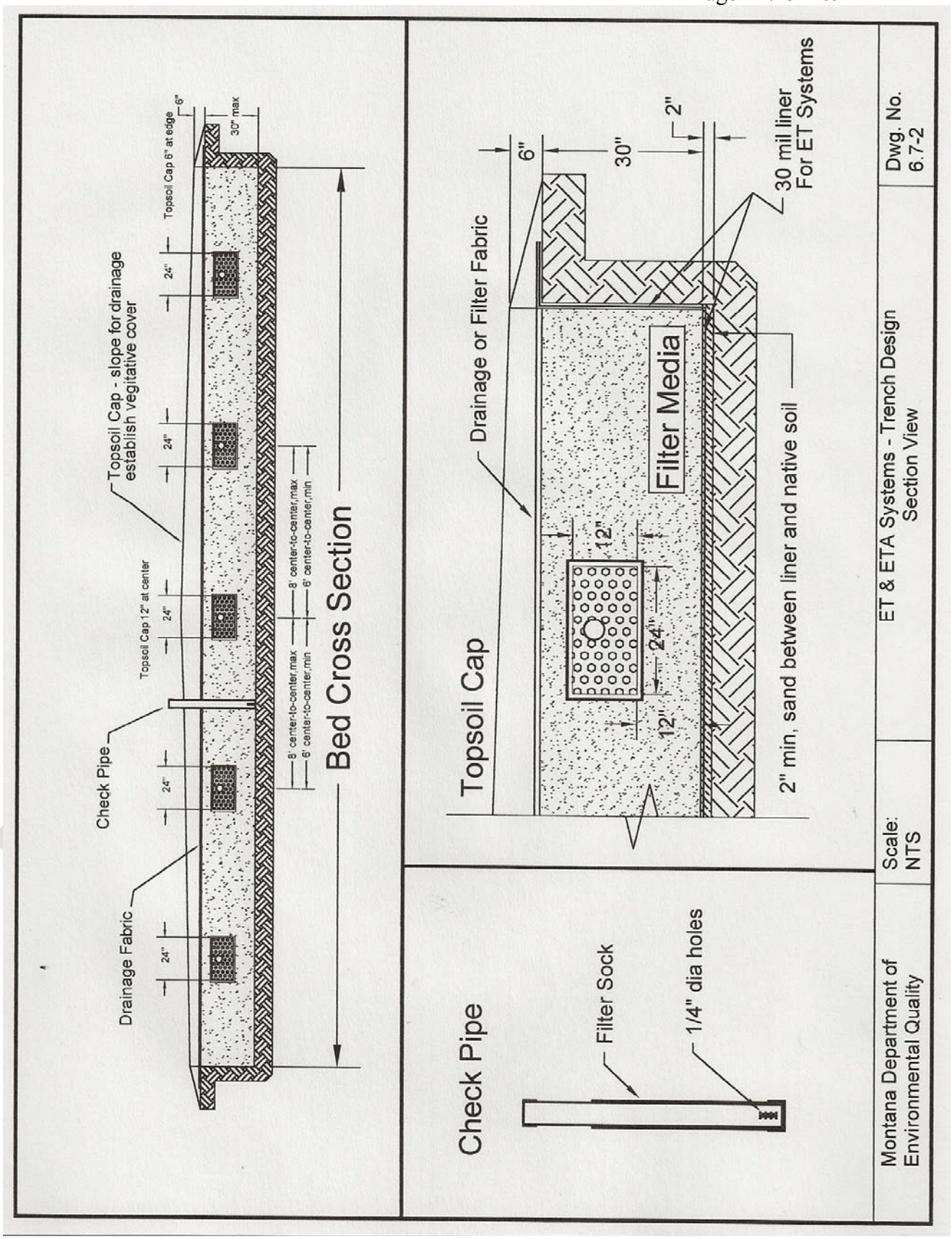
6.7.4.7 ~~The backfill topsoil material must be loamy sand or sandy loam. The maximum depth from the top of the laterals~~ distribution pipe ~~to the surface of the topsoil must not exceed 18 inches. The topsoil cap must be between 6 to 12 inches in depth. It must be mounded above natural grade, with a minimum of one percent slope, to allow for settling and to direct runoff away from the system. The topsoil cap must be immediately vegetated after construction with sod or other appropriate method~~.

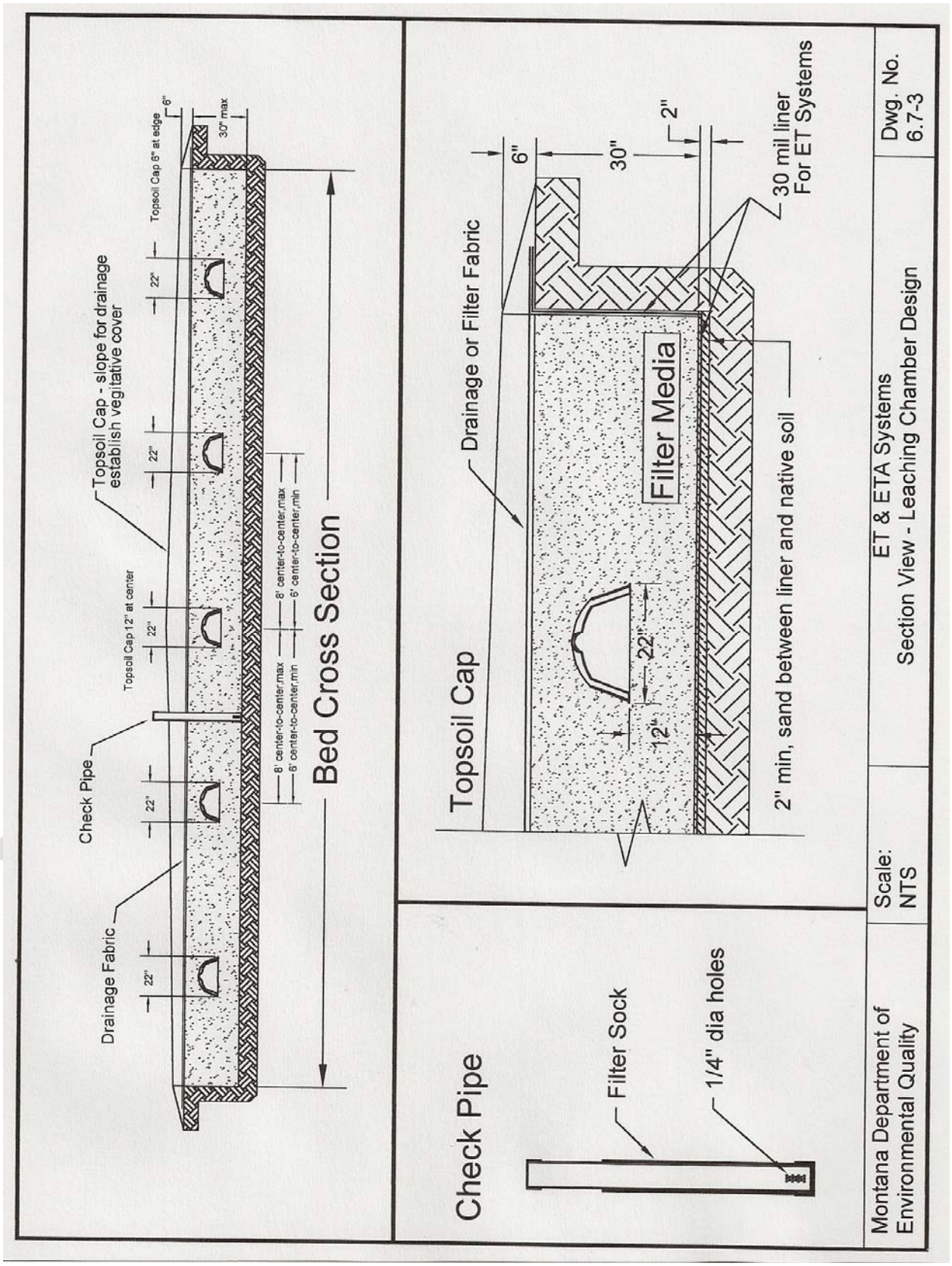
6.7.4.8 ~~If the system is intended to remove nitrogen, a complete description of the nitrification and denitrification processes must be provided in detail, including the unit where it occurs, carbon source, feed rates, loading rates, pumps, controls, and other mechanisms necessary.~~

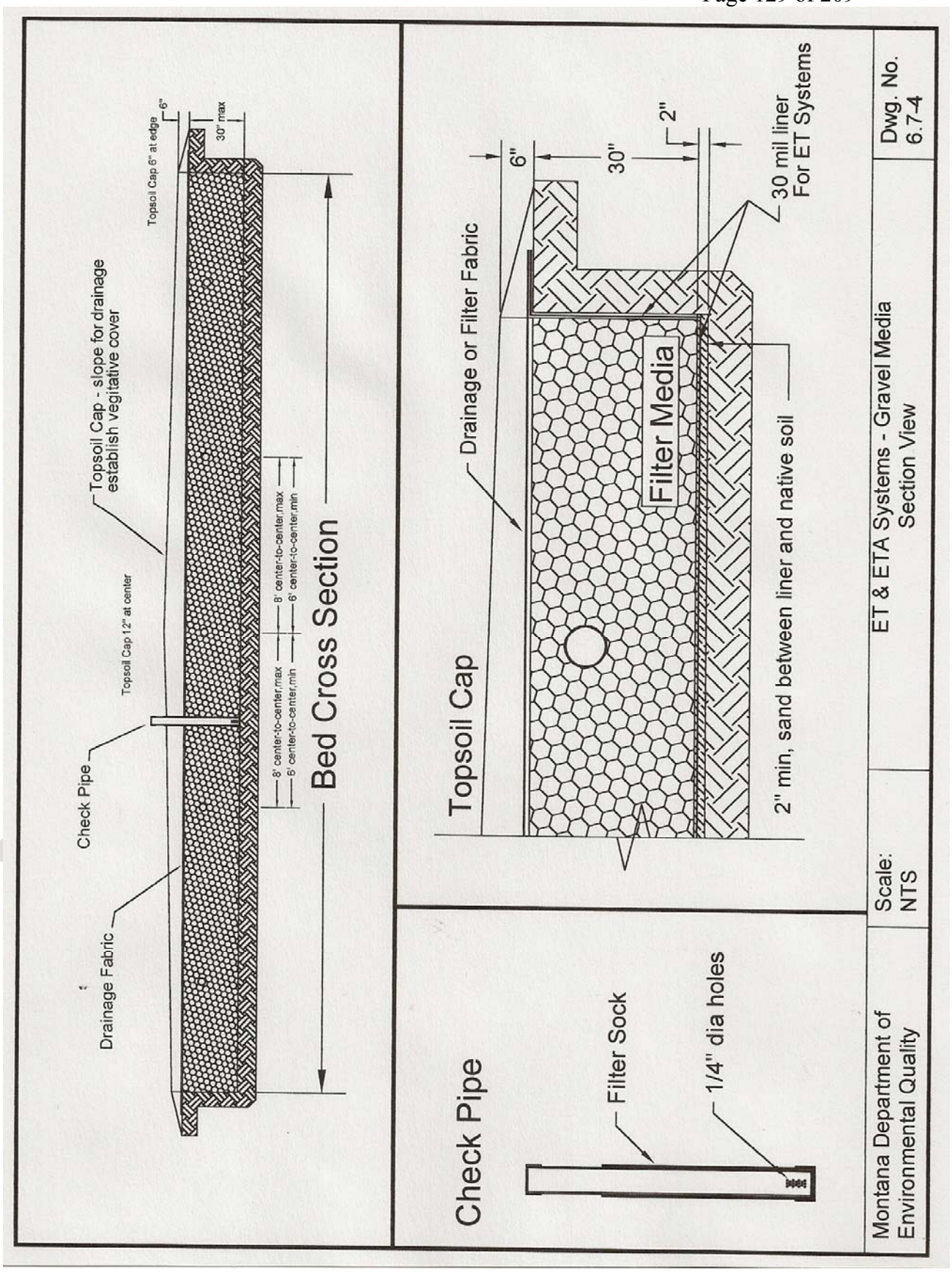
6.7.5 Operation and Maintenance

A detailed set of plans and specifications and an operation and maintenance ~~manual~~ plan are required. The operation and maintenance plan must meet the requirements in Appendix D.


Bed Length
Bed Width
A
A
24"
24"
24"
24"
8' center-to-center, max
6' center-to-center, min
Gravel Trench or Leaching Chambers Required for Sand Media
Trenches or Chambers Are Not Required for Gravel Media
Montana Department of Environmental Quality
Scale: NTS
ET & ETA Systems - Trench Design
Plan View - Top Cap Removed for Clarity
Dwg. No. 6.7-1


Bed Cross Section
Topsoil Cap - slope for drainage establish vegitative cover
Topsoil Cap 6" at edge
6"
30" max
24"
Topsoil Cap 12" at center
Check Pipe
Drainage Fabric
8' center-to-center,max
6' center-to-center,min
Topsoil Cap
Drainage or Filter Fabric
6"
30"
2"
30 mil liner
For ET Systems
Filter Media
12"
24"
2" min, sand between liner and native soil
Check Pipe
Filter Sock
1/4" dia holes
Montana Department of Environmental Quality
Scale: NTS
ET & ETA Systems - Trench Design
Section View
Dwg. No. 6.7-2


Bed Cross Section
Topsoil Cap - slope for drainage establish vegitative cover
Topsoil Cap 6" at edge
Topsoil Cap 12" at center
Check Pipe
Drainage Fabric
8' center-to-center,max
6' center-to-center,min
22"
6"
30" max
Topsoil Cap
Drainage or Filter Fabric
Filter Media
30"
2"
12"
30 mil liner
For ET Systems
2" min, sand between liner and native soil
Check Pipe
Filter Sock
1/4" dia holes
Montana Department of Environmental Quality
Scale: NTS
ET & ETA Systems
Section View - Leaching Chamber Design
Dwg. No. 6.7-3


Bed Cross Section
Topsoil Cap - slope for drainage establish vegitative cover
Topsoil Cap 6" at edge
6"
30" max
Topsoil Cap 12" at center
Check Pipe
Drainage Fabric
8' center-to-center,max
6' center-to-center,min
8' center-to-center,max
6' center-to-center,min
Topsoil Cap
Drainage or Filter Fabric
6"
30"
2"
Filter Media
30 mil liner
For ET Systems
2" min, sand between liner and native soil
Check Pipe
Filter Sock
1/4" dia holes
Montana Department of Environmental Quality
Scale: NTS
ET & ETA Systems - Gravel Media
Section View
Dwg. No. 6.7-4

6.8 EVAPOTRANSPIRATION SYSTEMS

6.8.1 General

Evapotranspiration systems (ET) are used where slow percolation rates or soil conditions would preclude the use of a soil absorption system.

ET systems should be used in conjunction with wastewater flow reduction strategies.

6.8.2 Location

6.8.2.1 Evapoptranspiration (ET) ET systems must meet all minimum separation distances in ARM Title 17, chapter 36, subchapter 3 or 9. Distances must be measured from the edge of the liner.

6.8.2.2 ET systems must meet all of the site requirements of Chapter 3.1 and 3.2

6.8.2.3 ET systems may not be installed on land with a slope greater than 6 15 percent.

6.8.3 Design

6.8.3.1 The material in the ET system must not be deeper than 30 inches from finished grade. be at least 24 inches deep and must be washed coarse sand or drain rock.

6.8.3.2 The fill material in the ET system must be at least 24 inches deep below the laterals and must be washed coarse sand, drain rock, or other inert media approved by the reviewing authority. Testing Information must be provided to document the void ratio used and the wicking characteristics of the material.

6.8.3.3 ET systems must be installed with the long dimension parallel to the land contour.

Design

6.8.3.4 A watertight liner of at least 30 mil thickness must be installed to contain the effluent. Seams for a synthetic liner must be completely sealed in accordance with the manufacturer's recommendations and the liner must be keyed into the native soils at its edges.

6.8.3.5 There must be a minimum of 2 inches of sand fill between the native soil surface and/or any projecting rocks and the liner.

6.8.3.6 Standard absorption trenches, gravelless trenches or distribution pipes may be used to distribute effluent in an ET system.

Standard absorption trenches and gravelless trenches must be constructed in accordance with Chapter 6.1 or Chapter 6.5 and this chapter. No reduction in absorption area sizing will be allowed for the use of gravelless trench technology in ET systems.

~~Designs utilizing washed course sand as a fill material must use either standard absorption trenches or gravelless trenches for effluent distribution.~~ ~~The distribution pipes must have drain rock extending to the bottom of the system. and be covered with a minimum of 2 inches of drain rock.~~

~~The spacing between standard absorption trenches, gravelless chambers or distribution pipes in an ET system must be a minimum of 6 feet and maximum of 8 feet.~~

~~Drain rock must be placed around the distribution pipes. The Distribution pipes~~ ~~The pipes must be installed with the long dimension parallel to the land contour.~~ ~~The minimum spacing between pipes must be 6 feet, and the maximum spacing must be 8 feet~~

6.8.3.7 ~~Wastewater flow rates must be determined in accordance with Chapter 3.1.~~

6.8.3.8 ~~The volume of the ET system will~~ must ~~be based on water balance sizing calculations for a one year period.~~

6.8.3.9 ~~Calculated storage capacity must provide a factor of safety of 1.5 for storage loss over time caused by plugging of the voids due to evaporated salts and residuals.~~

6.8.3.10 ~~A one year water balance analysis includes~~: pan evaporation ~~data~~, ~~precipitation for the wettest year in a 10 year period,~~ average ~~precipitation for a 10 year period, and soils absorption information from the site,~~ transpiration, ~~and other site specific design information.~~

A. ~~Pan evaporation information may be included in the water balance where it can be adequately demonstrated. Very few locations exist where data has been tabulated in Montana and calculations must address site specific pan evaporation conditions.~~

B. ~~The design must show that total water lost through evaporation and absorption equals or exceeds the total water gained through precipitation and effluent discharge.~~ ~~Precipitation information used must be for the wettest year in a 10 year period~~ ~~Due to lack of pan evaporation data, published information on pan evaporation, or data from a similar climatic location, may be used. Typically, The design must include a water balance for a one year period. Storage capacity must be built into the system to accommodate months with low evaporation.~~

C. ~~Transpiration may be included in the water balance where it can be adequately demonstrated.~~

D. ~~Other site specific design information such as shade, area topography, or manmade structures may need to be considered.~~

6.8.4 ~~Construction~~

6.8.4.1 ~~Construction should be initiated immediately after preparation of the liner. by placing all of the fill needed to a minimum depth of 24 inches. Trench sidewalls should be protected by placing synthetic filter fabric as a liner when the media is coarse sand.~~

6.8.4.2 ~~The bottom of each trench or bed~~ ET system ~~must be level throughout to ensure uniform distribution of effluent.~~

~~The distribution pipes must have 6 inches of drain rock underneath and must be covered with a minimum of 2 inches of drain rock.~~

6.8.4.3 ~~The drain rock~~ fill material ~~must be covered completely with drainage fabric~~ or 2 inches of straw ~~to prevent the soil cover from entering the media. The gravel or rock filter media must be covered completely with synthetic drainage fabric to prevent the soil cover from entering the media.~~

6.8.4.4 ~~A 4-inch diameter, standing check pipe with both ends capped (only the bottom cap should be glued) must be installed. Several 1/8-inch to ¼-inch diameter holes should be drilled in the bottom~~ half of the pipe ~~and covered with~~ a filter cloth sock~~. Check pipe should be anchored in fill material to prevent the pipe from being pulled out of the bed~~ system~~.~~

6.8.4.5 ~~The ET system must be covered with a minimum of 12 inches at the center of the~~ ET system ~~and 6 inches at the edge of the ET system of a suitable medium, such as sandy loam, loamy sand or silt loam, to provide drainage and aeration. These depths are measured after settling.~~

~~The topsoil cap must be immediately vegetated after construction with sod or other appropriate method~~

~~The backfill topsoil material must be loamy sand or sandy loam. The maximum depth~~ from ~~the top of the laterals to the surface of the topsoil must not exceed 18 inches. The topsoil cap must be between 6 to 12 inches in depth. It must be mounded above natural grade, with a minimum of one percent slope, to allow for settling and to direct runoff away from the system.~~

6.8.4.6 ~~A berm surrounding the bed~~ system ~~must be constructed to ensure that storm water or other runoff does not enter the bed. The berm must be 6 to 12 inches above the natural grade of the site.~~

6.8.4.7 ~~If the system is intended to remove nitrogen, a complete description of the nitrification and denitrification processes must be provided in detail, including the unit where it occurs, carbon source, feed rates, loading rates, pumps, controls, and other mechanisms necessary.~~

6.8.5 ~~Operation and Maintenance~~

~~A detailed set of plans and specifications and an operation and maintenance plan are required. The operation and maintenance plan must meet the requirements in Appendix D.~~

6.8 SUBSURFACE DRIP

6.8.1 General

Subsurface drip systems are an efficient method for dispersal of wastewater and/or gray water into the soil in small volume doses throughout the day. Uniformly spaced drip emitters in flexible polyethylene tubing control the rate of wastewater discharge and are available in either turbulent flow or pressure compensating configurations.

Each emitter's pressure compensating feature controls discharge at a nearly constant rate along the entire drip line lateral's length over a wide range of pressures. Typically, the drip line is installed directly into the soil without aggregate or other media. Pumps fill and pressurize the drip line sufficiently to achieve uniform distribution.

Monitoring system function and performance along with effluent metering is essential to proper operation. The subsurface drip system is typically operated by an integrated controller programmed to activate the pumps to dose the drip line at appropriate intervals and duration. The controller must be programmable to perform a forward flush of the drip line and back flushing of a filter. The controller should also store operating data for documenting system performance and diagnosing system malfunctions.

No reduction in absorption field size will be granted for advanced wastewater treatment systems.

6.8.2 Location

Subsurface drip systems must meet the site evaluation criteria of Chapter 2.

Subsurface drip systems must meet the location criteria in ARM Title 17, Chapter 36, subchapter 3 or 9. The subsurface drip system may not be located where vehicles will cross the drip lines. Potable water lines may not pass under or through any part of the dispersal system.

Each submittal must address how the service provider can access the subsurface drip system for maintenance and how property use can be controlled to prevent unauthorized access to components.

6.8.3 Design

6.8.3.1 Wastewater Quantity and Quality Characterization

The quantity of expected wastewater or gray water shall be estimated using the guidelines outlined in Chapter 3 or Chapter 6.9.

Wastewater and gray water entering a subsurface drip system must include both primary and advanced treatment as described in this Circular.

6.8.3.2 Materials

All subsurface drip system materials must be warranted by the manufacturer for use with sewage and be resistant to plugging from solids, bacterial slime and root intrusion.

Fittings used to join the drip line to the distribution line and for flushing the manifolds must be installed in accordance with manufacturer's recommendations. Either compression or barb fittings may be specified, depending on the manufacturer recommendations and system operating pressure.

6.8.3.3 System Components

A. Primary Treatment

All subsurface drip systems must include a septic tank in compliance with Chapter 5.

B. Advanced Wastewater Treatment System

An advanced wastewater treatment system is required to meet minimum wastewater characteristic criteria prior to final subsurface disposal.

C. Dosing System

Uniform pressure distribution must be provided for all subsurface drip systems.

All subsurface drip systems should operate between 15 to 45 psi.

Timed dosing is required on all systems. A minimum number of twelve (12) equally spaced doses per day are required in all soil types. A method to track and verify dosing volumes and times, such as a digital control panel, pump elapsed time meters (ETMs), event counters, etc., must be provided.

D. Pumps/System Flushing

Pump selection must take into account the operating volume and pressure for the drip dispersal field when calculating the total dynamic head required for filter flushing and/or back flushing, field dosing, and drip line flushing. All disposal and flushing parameters must fall within the operational range of the pump selected.

All subsurface drip systems must include means to backwash the filters and flush drip lines and manifolds.

Filter backwash and drip line flushing must be automatic. Filter backwash and drip line flushing must be accomplished according to manufacturer's recommendations to prevent damage to the drip line and maintain product warranty.

Filter backwash and drip line flushing debris must be returned to the septic tank or the primary treatment tank.

Hose bibs are not allowed for use as a flushing component (to prevent cross contamination of potable water supply).

Field flushing velocity must be designed at the distal end of each drip line lateral connection. This velocity must be the same as required by the drip line manufacturer.

The flush return volume may not exceed the hydraulic capacity of the pretreatment unit.

E. Supply and Return Manifolds

Both supply and return manifolds are required on all subsurface drip systems.

All piping, valves, fittings, level control switches, and all other components must be designed and manufactured to resist the corrosive effects of wastewater and common household chemicals.

F. Drip line/Dispersal Line

Drip line tubing is typically a flexible polyethylene (PE) available in several diameters with a nominal ½ inch as the typical size in wastewater applications.

The drip line must be color coded purple by the manufacturer to be easily recognized as suitable for subsurface drip dispersal.

The drip line must be warranted fully by the manufacturer for protection against root intrusion for a minimum period of ten (10) years.

Drip lines should always be installed as level as possible on the contour line.

Drip lines must be installed to facilitate positive drainage back to the manifold. No standing water may pool within the system. Subsurface

drip systems located on sloped sites must be designed and installed to prevent drainage to lower elevated components (drip lines, tanks, valve boxes, etc.).

Minimum installation depth for drip lines and manifolds is 8 inches beneath grade. Site specific characteristics and land use practices may require a deeper depth of installation.

Drip lines should be installed on 2 feet centers.

G. Emitters

Emitter size and type must be specifically designed for use in a subsurface drip system.

All subsurface drip systems must be equipped with self cleaning, pressure compensating or turbulent flow emitters.

Emitters should be installed on 2 foot intervals along the drip line with an effective subsurface infiltrative area of 4 square feet. This spacing may be altered for specific reuse systems per both the manufacturer's recommendations and the reviewing authority's approval. Spacing of emitters closer than 2 feet does not change the required subsurface infiltrative area.

The discharge rate of emitters may not vary by more than 10% over the entire drip line lateral in order to ensure that the effluent is uniformly distributed over the disposal area.

H. Filters

Designers shall specify the filter that is recommended by the drip line manufacturer.

All filters used must be resistant to corrosion. The manufacturer shall warrant the filters for wastewater use.

All filters must be sized to operate at a flow rate at least equal to the maximum design discharge rate of the system. Filter backwash must be included in calculating the maximum discharge rate (where applicable).

Filters may either require backwashing in accordance with manufacturer's recommendations or may be the continuously self-cleaning type.

All subsurface drip system filters must be readily accessible for inspection and servicing.

I. Flow Meter

Flow meters or some other means to monitor flow must be installed in a readily accessible location for reading and servicing. Flow meters must be warranted by the manufacturer for use with wastewater and must be accurate within the expected flow range of the installed system

J. Electronic control panel

A controller capable of timed dosing and automatic line/filter flushing is required for all systems.

K. Air/Vacuum Relief Valve

Air/vacuum relief valve(s) must be installed at the high point(s) of each supply or return manifold. All valves must be installed in a valve box with access to grade and include a gravel sump. Designs should include a minimum of two air/vacuum relief valves per drip zone. They should be located at the highest point(s) of both the supply and flush manifolds and are typically placed in a valve box lined with gravel for protection. They must have constant venting to the atmosphere.

L. Control Valves

Valves must be readily accessible for inspection and/or service (such as in a valve box with access to grade).

Control valves used for system flushing and zone distribution must operate automatically.

Pressure regulators are recommended for all subsurface drip systems.

Pressure gauge access points (Schrader valves or equal) are required at appropriate locations on system networks utilizing turbulent flow emitters to verify design and operational performance. Pressure gauge access points are recommended to be installed on all systems.

6.8.3.4 Sizing

Subsurface drip systems must be sized in accordance with soil descriptions of Table 2.1-1 and Appendix B. Unless otherwise approved by the reviewing authority, the effective width of the absorption area will be 2 feet per drip line.

6.8.3.5 All subsurface drip systems must be designed to remain free flowing during freezing conditions.

6.8.4 Construction

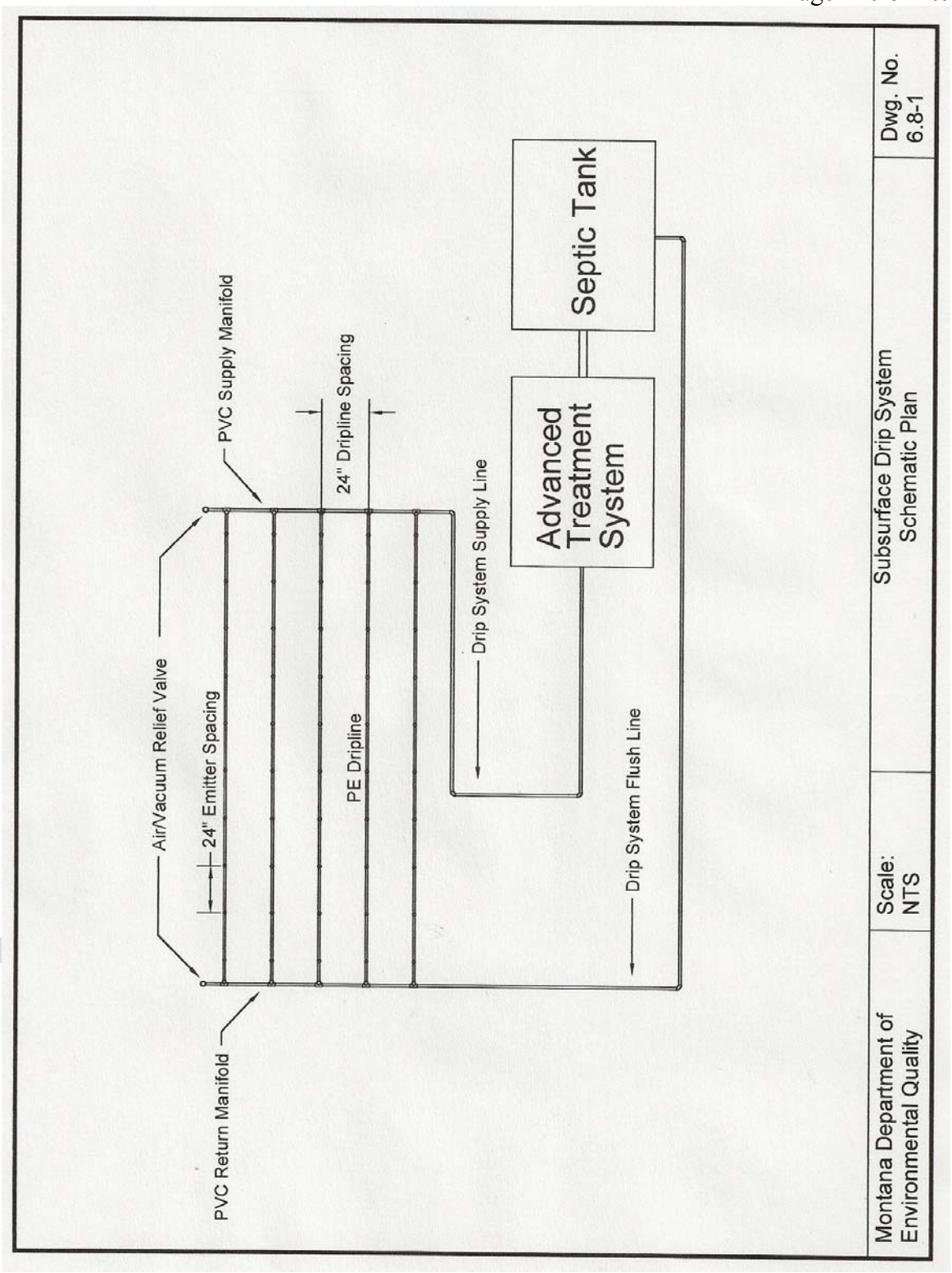
Installation instructions and recommendations vary from one manufacturer to another. Installation knowledge and skill may be product-specific. Installers are responsible for obtaining proper training before attempting to install subsurface drip systems.

A ground cover (turf or other appropriate landscaping) must be planted over the dispersal field after installation to prevent erosion. Selection of the ground cover type and subsequent maintenance requirements must not compromise the integrity of the disposal area.

In addition to these standards, all systems must be constructed in accordance with manufacturer's recommendations.

6.8.5 Operation and Maintenance

A detailed set of plans and specifications and an operation and maintenance plan are required for all components of the system. The operation and maintenance plan must meet the requirements outlined in Appendix D.


Air/Vacuum Relief Valve
24" Emitter Spacing
PVC Return Manifold
PVC Supply Manifold
24" Dripline Spacing
PE Dripline
Drip System Supply Line
Drip System Flush Line
Advanced Treatment System
Septic Tank
Montana Department of Environmental Quality
Scale: NTS
Subsurface Drip System Schematic Plan
Dwg. No. 6.8-1

6.9 GRAY WATER IRRIGATION SYSTEMS

6.9.1 General

Gray water is untreated wastewater collected from bath tubs, showers, lavatory sinks, clothes washing machines, and laundry tubs. Gray water systems used in conjunction with a waste segregation system may also use wastewater collected from kitchens. Gray water can be contaminated with organic matter, suspended solids or microorganisms that are potentially pathogenic. In general, treatment and disposal of gray water is subject to all applicable provisions in this Circular, except that gray water may be used for irrigation as provided in this chapter.

~~Except as provided in 6.10.2~~ 32.1.2, subsurface treatment and disposal of gray water must ~~be by means of a wastewater treatment system that meets all applicable requirements of this Circular.~~

Gray water reuse within a building or residence for uses such as toilet flushing is permitted without review, provided that the gray water is ultimately disposed by means of an approved wastewater treatment system that meets all applicable requirements of this Circular.

Gray water irrigation systems that meet the requirements of this chapter are not subject to the other chapters in this Circular, except as specifically referenced in this chapter.

6.9.2 Location

Gray water irrigation systems must meet the location criteria for gray water reuse set out in ARM Title 17, Chapter 36, subchapter 3 or 9.

6.9.3 Design

6.9.3.1 The collection, storage and distribution portions of a gray water irrigation system must be designed in accordance with this chapter. The reviewing authority may allow the use of other designs and material pursuant to the review of manufacturer's information and data to substantiate the proposed alternative.

6.9.3.2 Except for lots with waste segregation systems, lots with gray water irrigation systems must be served by an existing approved alternate wastewater treatment system that is adequate to treat both the gray water and the other wastewater from the lot. Lots with waste segregation systems must have an alternate approved waste water treatment system for treating gray water, although the system need not be installed if gray water irrigation is conducted pursuant to this chapter.

6.9.3.3 Gray water from kitchen sources may be used for irrigation only where a waste segregation system is used.

6.9.3.4 All effluent from sources that are not gray water must be disposed of in an approved wastewater system.

6.9.3.5 The reviewing authority may require sampling data to insure that the strength of gray water used for irrigation does not exceed typical residential strength parameters.

6.9.3.6 Gray water irrigation systems must use subsurface dispersal. All systems must be a minimum of 6 inches below the ground surface. Ponding or water surfacing may not occur at any gray water irrigation location.

6.9.3.7 Gray water irrigation system designs may be augmented with ~~either~~ potable water. ~~or storm water collected from roofs. Storm water harvesting systems may need an application for a water right from the Department of Natural Resources and Conservation.~~

6.9.3.8 All gray water irrigation system piping and appurtenances must be easily identifiable as non-potable through the use of purple piping and continuous marking at a minimum of 4-foot intervals. Tanks, pumps and other equipment must also be labeled as "non-potable" using a permanent label placed in a conspicuous location.

6.9.3.9 If a gray water irrigation system is proposed for a lot served by a public wastewater system, the reviewing authority may not approve the gray water system unless the managing entity of the public system provides a letter of approval.

~~Design~~

6.9.3.10 Gray water design flow rates must be estimated as follows:

A. Estimated Residential Flow Rates:

To determine total flow rate for the gray water irrigation system the number of occupants must be multiplied by the estimated flow shown in Table 6.10-1.

Table 6.9-1

i. Number of occupants per residential dwelling unit:	
1st bedroom	2
Each additional bedroom	1
ii. Flow for each occupant is:	
Showers, tubs, washbasins	25gpd
Laundry	15 gpd
Kitchen	10 gpd

B. Estimated Non- Residential Flow Rates:

Non-residential flow rates must be substantiated by the system designer in order to be approved by the reviewing authority.

6.9.3.11 Gray water irrigation systems must have a minimum absorption area based on soil types as described in accordance with Table 2.1-1 and Appendix B and Section 6.1.4.

6.9.3.12 If potable water is used to augment gray water for irrigation within the same distribution network, a method of backflow prevention for the potable water source must be included that is consistent with the requirements of ARM Title 17, Chapter 38, subchapter 3.

6.9.3.13 Gray water irrigation systems that are not designed to prevent freezing must be used in conjunction with a supplemental year-round method for wastewater treatment and disposal that meets applicable state and local requirements.

6.9.3.14 Except for lots with waste segregation systems, gray water irrigation systems must include a three way diverter valve to easily direct gray water to the year-round wastewater treatment system when needed. A backflow prevention device must be installed to prevent whole house wastewater from entering the gray water irrigation system.

6.9.3.15 The year-round wastewater treatment system must be sized to accept and treat the total flow from the gray water irrigation system together with any other effluent in the system

6.9.3.16 A gray water irrigation system may not adversely impact the functioning of the year-round wastewater treatment system.

~~The consultant~~ applicant ~~must demonstrate 4 feet of natural soil separation between the bottom of the gray water system and a limiting layer.~~

6.9.3.17 Gray water systems may be installed in fill.

6.9.4 Collection and Distribution

6.9.4.1 Hose bib or hose type attachments, including frost-free hydrants, may not be present on a gray water irrigation system.

6.9.4.2 The design must include appropriate valves or other methods to isolate the surge tank, irrigation zones, and connection to a wastewater treatment system.

~~The volume of any storm water collected from roofs and diverted to the gray water system must be included in the design capacity. If the system contains a surge tank,~~

~~the roof storm water collection system must include an approved diversion valve to limit the volume discharged to the surge tank.~~

6.9.4.3 Surge tanks may be incorporated into a gray water irrigation system design. Surge tanks allow for uniform distribution of the gray water despite variable flow from the source. If a gray water irrigation system contains a surge tank, the tank must meet the following requirements:

A. Surge tanks used for the storage and distribution of gray water must be designed by the manufacturer for use with wastewater.

B. Surge tanks must be easily accessible for maintenance with a locking gasketed access opening or approved equivalent.

C. Surge tanks must be covered .

D. The minimum capacity of the surge tank must be 50 gallons.

E. Surge tanks may be installed either inside or outside a building, above or below ground.

F. Above-ground surge tanks must be installed on a level, three inch concrete slab or equivalent, and must be anchored to prevent overturning.

G. Below ground surge tanks must be installed in dry, level, well-compacted soil. Buoyancy of the surge tank must be prevented with appropriate construction where high groundwater exists.

H. Surge tanks must be equipped with an overflow pipe of the same diameter as the gray water influent pipe. The overflow must be permanently connected to an approved wastewater treatment system. This connection should be made to the building sewer, or septic tank, if any. The overflow drain may not be equipped with a shutoff valve. For waste segregation systems without an approved alternate wastewater treatment system installed, the overflow from the surge tank must be connected to a second surge tank. The second surge tank must also connect to the gray water irrigation system.

I. Above ground surge tanks must be equipped with an emergency drain of the same diameter as the gray water influent pipe. The emergency drain must be permanently connected to an approved wastewater treatment system. This connection should be made to the building drain, building sewer, or septic tank, if any.

J. The surge tank must include a method of backflow prevention that complies with ARM Title 17, Chapter 38, subchapter 3. ~~17.38 Chapter 3.~~

K. Surge tanks must include vents to the atmosphere.

~~plumbed and vented in accordance with the Uniform Plumbing Code.~~

L. If storage time within the collection system is going to exceed 24 hours, appropriate treatment for odor control may be necessary.

6.9.4.5 All gray water irrigation systems should include a filter to prevent the buildup of solids and to insure proper system functioning. If no filter is included in the design, at least three valved irrigation zones must be designated. Each irrigation zone must have the required length of trench to accommodate the entire gray water flow per day with automatic valves to rotate the distribution of gray water between irrigation zones.

6.9.4.6 Gravity fed absorption trenches may not exceed 100 feet in length.

6.9.4.7 All pressure dosed gray water irrigation systems must meet the following minimum requirements:

A. Surge tanks must provide sufficient access to allow maintenance of the tank and pump. Surge tanks using a siphon should have a dose counter installed to check for continued function of the siphon; and

B. High-water alarms must be provided for all surge tanks utilizing pumps.~~; and~~

C. The minimum dose volume must be equal to the drained volume of the discharge line and manifold plus a volume equal to at least 2 times the lateral volume.~~; and~~

D. The duration of each discharge should not exceed 15 minutes to promote uniform distribution and soil absorption.~~; and~~

E. The reserve volume of the dosing system surge tank must be at least equivalent to 25% of the design flow. This reserve volume is computed from the high-level alarm.~~; and~~

F. Cleanouts must be provided at the end of every lateral. Cleanouts must be within 6 inches of finished grade and should be made with either a long sweep elbow or two 45 degree bends.~~; and~~

G. Dosed irrigation systems should be field-tested to verify uniform distribution.

6.9.5 Operation and Maintenance ~~Standards~~

6.9.5.1 Property owners are responsible for proper operation and maintenance of their gray water irrigation systems. Gray water systems that include kitchen wastewater may have increased maintenance requirements.

6.9.5.2 All public gray water irrigation systems must submit an operation and maintenance ~~manual~~ plan to the reviewing authority in accordance with Appendix D of this Circular.

6.10 ABSORPTION BEDS

6.10.1 General

Absorption beds may be used as replacement wastewater treatment systems in existing lots where standard absorption trenches cannot be utilized. Absorption beds may be used as replacement for previously approved seepage pits. ~~when the reviewing authority has completed rewrite of the certificate of subdivision approval.~~ Absorption beds may not be used ~~to create~~ on new lots without an existing wastewater treatment system that has been in continuous use and that was permitted by the reviewing authority.

Absorption Beds must meet the same requirements as standard absorption trenches as described in Chapter 6.1, except where specifically modified in this chapter.

Rapid Infiltration Basins designed for effluent disposal rather than subsurface treatment must be designed in accordance with DEQ 2

6.10.2 Design ~~Absorption beds must meet the following design requirements.~~

6.10.2.1 Absorption beds must be more than three feet wide, and must be at least two feet in depth, unless a limiting condition requires a lesser depth, but in no case may the bed be less than one foot in depth.

6.10.2.2 Uniform pressure distribution must be provided for all absorption beds with a minimum of two distribution pipes installed per system. ~~Pressure dosing shall be in accordance with Chapter 9 and the following conditions shall also apply. A minimum of two distribution pipes shall be installed.~~

6.10.2.3 Distribution piping should be separated by a minimum of 30 inches and a maximum of 48 inches and 18 to 30 inches from the edge of the excavation.

6.10.2.4 Absorption bed sizing is determined by flows described in Chapter 3 ~~5~~, the application rates in Chapter2 ~~9~~, along with procedure of Section 6.1.4 or by using the maximum area available. Absorption beds shall not be installed with soils that have percolation rates of greater than 60 minutes per inch.

6.10.3 Construction

6.10.3.1 Absorption beds may be constructed in accordance with Chapter 2 but must not be constructed on unstabilized fill.

6.10.3.2 The excavation must be filled with a minimum of six inches of washed rock or six inches of ASTM C-33 sand

~~.Pressure dosing must be used unless another method of distribution is approved by the reviewing authority in accordance with Chapter 8. Distribution piping – pressure dosing~~

~~Uniform pressure distribution designed in accordance with Chapter 4.2 must be provided for all absorption beds with the following additional requirements:~~
~~Pressure dosing shall be in accordance with Chapter 9 and the following conditions shall also apply.~~

~~A minimum of two distribution pipes shall be installed. Distribution piping should be separated by a minimum of 30 inches and a maximum of 48 inches.~~

6.10.3.3 Distribution piping should be covered by two inches of drain rock ~~except when designed in accordance with Section 23.5.~~

6.10.3.4 Distribution piping should be installed 18 to 30 inches from the edge of the excavation.

6.10.3.5 Distribution piping ~~shall~~ must be installed to ensure uniform distribution of effluent.

6.10.3.6 Drain rock must be covered with geofabric, or, if geofabric is unavailable, a straw layer of at least four inches in depth.

6.10.3.7 Backfill for beds should be loam type soils that do not form an impervious seal. The use of high clay or silt content soils for back filling ~~should~~ must be avoided.

~~Absorption bed sizing is determined by flows in Chapter 3.1 5, the application rates in Chapter 4.2 9, or using the maximum area available. Absorption beds shall not be installed with soils that have percolation rates of greater than 60 minutes per inch.~~

6.10.4 ~~Infiltration chambers~~ Gravelless or other absorption trenches may be used in absorption beds. ~~if the entire excavation has chambers installed~~. ~~Infiltration chambers~~ or other absorption trenches must be installed in accordance with Chapter 6.5 and this chapter ~~and Chapter 13.~~ No ~~change in application rate or~~ reduction in sizing will be allowed for ~~chambers~~ the use of gravelless or other trenches in absorption beds.

7. ADVANCED WASTEWATER TREATMENT SYSTEMS

7.1 RECIRCULATING MEDIA TRICKLING FILTERS

7.1.1 General

These systems utilize aerobic, attached-growth treatment processes to biologically oxidize organic material and convert ammonia to nitrate (nitrification). A trickling filter consists of a bed of highly permeable medium to which a bio-film adheres in an unsaturated environment. Wastewater is applied to the top of the bed and trickles through the media. Microorganisms in the bio-film degrade organic material and may also nitrify the wastewater. An under-drain system collects the treated wastewater and any sloughed solids and transports it to a settling tank from which it is recirculated and trickled back through the media ~~trickling filter~~.

Due to the reduced amount of BOD and TSS produced by this technology the absorption system used for final disposal may be reduced, except were specifically prohibited in this Circular, for the following soil types ~~downsized by 50 percent as determined by Chapter 8~~:

C. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 ~~60~~ minutes per inch as described in Chapter 2 and Appendix B, the final absorption are may be reduced by 50%;

D. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 minutes per inch as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25%.

~~The absorption system used for final disposal may be downsized by 25 percent as approved by the reviewing authority, as determined by Chapter 8.~~

The reviewing authority may request data from the recirculating trickling media filter to demonstrate performance criteria.

A separate subsurface absorption replacement area, sized without reductions, must be designated for each site using a recirculating trickling media filter.

Classification of a recirculating media trickling filter as a Level 1a, Level 1b, or Level 2 system for nutrient reduction under ARM 17.30.718 must be made under separate application. Special consideration must be given to those systems with extremely low BOD_5 levels. Additional design requirements may apply.

7.1.2 Design

7.1.2.1 The design criteria must include, but not necessarily be limited to, primary treatment, filter size, filter media, organic loading, hydraulic loading, dosing rate, and recirculation rate. A discussion of the treatment by the trickling filter must be provided.

7.1.2.2 Recirculating trickling filter systems must have a means of primary and secondary settling. Additional components such as pump chambers, pumps, controls, recirculation valves, etc. may be used as required.

7.1.2.3 Filter media ~~medium~~ must be resistant to spalling or flaking, and must be relatively insoluble in wastewater. The type, size, depth, volume, and clogging potential of the medium used must be based on published criteria and proven through monitoring and testing (see Section 7.1.3 ~~17.2.8~~).

7.1.2.4 The vessel containing the media must be watertight and corrosion resistant.

7.1.2.5 Waste effluent must be distributed uniformly across the design surface area of the filter.

7.1.2.6 The means of aerating the recirculation trickling filter must be described. ~~If the means of aeration does not require any mechanical equipment, the system may be considered a passive nutrient reduction system if nutrient reduction is proven through monitoring and testing. If the means of aeration requires mechanical equipment, the system may be considered a nonpassive nutrient reduction system if nutrient reduction is proven through monitoring and testing.~~

7.1.2.7 The method of recirculation and recirculation rate must be discussed and justified to show adequate functioning of the system. ~~The liquid capacity of the recirculation tank must be at least 1.5 times the daily design wastewater flow.~~ The recirculation tank must meet the same material and construction specifications as a septic tank. ~~he minimum liquid level in the recirculation tank must be at least 80 percent of the daily flow at all times during the 24-hour daily cycle.~~ The reviewing authority may require systems with large surge flows to have recirculation tanks sized based on the estimated or actual surge flow volume.

7.1.2.8 All recirculating trickling systems must operate in a manner such that if a component of the system fails and treatment diminishes or ceases, untreated effluent will not be discharged to the absorption system. Systems must be equipped with adequate alarms.

7.1.2.9 ~~If the recirculation trickling filter system is intended to remove nitrogen, a complete description of the nitrification and denitrification processes must be provided in detail, including the unit where it occurs, carbon source, feed rates, loading rates, pumps, controls, and other mechanisms necessary.~~

~~The Department reviewing authority will consider the complexity and maintenance required of the system, the stability of the processes, and the monitoring data in determining the adequacy, level of maintenance, and monitoring frequency of the system.~~

7.1.3 A detailed set of plans and specifications and an operation and maintenance ~~manual~~ plan are required. The operation and maintenance plan must meet the requirements in Appendix D.

7.1.4 Gravelless or other ~~chambers~~ absorption trenches constructed in accordance with the requirements of Chapter 6.5 ~~13~~ may be used in lieu of a standard absorption trench. ~~No reduction in absorption system sizing will be allowed for chambers in this application.~~ The use of ~~chambers~~ gravelless trenches and other absorption systems will not qualify for ~~constitute~~ any additional reduction beyond that listed in Section 7.1.1 ~~17.1~~.

7.2 INTERMITTENT SAND FILTERS

7.2.1 General

The design criteria must include, but not necessarily be limited to, the type of usage, primary treatment, filter media, filtration rate, and dosage rate.

The wastewater strength discharged to the filter must not exceed residential strength wastewater. Intermittent sand filters must discharge to a subsurface absorption system.

Due to the reduced amount of BOD and TSS produced by intermittent sand filters, the absorption system used for final disposal may be reduced for the following soil types except were specifically addressed in this Circular:

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 ~~60~~ minutes per inch as described in Chapter 2 and Appendix B, the final absorption are may be reduced by 50%;

B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 minutes per inch as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25%.

~~the absorption system used for final disposal may be downsized by 50 percent. The absorption system used for final disposal may be downsized by 50 percent, as determined by Chapter 8, for soils with percolation rates between 3 and 60 minutes per inch. The absorption system used for final disposal may be downsized by 25 percent, as determined by Chapter 8, for soils with percolation rates between 60 and 120 minutes per inch.~~
A separate subsurface absorption replacement area, sized without reductions, must be designated for each site using an intermittent sand filter.

Intermittent sand filters classified as Level 1a, Level 1b or Level 2 systems as defined in ARM 17.30.718 may have additional requirements beyond those listed in this Circular.

7.2.2 Design

7.2.2.1 The minimum area in any subsurface sand filter must be based upon a flow as determined in Chapter 3 ~~5.~~

7.2.2.2 The application rate for intermittent sand filters may not exceed ~~1.2~~ 1.0 gal/day/ft^2. This must be computed by dividing the effluent flow rate by the area (in square feet) of the filter.

7.2.2.3 A minimum of one 4 inch diameter collection line must be provided at the bottom of the intermittent sand filter. The upper end of the collection line must be provided with a 90-degree elbow turned up, a pipe to the surface of the filter, and a

removable cap. The collection line may be level. The bottom of the filter may be flat or sloped to the collection line(s).

7.2.2.4 Distribution lines must be level and must be horizontally spaced a maximum of 3 feet apart, center to center. Orifices must be placed such that that there is at least one orifice for each 4 square feet of sand surface area. All intermittent sand filter dosing must be controlled by a programmable timer. The minimum depth of filter media must be 24 inches.

7.2.2.5 A watertight, 30-mil PVC liner (or equivalent) must be used to line the sand filter.

7.2.2.6 There must be a minimum of 2 inches of sand fill between the natural soil surface and/or any projecting rocks and the liner.

7.2.2.7 Washed drain rock must be placed in the bottom of the system ~~filter~~ to provide a minimum depth of 8 inches in all places and to provide a minimum of 4 inches of material over the top of the collection lines.

7.2.2.8 The drain rock must be covered with a 3-inch thick layer of ¼ inch to 1 inch washed gravel.

~~Gravel measuring ¼ inch to 1 inch must meet the following gradation:~~

~~**Sieve**~~	~~**Particle Size (mm)**~~	~~**Percent Passing**~~
~~1 inch~~	~~25~~	~~100~~
~~¾ inch~~	~~19~~	~~50 to 100~~
~~3/8 inch~~	~~9.5~~	~~30 to 80~~
~~No.4~~	~~4.75~~	~~0 to 20~~
~~No. 8~~	~~2.36~~	~~0 to 2~~
~~No. 16~~	~~1.18~~	~~0 to 1~~

~~Drain rock must meet the requirements for a standard absorption system, except it must be a minimum of 1 inch in diameter to prevent clogging.~~

7.2.2.9 A minimum of 24 inches of filter sand media must be placed above the ¼ inch to 1 inch washed gravel.

7.2.2.10 A layer of ¼-inch to 1-inch washed gravel must be placed over the sand media, with at least 3 inches placed over the distribution lines and 3 inches placed under the distribution lines .The distribution pipes must be installed in the center of this layer, and all parts of the distribution system must drain between cycles.

7.2.2.11 A synthetic drainage fabric must be used to separate the top layer of washed gravel containing the distribution lines and the sand media to keep silt from

moving into the sand while allowing air and water to pass through. ~~The material used to cover the top of the sand filter must be separated from the filter by a synthetic drainage fabric.~~

7.2.2.12 The intermittent sand filter must be backfilled with ~~covered with~~ 6 inches (at the edges) to 8 inches (at the center) of a suitable medium, such as sandy loam or loamy sand that is then planted with sod or other shallow rooted vegetative cover. ~~to provide drainage and aeration. The material must be seeded, sodded, or otherwise provided with shallow-rooted vegetative cover to ensure stability of the installation.~~

7.2.2.13 Monitoring pipes to detect filter clogging must be installed. A means for sampling effluent quality must be provided.

7.2.3 Uniform pressure distribution in accordance with Section 4.2.3.3 except Section 4.2.3.3.D. must be provided for all sand filters ~~Uniform pressure distribution must be provided for all sand filters in accordance with Chapter 9 except for Section 9.3.~~

7.2.4 The dose volume must not exceed 0.25 gallons per dose per orifice. The dose frequency must not exceed 1 dose per hour per zone. The dose tank must include a minimum surge volume of one-half the daily flow for individual or shared systems. For multiple-user and public systems, the applicant must demonstrate that a smaller surge volume is adequate. The surge volume is the liquid storage capacity between the "timer-on" float and the "timer-override" float. The "timer-override" float and the "high-water alarm" float may be combined. Note that the surge volume defined here is not the same as the reserve storage volume defined in Chapter 4 ~~9~~.

7.2.5 Materials

7.2.5.1 Washed drain rock must be a minimum of 1 inch in diameter to prevent clogging.

7.2.5.2 Washed gravel measuring ¼ inch to 3/4 ~~1~~ inch in diameter must meet the following gradation:

Sieve	Particle Size (mm)	Percent Passing
1 inch	25	100
¾ inch	19	50 to 100
3/8 inch	9.5	30 to 80
No.4	4.75	0 to 10 ~~20~~
No. 8	2.36	0 to 2
No. 16	1.18	0 to 1

7.2.5.3 The filter media must be washed and free of clay or silt and contain the following criteria in place:

Sieve	Particle Size (mm)	Percent Passing

3/8 in	9.50	100
No. 4	4.75	95 to 100
No. 8	2.36	80 to 100
No. 16	1.18	45 to 85
No. 30	0.60	15 to 60
No. 50	0.30	3 to 10
No. 100	0.15	0 to 2

7.2.5.4 The intermittent sand filter must be covered by a suitable medium, such as sandy loam or loamy sand, to provide drainage and aeration. The material must be seeded, sodded, or otherwise provided with shallow-rooted vegetative cover to ensure stability of the installation.

~~If the system is intended to remove nitrogen, a complete description of the nitrification and dentrification processes must be provided in detail, including the unit where it occurs, carbon source, feed rates, loading rates, pumps, controls, and other mechanisms necessary~~.

7.2.6 A detailed set of plans and specifications and an operation and maintenance ~~manual~~ plan are required. The operation and maintenance plan must meet the requirements in Appendix D.

7.2.7 Gravelless trenches and other absorption systems ~~chambers~~ constructed in accordance with the requirements of Chapter 6.5 ~~13~~ may be used in lieu of a standard absorption trench. The use of gravelless trenches and other absorption systems will not qualify for any additional reduction beyond that listed in 7.2.1.~~No reduction in absorption system sizing will be allowed for chambers in this application. The use of chambers will not constitute any additional reduction beyond that listed in 15.1~~

7.3 RECIRCULATING SAND FILTERS

7.3.1 General

The design criteria must include, but not necessarily be limited to, the type of usage, primary treatment, filter media, filtration rate, and dosage rate. The wastewater strength discharged to the sand filter must not exceed residential strength wastewater. Recirculating sand filters must discharge to a subsurface absorption system

Due to the reduced amount of BOD and TSS produced by recirculating sand filters, the absorption system used for final disposal may be reduced for the following soil types except were specifically addressed in this Circular:

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 ~~60~~ minutes per inch as described in Chapter 2 and Appendix B, the final absorption are may be reduced by 50%;

B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 minutes per inch as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25%.

~~The absorption system used for final disposal may be downsized ; the absorption system used for final disposal may be downsized by 50 percent. The absorption system used for final disposal may be downsized by 50 percent, as determined by Chapter 8, for soils with percolation rates between 3 and 60 minutes per inch. The absorption system used for final disposal may be downsized by 25 percent, as determined by Chapter 8, for soils with percolation rates between 60 and 120 minutes per inch.~~

A separate subsurface absorption replacement area, sized without reductions, must be designated for each site using a recirculating sand filter.

Recirculating sand filters classified as Level 1a, Level 1b or Level 2 systems as defined in ARM 17.30.718 may have additional requirements beyond those listed in this Circular.

7.3.2 Design

7.3.2.1 A watertight, 30-mil PVC liner (or equivalent) must be used to line the sand filter. There must be a minimum of 2 inches of sand fill between the soil surface and/or any projecting rocks and the liner.

7.3.2.2 Entrance and exit points resulting in liner penetration must be water tight.

7.3.2.3 Drain rock must be placed in the bottom of the filter, providing a minimum depth of 6 inches in all places and providing a minimum of 2 inches of material over the top of the collection lines. The drain rock must be covered with a 3-inch layer of 1/4-inch to 3/4 ~~1~~-inch washed gravel meeting the gradation chart in 7.2.5.2. ~~15.2.5~~.

Drain rock for the under-drain lines must meet the requirements for a standard absorption system, except it must be a minimum of 1~~"~~ inch in diameter to prevent clogging. ~~The drain rock at the bottom may be replaced with 1/8-inch to 3/8-inch washed gravel, except for 6 inches around the collection pipe.~~

7.3.2.4 The depth of filter media must be at least 24 inches. ~~The media must be washed, have a maximum particle size of 3/8 inch, and an effective size between 1.5 and 2.5 mm with and a Uniformity Coefficient of 2 or less, with less than 2 percent passing No. 30 sieve and less than 2 percent passing No. 50 sieve~~. ~~, Filter media measuring 1/8-inch to 3/8-inches in size~~ The media must have a Uniformity Coefficient of 2 or less, must be washed, and must meet the following gradation:

Sieve	Particle Size (mm)	Percent Passing
1/2 in	12.5	100
3/8 in	9.50	50 to 95 ~~95 to 100~~
No. 4	4.75	0 to 15 ~~30~~
No. 8	2.36	0 to 1.6 ~~15~~
~~No. 100~~	~~0.15~~	~~0 to 2~~

7.3.2.5 The filter media must be covered with a layer of 3/4 ~~¼~~-inch to 1½-inch washed gravel at least 6 inches thick. The distribution pipes must be installed in the center of this layer, and all parts of the distribution system must drain between cycles.

7.3.2.6 For sizing the filter, the application rate must not exceed 5 gallons per day per square foot of filter area. This must be computed by dividing the effluent flow rate (not considering the amount of recirculation) by the area (in square feet) of the filter.

7.3.2.7 The liquid capacity of the recirculation tank must be at least 1.5 times the daily design wastewater flow. The recirculation tank must meet the same material and construction specifications as a septic tank. The minimum liquid level in the recirculation tank must be at least 80 percent of the daily flow at all times during the 24-hour daily cycle. The reviewing authority may require systems with large surge flows to have recirculation tanks sized based on the estimated or actual surge flow volume.

7.3.2.8 The filter-effluent line passing through the recirculation tank must be provided with a control device that directs the flow of the filter effluent. The filter effluent will be returned to the recirculation tank for recycling or be discharged to the subsurface absorption system, depending upon the liquid level in the recirculation tank. The recirculation pump(s) must be located at the opposite end of the recirculation tank from the filter return line and the tank inlet(s).

7.3.2.9 The system must be designed with a minimum recirculation ratio of not less than four. Each orifice must be dosed at least every 30 minutes, and the maximum dose volume must be 2 gallons per orifice per dose. All recirculating sand-filter dosing must be controlled with a programmable timer.

7.3.2.10 A minimum of one 4 inch diameter collection line must be provided. The upper end of the collection line must be provided with a sweep to the surface which includes a 90-degree elbow turned up, a pipe to the surface of the filter, and a removable cap. The collection line may be flat. The bottom of the filter may be flat or sloped to the collection line(s)

7.3.2.11 Distribution lines must be level and must be horizontally spaced a maximum of 3 feet apart, center to center. Orifices must be placed such that there is at least one orifice for each 4 square feet of filter media surface area.

7.3.2.12 The effluent must be discharged in such a manner as to provide uniform distribution in accordance with Chapter 4.3 ~~9~~ except for Section 4.2.2.B.v ~~9.3~~.

7.3.2.13 The distribution line must be designed for freezing conditions. ~~to be protected from freezing~~. The plans and engineering report will specify how this is accomplished.

7.3.2.14 Topsoil or other oxygen limiting materials must not be placed over the filter.

7.3.2.15 ~~If the recirculation sand filter system is intended to remove nitrogen, a complete description of the nitrification and denitrification processes must be provided in detail, including the unit where it occurs, carbon source, feed rates, loading rates, pumps, controls, and other mechanisms necessary.~~

7.3.3 A detailed set of plans and specifications and an operation and maintenance ~~manual~~ plan are required. The operation and maintenance plan must meet the requirements in Appendix D.

7.3.4 Gravelless trenches and other absorption systems ~~chambers~~ constructed in accordance with the requirements of Chapter 6.5 ~~13~~ may be used in lieu of a standard absorption trench. The use of ~~chambers~~ gravelless trenches and other absorption systems will not qualify for any additional reduction beyond that listed in 7.3.1.~~No reduction in absorption system sizing will be allowed for chambers in this application. The use of chambers will not constitute any additional reduction beyond that listed in 16.1~~

7.4 AEROBIC WASTEWATER TREATMENT UNITS

7.4.1 General

Aerobic treatment units (ATUs) are concrete tanks or other containers of various configurations that provide for aerobic biodegradation or decomposition of the wastewater components in a saturated environment by bringing the wastewater in contact with air by some mechanical means. ATUs are exclusively proprietary products representing a wide variety of designs, materials, and methods of assembly.

Classification of ATUs as Level 1a, Level 1b, or Level 2 systems for nutrient reduction under ARM 17.30.718 must be made under separate application.

All ATUs must discharge to a subsurface wastewater treatment system. This treatment system must be sized in accordance with Chapters 2, and 3, and Section 6.1.4. Aerobic treatment devices must demonstrate compliance with the testing criteria and performance requirements for NSF Standard No. 40 for Class 1 certification. This compliance may be demonstrated either through NSF, through a third independent party using comparable protocol or through the testing requirements outlined in ARM 17.30.718 for 30 mg/L BOD and 30 mg/L TSS only. ATUs may apply the following sizing reduction to the subsurface absorption area:

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 ~~60~~ minutes per inch as described in Chapter 2 and Appendix B, the final absorption are may be reduced by 50%;

B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 minutes per inch as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25%.

A separate subsurface absorption replacement area, sized without reductions, must be designated for each site using an ATU.

~~A means of securing continuous operation and maintenance of these systems (such as a county sewer district) must be approved by the county health department prior to Department approval. ATU systems must be recorded on the property Deed of Trust.~~

~~Types of devices/systems~~

~~For the purposes of this Circular, there are two types of aerobic devices or systems:~~

~~A. Type 1 - Those devices or systems designed to treat residential strength wastewater.~~

~~B. Type 2 - Those devices or systems designed to treat high-strength wastewater to at least residential strength wastewater.~~

~~Design of the Individual Treatment Device~~

~~ATUs are exclusively proprietary products representing a wide variety of designs, materials, and methods of assembly~~

~~The individual treatment device must have been tested by a laboratory independent from the manufacturer of that device.~~

~~A. For Type 1, aerobic treatment devices (those designed to treat residential strength wastewater), the testing criteria and performance must be at least equal to that specified and required in NSF Standard No. 40 for Class 1 certification.~~

~~B. For Type 2, aerobic treatment devices (those designed to treat high-strength wastewater to at least residential strength wastewater), the testing criteria must at least be equal to that specified and required in NSF Standard No. 40, with a stress testing regime designed to evaluate the device under adverse conditions consistent with those anticipated for the specific wastewater treatment application(s). Device treatment performance must be at least equal to residential strength wastewater.~~

7.4.2 An adequate form of positive filtration will be required between the treatment device and the disposal component to prevent excessive solids from being carried over into the disposal component during periods of bulking.

7.4.3 ~~Primary Treatment~~ ATU systems must provide primary treatment for wastewater through a septic tank that meets all of the requirements of Chapter 5. Designs for the use of an external trash rack will be evaluated on a case by case basis.

~~20.3.4.1 For those ATUs using an external trash tank or septic tank (single or multiple compartment) to pretreat wastewater during performance testing:~~

~~A. A tank of at least equivalent design and volume capacity is required as a component of the wastewater system.~~

~~B. A conventional two-compartment tank may be used in the place of a single compartment tank, if consistent with the manufacturer's recommendations.~~

~~20.3.4.2 For those ATUs not using an external trash tank or septic tank to pretreat wastewater, primary treatment must be provided.~~

~~Advanced treatment (level 2)~~

~~Unless otherwise addressed by rule for level 2 treatment, If the aerobic treatment unit is intended to attain a higher level of treatment than a septic tank, monitoring data must be submitted .~~ from at least three existing systems operating in similar ~~climates and treating wastewater similar in characteristics~~, to that to be treated. ~~Monitoring must include at least six cumulative years of data, with one system being in operation at least three years. Minimum data submitted must include information on time to reach steady state conditions, required maintenance and operation, average daily flow, and influent values for each parameter (if other than residential strength wastewater), and effluent values for each parameter. Sample analysis is to be done by an independent laboratory.~~

~~20.3.4.1 If the system is intended to remove nitrogen, a complete description of the nitrification and denitrification processes must be provided in detail, including the unit where it occurs, carbon source, feed rates, loading rates, pumps, controls, and other mechanisms necessary.~~

~~20.3.4.2 The monitoring frequency must be sufficient to establish the treatment efficiency and response to varying wastewater flows, strengths, and climatic condition.~~

~~20.3.4.3 The Department~~ reviewing authority ~~will consider the complexity and maintenance required of the system, the stability of the processes, and the monitoring data in determining the adequacy, level of maintenance, and monitoring frequency of the system.~~

7.4.4 Access ports

7.4.4.1 Ground level access ports must be sized and located to facilitate installation, removal, sampling, examination, maintenance, and servicing of components or compartments that require routine maintenance or inspection.

7.4.4.2 Access ports must be protected against unauthorized intrusion. Acceptable protective measures include, but are not limited to, padlocks or covers that can be removed only with tools.

7.4.5 Failure sensing and signaling equipment

7.4.5.1 The ATU must possess a mechanism or process capable of detecting:

A. failure of electrical and mechanical components that are critical to the treatment process; and,

B. high liquid level conditions above the normal operation specifications.

7.4.5.2 The ATU must possess a mechanism or process capable of notifying the system owner of failure identified by the failure sensing components. The mechanism must deliver a visible and audible signal.

7.4.6 Installation

ATUs must be installed according to the manufacturer's instructions

7.4.7 Sampling ports

7.4.7.1 A sampling port must be designed, constructed, and installed to provide easy access for collecting a water sample from the effluent stream. The sampling port may be located within the ATU or other system component (such as a pump chamber) provided that the wastewater stream being sampled is representative of the effluent stream from the ATU.

~~For ATUs using effluent disinfection to meet the fecal coliform criteria, the sampling port must be located downstream of the disinfection component (including the contact chamber if chemical disinfection is used) so that samples will accurately reflect disinfection performance.~~

7.4.7.2 Sampling ports must be protected against unauthorized intrusion, as described in 7.4.6. ~~20.4.2~~.

~~Design of the disposal component~~

~~20.8.1 If using soil absorption for disposal, the size of the effluent absorption area must be the same as for a standard absorption trench system. . No reduction in absorption system area may be allowed. If monitoring data is collected as required in 20.3.4, and that data clearly indicates the following effluent quality parameters are met, the absorption system size may be reduced by 50 percent:~~

~~BOD_5 – 30-day average of less than 10 mg/L~~
~~TSS – 30-day average of less than 10 mg/L~~
~~Fecal coliform – 30-day geometric mean less than 800 coliform/100 ml~~

~~If an absorption system size reduction is allowed, adequate space must still be provided for an absorption area (and replacement area) large enough for a standard absorption trench system.~~

7.4.8 A detailed set of plans and specifications and an operation and maintenance ~~manual~~ plan are required. The operation and maintenance plan must meet the requirements outlined in Appendix D.

~~20.9.1 Service-related obligations~~

~~20.9.1.1 In the event that a mechanical or electrical component of the ATU requires off-site repair, the local authorized representative must maintain a stock of mechanical and electrical components that can be temporarily installed until repairs are completed if repairs are expected to render the unit inoperable for longer than 24 hours.~~

~~20.9.1.2 Emergency service must be available within 48 hours of a service request.~~

~~20.9.1.3 The ATU service provider must possess adequate knowledge and skill regarding on-site wastewater treatment, effluent disposal concepts, and system function. The service provider must be:~~

~~A. Product-certified by each manufacturer for any ATUs they intend to serve;~~

~~B. Able to provide documentation of product certification as evidence upon request, and~~

~~C. Able to demonstrate competency in the servicing (O & M) of on-site wastewater systems.~~

~~20.9.1.4 O & M service contracts establish the initial and on-going relationship between the O & M service provider and system owner. The service provider may be the ATU manufacturer/service representative of the system owner. The contract must identify the roles and responsibilities assigned to the service provider. The specifics of O & M service contracts may vary product-to-product and locality-to-locality, but all O & M service contracts must include information/conditions of agreement such as:~~

~~A. Owner's name and address;~~

~~B. Property address and legal description;~~

~~C. Local health department permit requirements;~~

~~D. Specific contracts/owner address, service provider, and local health department;~~

~~E. Detail of service to be provided;~~

~~F. Schedule of service provider duties;~~

~~G. Cost and length of service contract/time period;~~

~~H. Details of product warranty;~~

~~I. Owner's responsibilities under the contract and routine operation of the wastewater treatment and disposal system;~~

~~J. Document recording, such as notification to the mortgage-holder or attachment to the deed of trust.~~

~~20.9.1.5 O & M service record keeping and reports required for the local health jurisdiction must specify:~~

~~A. What data is to be reported,~~

~~B. To whom the reports are to be submitted,~~

~~C. The format for presenting information, and~~

~~D. The frequency of reporting.~~

7.5 CHEMICAL NUTRIENT-REDUCTION SYSTEMS

7.5.1 General

A means of securing continuous maintenance and operation of the system must be approved by the reviewing authority.

7.5.2 Design

Specific design criteria will not be outlined in this document due to the various alternatives and design complexity involved. The EPA manual, *On-Site Wastewater Treatment Systems Manual* (February 2002), pages TFS-41 to 52, will be used as a guideline for the design of these systems.

7.5.3 Maintenance and Operation

A detailed set of plans and specifications and an operation and maintenance ~~manual~~ plan are required. The operation and maintenance plan must meet the requirements outlined in Appendix D.

7.6 ALTERNATE ADVANCED TREATMENT SYSTEMS

7.6.1 General

Alternative advanced treatment systems will be evaluated by the reviewing authority on a case-by-case basis.

7.6.2 Design

Specific design criteria will not be outlined in this document due to the various alternatives and design complexity involved.

Those systems that provide documentation or demonstrate through a third independent party that the unit is able to meet the testing criteria and performance requirements for NSF Standard No. 40 for Class 1 certification or meet the testing requirements outlined in ARM 17.30.718 for 30 mg/L BOD and 30 mg/L TSS (testing for other continuants is not required) may apply the following sizing reduction to the subsurface absorption area:

A. For subsurface absorption systems constructed in soils with percolation rates between 3 and 50 minutes per inch as described in Chapter 2 and Appendix B, the final absorption are may be reduced by 50%;

B. For subsurface absorption systems constructed in soils with percolation rates between 51 and 120 minutes per inch as described in Chapter 2 and Appendix B, the final absorption area may be reduced by 25%.

A separate subsurface absorption replacement area, sized without reductions, must be designated for each site using an Alternative Advanced Treatment System.

7.6.3 Classification as a Level 1a, Level 1b, or Level 2 system for nutrient reduction under ARM 17.30.718 must be made under separate application. Additional design requirements may apply.

7.6.4 Maintenance and Operation

A detailed set of plans and specifications and an operation and maintenance plan are required. The operation and maintenance plan must meet the requirements outlined in Appendix D.

8. MISCELLANEOUS

8.1 HOLDING TANKS

8.1.1 General

Holding tanks are used to hold wastewater until pumping occurs by a licensed septic tank pumping service and wastewater is disposed at an approved location. They are used for retention and do not as part of their normal operation dispose of or treat the wastewater**.**

8.1.2 Holding tanks are septic tanks that have no standard outlets and are modified to provide full time access for pumping.

8.1.3 Holding tanks must have a minimum capacity of 1000 gallons. Larger tank capacity may be required by the reviewing authority. ~~as determined on a case by case basis~~.

8.1.4 Holding tanks must meet the construction standards for septic tanks ~~of~~ Chapter 5~~7~~ except that no outlet opening shall be cast in the tank walls~~. Holding tanks installed where the seasonal groundwater table may reach any portion of the tank must be a single pour (seamless) tank design.~~

8.1.5 Holding tanks must have an audible or visual warning alarm that signals when the tank level has reached 75 percent of capacity. The tank must be pumped as soon as possible after the alarm is triggered and before the tank reaches 100 percent capacity.

8.1.6 Holding tanks installed where the seasonal groundwater table may reach any portion of the tank must be a single pour (seamless) tank design, must be waterproofed against infiltration, and must be stabilized against flotation. ~~if the tank is installed where seasonal groundwater may reach any portion of the tank.~~

~~Holding tanks must be waterproofed against infiltration and exfiltration~~.

8.1.7 Holding tanks must meet the separation distances and other applicable requirements in ~~the subdivision and county minimum standard regulations,~~ ARM Title 17, Chapter 36, subchapters 3 or 9. ~~17.36.101 through 1107.~~

8.2 SEALED (VAULT) PIT PRIVY

8.2.1 General

A sealed pit privy is an underground vault for the temporary storage of non-water-carried wastewater. The vault must be pumped periodically and the wastewater disposed at a ~~secondary~~ treatment site.

8.2.2 Construction

8.2.2.1 The vault must be watertight, constructed of durable material and not subject to excessive corrosion, decay, frost damage or cracking.

8.2.2.2 The vault may be used in a floodplain or high groundwater area at public recreational facilities operated by governmental institutions provided that the floor surface is one foot above the floodplain elevation and the weight of the structure is adequate to prevent the vault from floating during high groundwater or a flood even when the vault is empty.

8.2.2.3 The access or pumping port should be located outside of any structure and should have a minimum diameter of 8 inches. This access must have a tight, locking lid.

8.2.2.4 The vault may be a modified septic tank with the inlet and outlet opening sealed. The toilet structure over the tank vault must meet construction standards for a pit privy.

8.2.3 Maintenance <u>and Operation</u>

The vault must be pumped ~~as needed~~ prior to reaching the maximum capacity of the tank, by a licensed septic tank pumper <u>and wastewater is disposed of at an approved location</u>.

8.3 UNSEALED PIT PRIVY

8.3.1 General

A pit privy is a building containing a stool, urinal or seat over an excavation in natural soil for the disposal of undiluted black wastes (toilet wastes). Pit privies ~~shall~~ may only serve structures that have no pumping fixtures or running water (piped water supply). Pit privies ~~are framed structures used for disposal of~~ wastewater and must meet the location requirements of ARM Title 17 Chapter 36 Subchapters 3 or 9. ~~black wastes (toilet wastes) that meet setback distances of standard absorption trench excavations.~~

8.3.2 Construction

8.3.2.1 Pit privies ~~shall~~ must be located to exclude surface water.

8.3.2.2 Pit privy buildings must be constructed with openings no greater than 1/16 inch to prohibit access to insects ~~with openings no greater than 1/16 inch~~.

8.3.2.3 The pit must be vented with a screened flue or vent stack having a cross sectional area of at least 7 inches per seat and extending at least 12 inches above the roof of the building.

8.3.2.4 The pit privy must be constructed on a level site with the base of the building being at least 6 inches above the natural ground surface as measured 18 inches from the sides of the building.

8.3.2.5 The bottom of the pit should be between three feet ~~(3' feet)~~ and six feet ~~(6' feet)~~ below the original ground surface.

8.3.3 Abandoning Pit Privies

8.3.3.1 A pit privy should be abandoned when the waste comes within 16 inches of the ground surface.

8.3.3.2 A pit privy building should be either dismantled or moved to cover a new pit.

8.3.3.3 The pit ~~shall~~ must be filled with soil, free of rock, with sufficient fill material to allow for 12 inches or more of settling. The site ~~shall~~ must be marked.

8.4 SEEPAGE PITS

8.4.1 General

Seepage pits may be used for replacement systems only ~~and may not be constructed in unstabilized fill.~~ Seepage pits are excavations in which a subsurface concrete ring(s) is placed in drain rock ~~is placed and filled around the concrete ring with drain rock~~ to receive effluent from the septic tank.

8.4.2 Design

8.4.2.1 Seepage pits ~~shall~~ must be sized according to the permeability of the vertical stratum where wastewater will contact the soils.

8.4.2.2 A seepage pit that is excavated to a four-foot depth and a five-foot diameter s~~hall~~ must be equivalent to 50 square feet of absorption area.

8.4.2.3 A seepage pit ~~shall~~ must have a concrete ring with a minimum diameter of three feet and a minimum height of 3.5 feet. Concrete rings ~~can~~ may be stacked to provide for additional absorption area.

8.4.2.4 The seepage pit s~~hall~~ must have six inches of drain rock placed in the bottom of the excavation for bedding.

8.4.2.5 The concrete ring ~~shall~~ must have a minimum of one foot of drain rock placed on the outside of the ring. A concrete lid shall be installed on each concrete ring or on the top-most concrete ring if stacked.

8.4.2.6 Schedule 40 piping, or equivalent strength, ~~shall~~ must be used to connect the septic tank or the distribution box to the concrete ring(s).

8.4.2.7 Drain rock must be covered with geofabric or synthetic drainage fabric, or if geofabric is unavailable, a straw layer of at least five inches in depth.

8.4.2.8 Effluent distribution to multiple seepage pits ~~shall~~ must use a distribution box.

8.4.2.9 Seepage pits ~~shall~~ must not be installed in soils that have percolation rates greater than 60 minutes per inch.

8.5 WASTE SEGREGATION

8.5.1 General

Waste segregation systems consist of dry disposal for human waste, such as various biological or composting and incinerator type systems, with separate disposal for gray water.

8.5.2 A complete layout must be provided showing the location of the absorption system and 100 percent replacement site or an alternate approved wastewater treatment system for future development needs.

8.5.3 Design

This Circular addresses the specific requirements relating to the use of composting and incinerating toilets. The reviewing authority may allow the use of other designs and materials pursuant to the review of manufacturer's information and data to substantiate the proposed alternative.

8.5.3.1 Composting Toilets

A. Composting toilets must either provide documentation or demonstrate through a third independent party that the unit is able to meet the testing criteria and performance requirements for NSF Standard 41.

B. All materials used must be durable, easily cleanable, and impervious to strong acid or alkaline solutions and corrosive environments.

C. Composting toilets must be used in accordance with the manufacturer's recommendation to serve the anticipated number of persons.

D. The composting unit must be constructed to separate the solid fraction from the liquid fraction and produce a stable humus material with less than 200 MPN per gram of fecal coliform.

E. Bulking agents may be added to provide spaces for aeration and microbial colonization.

F. When operated at the design rated capacity, the device must be capable of accommodating full or part-time usage.

G. Continuous forced ventilation to the outside (e.g. electric fan or wind-driven turbo vent) of the storage or treatment chamber must be provided to the outside. Ventilation components must be independent of other household venting systems. Venting connections must not be made to room vents or to chimneys. All vents must be designed to prevent flies and other insects from entering the treatment chamber. Vent conduits and pipes must be adequately insulated to prevent the formation of interior condensed vapors.

H. Components in which biological activity is intended to occur must be insulated, heated, or otherwise protected from low temperature conditions. In order to maintain the stored wastes at temperatures conducive to aerobic biological decomposition it is recommended that the components maintain a temperature range of 20° C - 55° C (68° F - 130° F). The device must be capable of maintaining wastes within a moisture range of 40% to 75%.

I. The device must be designed to prevent the deposition of inadequately treated waste near the clean out port. The solid end product (i.e. waste humus) must be stabilized to meet NSF (National Sanitation Foundation) criteria prior to removal at the clean-out port.

J. Any liquid overflow must be discharged to a disposal field designed and approved in accordance with this Circular.

K. The contents of a composting toilet shall be removed and disposed of in compliance with 40 CFR Part 503 and ARM Title 75 Chapter 10.

L. The owner of composting toilet shall maintain the waste disposal system.

8.5.3.2 Incinerating Toilets

A. Incinerating toilets may be electric or gas-fired.

B. Incinerating toilets must either provide documentation or demonstrate through a third independent party that the unit is able to meet the testing criteria and performance requirements for NSF Standard 41.

C. Incinerating toilets must be used in accordance with the manufacturer's recommendation to serve the anticipated number of persons.

D. All gas fired incinerating toilets must be plumbed and installed as per manufactures recommendation and local requirements.

E. An anti-foaming agent may be added to incinerating toilets to prevent boil-over of liquid waste.

F. When operated at the design rated capacity, the device must be capable of accommodating full or part-time usage.

G. The contents of an incinerating toilet must be removed and disposed of in compliance with 40 CFR Part 503 and Title 75 Chapter 10, Part 2 MCA.

H. Vapor and products of combustion must be vented. Ventilation components must be independent of other household venting systems.

I. Incinerating toilets must be installed and operated in accordance with local air pollution requirements.

J. The owner of an incinerating toilet shall maintain the waste disposal system.

8.6 EXPERIMENTAL SYSTEMS

8.6.1 General

Treatment systems not listed in this Circular may receive a waiver for use as experimental systems. Experimental systems ~~must only~~ may be considered only under the following conditions:

8.6.1.1 The applicant ~~must~~ shall provide adequate information to the reviewing authority that ensures the system will effectively treat the wastewater in a manner that will prevent ground water contamination and will meet all of the requirements of ARM Title 17, Chapter 36, subchapter 9~~. Failure to meet the requirements of ARM Title 17, chapter 36, subchapter 9 or any waiver, deviation, or variance conditions shall invalidate the approval and be grounds to order cessation of use of the system and buildings that the system serves.~~

8.6.1.2 The applicant ~~must~~ shall include a complete description of a scientific evaluation process to be carried out by a scientific, educational, governmental, or engineering organization.

8.6.1.3 The applicant ~~must~~ shall provide for any funding necessary to provide adequate design, installation, monitoring, and maintenance.

8.6.1.4 A professional engineer, sanitarian, or other professional acceptable to the reviewing authority shall design the system. ~~The system must be designed by a professional engineer, sanitarian, or other professional acceptable to the reviewing authority.~~

8.6.2 The reviewing authority may place any requirements or restriction it deems necessary on an experimental system. All requirements for conventional systems must apply to experimental systems except those specifically exempted by ~~the~~ waiver. ~~An approval to construct an experimental system is not transferable from person to person.~~ Applicants ~~must~~ shall provide for inspections to be made by persons acceptable to the reviewing authority. Monitoring and inspections must be conducted as required by the reviewing authority. The monitoring and inspection results must be submitted to the reviewing authority. The reviewing authority may require that a redundant system (i.e., a system that meets the requirements of another chapter of this Circular) be installed in parallel with the experimental system.

8.6.3 Any person who sells a property containing an experimental system ~~must~~ shall disclose all permit, monitoring, and maintenance requirements to the buyer.

8.6.4 Maintenance and Operation

8.6.4.1 Continuous maintenance and operation must be provided for the life of the system by a management entity acceptable to the reviewing authority. The type of entity

required and the degree of management ~~will~~ must be commensurate with the complexity of the system and the site conditions.

8.6.4.2 The management entity ~~must~~ shall be responsible for monitoring the operation of the system.

8.6.4.3 Frequent inspections (as determined by the reviewing authority) of the mechanical equipment must be provided during the first 90-day start-up period.

8.6.4.4 The routine inspection schedule must be quarterly at a minimum.

8.6.4.5 Records, both of maintenance and performance, must be kept and made available to the reviewing authority upon request. ~~submitted annually to the reviewing authority department.~~

8.6.4.6 All manufacturers of experimental systems ~~must~~ shall provide a ~~maintenance and~~ operation and maintenance plan in accordance with Appendix D. ~~which must be followed. The manual must also contain detailed instructions on proper operation and maintenance procedures, including safety, a replacement parts list, public health considerations, limitations of the unit, detection of a malfunction, and expectations from a well functioning unit.~~

~~Notification to the service provider and the local health department must be made within two business days if, for some reason, a unit fails to function properly.~~

8.6.5 ~~Advance treatment~~

8.6.5.1 ~~Unless otherwise addressed by rule for level 2 treatment, If the experimental system is intended to attain a higher level of treatment than a septic tank, monitoring data must be submitted from at least three existing systems operation in similar climates and treating wastewater similar in characteristics to that to be treated. Monitoring must include a least six cumulative years of data, with one system being in operation at least three years. Minimum data submitted must include information on time to reach steady-state conditions, required maintenance and operation, average daily flow, and influent and effluent values for each parameter. Sample analysis is to be done by an independent laboratory.~~

~~22.5.1 The monitoring frequency must be sufficient to establish the treatment efficiency and response to varying wastewater flows, strengths, and climatic conditions.~~

~~22.5.2 The Department will consider the complexity and maintenance required of the system, the stability of the processes, and the monitoring data in determining the adequacy, level of maintenance, and monitoring frequency of the system.~~

APPENDIX A- PERCOLATION TEST PROCEDURE

Properly conducted percolation tests are needed to determine absorption system site suitability and to size the absorption system. Percolation tests must be conducted within the boundary of the proposed absorption system. The percolation test must be completed by a qualified site evaluator as defined in Section 1.2.68 ~~individual~~ approved by the reviewing authority.

Test hole preparation

1. Dig or bore holes 6 to 8 inches in diameter, with a maximum size of 10 inches, with vertical sides. The depth of the holes must be at the approximate depth of the proposed absorption trenches, typically 24 inches below ground. If hole is larger than 6 to 8 inches, place a piece of 4-inch diameter, perforated pipe inside the hole, and fill the space between the pipe and the walls of the hole with drain rock. It is recommended that a sketch or photograph of the hole be provided to the reviewing authority.

2. Roughen or scratch the bottoms and sides of the holes to provide natural unsmeared surfaces. Remove loose material. Place about 2 inches of ¾-inch washed gravel in the bottom of holes to prevent scouring during water addition.

3. Establish a reference point for measurements in or above each hole.

Soaking

1. Fill holes with clear water to a level at least 12 inches above the gravel.

2. If the soil is coarser than sandy clay loam and the first 12 inches of water seeps away in 60 minutes or less, add 12 inches of water a second time. If the second filling seeps away in 60 minutes or less, the percolation test should be run in accordance with the sandy soil test; proceed immediately with that test. If both the first and second fillings have percolation rates faster than 3 minutes per inch, and the test may be stopped.

3. If either the soil is sandy clay loam or finer; or the first 12 inches or the second 12 inches does not seep away in 60 minutes, the percolation test must be run in accordance with the test for other soils. In these other soils, maintain at least 12 inches of water in the hole for at least 4 hours to presoak the hole.

Test

1. This test is applicable to sandy soils only (percolation rate of 10 minutes per inch or faster)

   Add water to provide a depth of 6 inches above gravel. Measure water level drop at least four times, in equally spaced intervals, in a 1 hour time period. Measure to nearest ¼

inch. Refill to 6-inch depth after each measurement. Do not exceed 6-inch depth of water. Use final water-level drop to calculate rate.

2. Other soils (percolation rate slower than 10 minutes per inch).

   Remove loose material on top of gravel. Add water to provide a depth of 6 inches above gravel. Measure water levels for a minimum of 1 hour. A minimum of four measurements must be taken. The test must continue until two successive readings yield percolation rates that do not vary by more than 15 percent, or until measurements have been taken for four hours. Do not exceed 6-inch depth of water. Use final water-level drop to calculate rate.

Records

Record the following information on the attached form, and include as part of the application:

- Date(s) of test(s),
- Location, diameter, and depth of each test hole,
- Time of day that each soak period began and ended,
- Time of day for beginning and end of each water-level drop interval,
- Each water-level drop measurement,
- Calculated percolation rate,
- Name and signature of person performing test,
- Name of owner or project name.

Rate Calculation

Percolation Rate = Time interval in minutes/Water-level drop in inches

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
PERCOLATION TEST FORM

Owner Name _____

Project Name _____

Lot of Tract Number _____ Test Number _____

Diameter of Test Hole _____ Depth of Test Hole _____

Date and Time Soak Period Began _____ Ended _____

Date Test Began _____

Distance of the reference point above the bottom of the hole _____

Test Results

Start Time of Day	End Time of Day	Time Interval (Minutes)	Initial Distance Below Reference Point	Final Distance Below Reference Point	Drop in Water Level (inches)	Percolation Rate (minutes/inch)

I certify that this percolation test was done by a qualified site evaluator in accordance with DEQ-4, Section 1.2.68 and Appendix A.

_____ _____ _____
Name (printed) Signature Date

_____
Company

~~PERCOLATION TEST PROCEDURE II~~

~~The consultant may use either or both tests in choosing the value used in site evaluation. The results of all tests must be reported in the application, and the procedure used must be specified. Test Procedure II requires substantially more data be obtained at well-defined intervals. If this information is not properly obtained, the results are not valid and will not be accepted. The percolation test must be completed by an individual approved by the reviewing authority.~~

~~*Note*: This test is run without a pre-soak time period, therefore results can be obtained in a shorter time period.~~

~~Depth of tests~~

~~Tests must be taken entirely within the most dense, least permeable soil identified at the approximate depth of the absorption trench, as identified from the test pit(s) on the site.~~

~~Type of test hole~~

~~The test hole must be unlined, shaped like a vertically oriented cylinder with a diameter of 6 to 8 inches.~~

~~Preparation of test hole~~

~~Using a sharp instrument, carefully scrape the side walls of the hole to remove any smeared surface. This is particularly important in soils having a significant silt or clay content. Place 1 inch of clean fine to medium gravel in the bottom of the hole to reduce scouring. After this process the evaluator may place a perforated pipe at least 4 inches in diameter in the center of the hole and surround it with the same gravel that is in the bottom. This must be done if the type of test hole required above cannot be constructed. This process will help keep the side walls from falling and causing the bottom to clog. When possible, instead of pouring water directly from a bucket into the hole, use a hose to siphon water out of a suitably located reservoir; this will provide a higher degree of control over the rate of water entering the hole, thereby minimizing scouring.~~

~~Percolation test measurements~~

~~To begin the test, fill the hole with water up to a level 6 inches above the stone and allow it to drop the distance specified in the table below for seven consecutive runs. After each run, bring the water up to the 6-inch level. The time of each run, the refill time between each run, and the total elapsed time must be accurately recorded.~~

	~~Soil Texture~~		
	~~Coarse to Medium Sand~~	~~Fine Sand to Silt Loam~~	~~Silts to Clay Loam~~
~~Anticipated Percolation Rate (min/inch)~~	~~1-10~~	~~10-60~~	~~60-120~~

Drop (inches)	2	1	0.5

Determining the percolation rate

The rate of drop for each run is plotted on graph paper, with logarithmic scales on both axes (log/log graph paper) against the cumulative time of the seven runs, including the refill time. The best straight line is fitted to the seven data points and extrapolated out to one day (1,440 minutes) of cumulative time. The rate of drop after 1,440 minutes is the percolation rate. A mathematical computation of the line of best fit of the seven or more data values may be used in lieu of the graphical method. The reviewing authority may require the mathematical computation of the line of best fit.

A typical data sheet is shown below, with units for each column noted below the table.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				t	T	H	
Test #	Time @ Begin of Test Run	Time @ End of Test Run	Fill Time (sec)	Time for Specific Drop (mm)	Total Time Since Start of Test (min)	Total Drop Since Start of Test (inches)	dT/dH min/inch
1	3:32:15	3:36:00	30	3.75	3.75	2	1.88
2	3:36:30	3:41:15	45	5.25	9.00	4	2.25
3	3:42:00	3:48:00	10	6.75	15.75	6	2.63
4	3:48:10	3:55:15	45	7.25	23.00	8	2.88
5	3:56:00	4:03:30	30	7.25	30.25	10	3.03
6	4:04:00	4:11:45	35	8.25	38.50	12	3.21
7	4:12:20	4:20:45		9.00	47.50	14	3.39

Common units:
Number of test cycle (show all if more were run)
Start of test periods in hours, minutes, seconds
End of test periods in hours, minutes, seconds
Time to refill the test hole with water (seconds)
t – time in minutes to drop the predetermined distance for the test period
T – total cumulative time in minutes since the start of the first test
H – total measured drop in inches of water in the test hole since the start of the test
dT/Dt – the rate of water drop in minutes per inch

Test results

Based on the graphical plot show below, the percolation rate at 1,440 minutes is about 7.5 minutes per inch. This is the design percolation rate.

Delete graph

APPENDIX B - SOILS AND SITE CHARACTERIZATION

Accurate description of soil types must be based on information within Appendix B for evaluating the soils in the area of proposed absorption system to determine if suitable conditions for wastewater treatment and disposal exist. Appendix B provides guidance for reporting soil characteristics using terminology generally accepted by the field of soil science. Application rate for wastewater treatment and disposal is based on soil characteristics using this terminology and the relative proportions of Sand, Silt and Clay within a soil matrix.

~~Definitions~~

~~Bedrock means material that cannot readily (easily) be excavated by~~ hand tools ~~power equipment, or material that is jointed, fractured, or has cohesive structure that does not allow water to pass through or has insufficient quantities of fines (less than 10%) within fractures or layers to allow~~ to provide ~~for the adequate treatment~~ and disposal ~~of wastewater.~~

~~Escarpment means any slope greater than 50 percent, which extends vertically 6 feet or more as measured from toe to top.~~

~~Limiting layer means bedrock, an impervious layer or seasonally high ground water.~~

~~Horizon means a layer in a soil profile that can be distinguished from each of the layers directly above and beneath it by having distinctly different soil physical, chemical, and/or biological characteristics.~~

~~Mottling or redoximorphic features means soil properties associated with wetness that results from the reduction and oxidation of iron and manganese compounds in the soil after saturation with water and desaturation, respectively.~~

~~Natural soil means soil that has developed in place through natural processes, and where no fill material had been added.~~

~~Plasticity means the ability of a soil sample to be rolled into a wire shape with a diameter of 3 mm without crumbling.~~

~~Seasonally high ground water means the minimum depth, at any season of the year, to the upper surface of the zone of saturation, measured from the ground surface, as measured in an unlined hole or perforated monitoring well during the time of year when the water table is the highest. The term includes the upper surface of a perched water table.~~

~~Slope means the rate that a ground surface declines in feet per 100 feet. It is expressed as percent of grade.~~

~~Soil profile means a description of the soil strata to a depth of 7 to 10~~ eight ~~feet using the USDA soil classification system.~~

~~Soil consistence means attributes of soil material as expressed in degree of cohesion and adhesion or in resistance to deformation on rupture. For the purposes of this Circular consistence includes: (1) resistance of soil material to rupture, (2) resistance to penetration, (3) plasticity, toughness, and stickiness of puddled soil material, and (4) the manner in which the soil material behaves when subject to compression. Although several tests are described, only those should be applied which may be useful.~~

~~Soil texture means the amount of sand, silt, or clay, measured separately in soil mixture~~.

Soil Texture

Soil texture refers to the weight proportion of the separates for particles less than 2 mm, ~~as determined from a laboratory particle-size distribution. Field estimates should be checked against laboratory determinations, and field criteria should be adjusted as necessary.~~ Field criteria for estimating soil texture must be chosen to fit the soils of the area. Sand particles feel gritty and can be seen individually with the naked eye. Silt particles cannot be seen individually without magnification; they have a smooth feel to the fingers when dry or wet. In some places, clay soils are sticky; in others, they are not. Soils dominated by montmorillonite clays, for example, feel different than soils that contain similar amounts of micaceous or kaolinitic clay. Field estimates of soil texture should be checked against laboratory determinations, and field criteria should be adjusted as necessary when soil texture cannot be identified.

Definitions of the soil texture classes according to distribution of size classes of mineral particles less than 2 mm in diameter are as follows:

Sands: 85 percent or more sand and the percentage of silt plus 1.5 times the percentage of clay is 15 or less.

> Coarse sand: 25 percent or more very coarse and coarse sand and less than 50 percent any other single grade of sand.
>
> Sand: 25 percent or more very coarse, coarse, and medium sand (but less than 25 percent very coarse and coarse sand) and less than 50 percent either fine sand or very fine sand.
>
> Fine sand: 50 percent or more fine sand; or less than 25 percent very coarse, coarse, and medium sand and less than 50 percent very fine sand.
>
> Very fine sand: 50 percent or more very fine sand.

Loamy sands: At the upper limit, 85 to 90 percent sand and the percentage of silt plus 1.5 times the percentage of clay is 15 or more; at the lower limit, 70 to 85 percent sand and the percentage of silt, plus twice the percentage of clay, is 30 or less.

Loamy coarse sand: 25 percent or more very coarse and coarse sand and less than 50 percent any other single grade of sand.

Loamy sand: 25 percent or more very coarse, coarse, and medium sand (but less than 25 percent very coarse and coarse sand) and less than 50 percent either fine sand or very fine sand.

Loamy fine sand: 50 percent or more fine sand; or less than 50 percent very fine sand and less than 25 percent very coarse, coarse, and medium sand.

Loamy very fine sand: 50 percent or more very fine sand.

Sandy loams: 20 percent or less clay and 52 percent or more sand and the percentage or silt plus twice the percentage of clay exceeds 30; or less than 7 percent clay, less than 50 percent silt, and between 43 and 52 percent sand.

Coarse sandy loam: 25 percent or more very coarse and coarse sand and less than 50 percent any other single grade of sand.

Sandy loam: 30 percent or more very coarse, coarse, and medium sand (but less than 25 percent very coarse and coarse sand) and less than 30 percent either fine sand or very fine sand.

Fine sandy loam: 30 percent or more fine sand and less than 30 percent; or between 15 to 30 percent very coarse, coarse, and medium sand; or more than 40 percent fine and very fine sand, at least half of which is fine sand, and less than 15 percent very coarse, coarse, and medium sand.

Very fine sandy loam: 30 percent or more very fine sand; or more than 40 percent fine and very fine sand, at least half of which is very fine sand, and less than 15 percent very coarse, coarse, and medium sand.

Loam: 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.

Silt loam: 50 percent or more silt and 12 to 27 percent clay; or 50 to 80 percent silt and less than 12 percent clay.

Silt: 80 percent or more silt and less than 12 percent clay.

Sandy clay loam: 20 to 35 percent clay, less than 28 percent silt, and 45 percent or more sand.

Clay loam: 27 to 40 percent clay and 20 to 45 percent sand.

Silty clay loam: 27 to 40 percent clay and less than 20 percent sand.

Sandy clay: 35 percent or more clay and 45 percent or more sand.

Silty clay: 40 percent or more clay and 40 percent or more silt.

Clay: 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Necessarily these verbal definitions are somewhat complicated. The texture triangle is used to resolve problems related to word definitions. The eight distinctions in the sand and loamy sand groups provide refinement greater than can be consistently determined by field techniques. Only those distinctions that are significant ~~to use and management~~ and that can be consistently made in the field should be applied.

Particle size distribution

Particle-size distribution (fine earth or less than 2 mm) is determined in the field mainly by feel. The content of rock fragments is determined by estimating the proportion of the soil volume that they occupy.

Soil

The United States Department of Agriculture uses the following size separates for the <2-mm mineral material:

Very coarse sand: 2.0 – 1.0 mm
Coarse sand: 1.0 – 0.5 mm
Medium sand: 0.5 – 0.25 mm
Fine sand: 0.25 – 0.10 mm
Very fine sand: 0.10 – 0.05 mm
Silt: 0.05 – 0.002 mm
Clay: <0.002 mm

The texture classes are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. Subclasses of sand are subdivided into coarse sand, sand, fine sand, and very fine sand. Subclasses of loamy sands and sandy loams that are based on sand size are named similarly.

Rock fragments

Rock fragments are unattached pieces of rock 2 mm in diameter or larger that are strongly cemented or more resistant to rupture. Rock fragments include all sizes that have horizontal dimensions less than the size of a pedon.

Rock fragments are described by size, shape, and, for some, the kind of rock. The classes are pebbles, cobbles, channers, flagstones, stones, and boulders. If a size or range of sizes

predominates, the class is modified, as for example: "fine pebbles," "cobbles 100 to 150 mm in diameters," "channers 25 to 50 mm in length."

Gravel is a collection of pebbles that have diameters ranging from 2 to 75 mm. The terms "pebble" and "cobble" are usually restricted to rounded or subrounded fragments; however, they can be used to describe angular fragments if they are not flat. Words like chert, limestone, and shale refer to a kind of rock, not a piece of rock. The upper size of gravel is 3 inches (75 mm). The 5-mm and 20-mm divisions for the separation of fine, medium, and coarse gravel coincide with the sizes of openings in the "number 4" screen (4.76 mm) and the "3/4 inch" screen (19.05 mm) used in engineering.

The 75-mm (3-inch) limit separates gravel from cobbles. The 250-mm (10-inch) limit separates cobbles from stones, and the 600-mm (24-inch) limit separates stones from boulders. The 150-mm (channers) and the 380-mm (flagstones) limits for thin, flat fragments follow conventions used for many years to provide class limits for plate-shaped and crudely spherical rock fragments that have about the same soil use implications as the 250-mm limit for spherical shapes.

Rock fragments in soil

The adjectival form of a class name of rock fragments (Table B-1 C-1) is used as a modifier of the textural class name: "gravelly loam," "stony loam." The following classes, based on volume percentages, are used:

Less than 15 percent: No adjectival or modifying terms are used in writing for contrast with soils having less than 15 percent pebbles, cobbles, or flagstones. The adjective "slightly" may be used; however, to recognize those soils used for special purposes.

15 to 35 percent: The adjectival term of the dominant kind of rock fragment is used as a modifier of the textural terms: "gravelly loam," "channery loam," "cobbly loam."

35 to 60 percent: The adjectival term of the dominant kind of rock fragment is used with the word "very" as a modifier of the textural term: "very gravelly loam," "very flaggy loam."

More than 60 percent: If enough fine earth is present to determine the textural class (approximately 10 percent or more by volume), the adjectival term of the dominant kind of rock fragment is used with the word "extremely" as a modifier of the textural term: "extremely gravelly loam," "extremely bouldery loam." If there is too little fine earth to determine the textural class (less than about 10 percent by volume), they term "gravel," "cobbles," "stones," or "boulders" is used as appropriate.

The class limits apply to the volume of the layer occupied by all pieces of rock larger than 2 mm. The soil generally contains fragments smaller or larger than those identified in the term. For example, a stony loam usually contains pebbles, but "gravelly" is not mentioned in the name. The use of a term for larger pieces or rock, such as boulders does not imply that the pieces are entirely within a given soil layer. A simple boulder may extend through several layers.

Table B-1
Terms for Rock Fragments

Shape and size	**Noun**	**Adjective**
Spherical, cubelike, or equiaxial:		
2-75 mm diameter	Pebbles	Gravelly
2-5 mm diameter	Fine	Fine gravelly
5-20 mm diameter	Medium	Medium gravelly
20-75 mm diameter	Coarse	Coarse gravelly
75-250 mm diameter	Cobbles	Cobbly
250-600 mm diameter	Stones	Stony
> 600 mm diameter	Boulders	Bouldery
Flat:		
2-150 mm long	Channers	Channery
150-380 mm long	Flagstones	Flaggy
380-600 mm long	Stones	Stones
> 600 mm long	Boulders	Bouldery

Table B-2
Classes of Surface Stones and Boulders in Terms of Cover and Spacing

Class	**Percentage of surface covered**	**Distance in meters between stones or boulders if the diameter is:**			Name
		0.25m1	**0.6m**	**1.2m**	
1	0.01 – 0.1	>8	>20	>37	Stony or bouldery
2	0.1 – 3.0	1 – 8	3 – 20	6 – 37	Very stony or very bouldery
3	3.0 – 15	0.5 – 1	1 –3	2 - 6	Extremely stony or extremely bouldery
4	15 – 50	0.3 – 0.5	0.5 – 1	1 – 2	Rubbly
5	50 – 90	<0.3	<0.05 – 1	<1	Very rubbly

10.38 m if flat

Soil Color

Elements of soil color descriptions are the color name, the Munsell notation, the water state, and the physical state: "brown (10YR 5/3), dry, crushed, and smoothed."

Physical state is recorded as broken, rubbed, crushed, or crushed and smoothed. The term "crushed" usually applies to dry samples and "rubbed" to moist samples. If unspecified, the surface is broken. The color of the soil is recorded for a surface broken through a ped, if a ped can be broken as a unit.

The color value of most soil material becomes lower after moistening. Consequently, the water state of a sample is always given. The water state is either "moist" or "dry." The dry state for color determinations is air-dry and should be made at the point where the color does not change with additional drying. Color in the moist state is determined on moderately moist or very moist soil material and should be made at the point where the color does not change with additional moistening. The soil should not be moistened to the extent that glistening takes place, as color determinations of wet soil may be in error because of the light reflection of water films.

Munsell notation is obtained by comparison with a Munsell system color chart. The most commonly used chart includes only about one-fifth of the entire range of hues. It consists of about 250 different colored papers, or chips, systematically arranged on hue cards according to their Munsell notations.

The Munsell color system uses three elements of color – hue, value, and chroma – to make up a color notation. The notation is recorded in the form: hue, value/chroma – for example, 5Y 6/3.

> *Hue* is a measure of the chromatic composition of light that reaches the eye. The Munsell system is based on five principle hues: red (R), yellow (Y), green (G), blue (B), and purple (P). Five intermediate hues representing midpoints between each pair of principle hues complete the 10 major hue names used to describe the notation. The intermediate hues are yellow-red (YR), green-yellow (GY), blue-green (BG), purple-blue (PB), and red-purple (RP).
>
> *Value* indicates the degree of lightness or darkness of a color in relation to a neutral gray scale. On a neutral gray (achromatic) scale, value extends from pure black (0/) to pure white (10/). The value notation is a measure of the amount of light that reaches the eye under standard lighting conditions.
>
> *Chroma* is the relative purity or strength of the spectral color. Chroma indicates the degree of saturation of neutral gray by the spectral color. The scales of chroma for soils extend from /0 to a chroma of /8 as the strongest expression of color used for soils.

Conditions for Measuring Color

The quality and intensity of the light affect the amount and quality of the light reflected from the sample to the eye. The moisture content of the sample and the roughness of its surface affect the light reflected. The visual impression of color from the standard color chips is accurate only under standard conditions of light intensity and quality. Color determination may be inaccurate early in the morning or late in the evening. When the sun is low in the sky or the atmosphere is smoky, the light reaching the sample and the light reflected is redder. Even though the same kind of light reaches the color standard and the sample, the reading of sample color at these times is commonly one or more intervals of hue redder than at midday. Colors also appear different in the subdued light of a cloudy day than in bright sunlight. If artificial light is used, as for color determinations in an office, the light source used must be as near the white light of midday as possible. With practice, compensation can be made for the differences, unless the light is so subdued that the distinctions between color chips are not apparent. The intensity of incidental light is especially critical when matching soil to chips of low chroma and low value.

Roughness of the reflecting surface affects the amount of reflected light, especially if the incidental light falls at an acute angle. The incidental light should be as nearly as possible at a right angle. For crushed samples, the surface is smoothed; the state is recorded as "dry, crushed, and smoothed."

Recording guidelines

Uncertainty Under field conditions, measurements of color are reproducible by different individuals within 2.5 units of hue (one card) and 1 unit of value and chroma.

Dominant color The dominant color is the color that occupies the greatest volume of the layer. Dominant color (or colors) is always given first among those of a multicolored layer. It is judged on the basis of colors of a broken sample. For only two colors, the dominant color makes up more than 50 percent of the volume. For three or more colors, the dominant color makes up more of the volume of the layer than any other color, although it may occupy less than 50 percent.

Mottling refers to repetitive color changes that cannot be associated with compositional properties of the soil. Redoximorphic features are a type of mottling that is associated with wetness. A color pattern that can be related to the proximity to a ped surface of other organizational or compositional feature is not mottling. Mottle description follows the dominant color. Mottles are described by quantity, contrast, color, and other attributes in that order.

Quantity is indicated by three areal percentage classes of the observed surface:

Few: less than 2 percent,
Common: 2 to 20 percent, and
Many: more than 20 percent.

The notations must clearly indicate to which colors the terms for quantity apply.

Size refers to dimensions as seen on a plane surface. If the length of a mottle is not more than two or three times the width, the dimension recorded is the greater of the two. If the mottle is long and narrow, as a band of color at the periphery of a ped, the dimension recorded is the smaller of the two and the shape and location are also described. Three size classes are used:

Fine: smaller than 5 mm,
Medium: 5 to 15 mm, and
Coarse: larger than 15 mm.

Contrast refers to the degree of visual distinction that is evident between associated colors:

Faint: Evident only on close examination, faint mottles commonly have the same hue as the color to which they are compared and differ by no more than 1 unit of chroma or 2 units of value. Some faint mottles of similar but low chroma and value differ by 2.5 units (one card) of hue.

Distinct: Readily seen but contrast only moderately with the color to which they are compared. Distinct mottles commonly have the same hue as the color at which they are compared but differ by 2 to 4 units of chroma or 3 to 4 units of value; or differ from the color to which they are compared by 2 units (one card) of hue but by no more than 1 unit of chroma or 2 units of value.

Prominent: Contrast strongly with the color to which they are compared. Prominent mottles are commonly the most obvious color feature of the section described. Prominent mottles that have medium chroma and value commonly differ from the color to which they are compared by at least 5 units (two pages) of hue if chroma and value are the same; at least 4 units of value or chroma if the hue is the same; or at least 2 unit of chroma or 2 units of value if hue differs by 2.5 units (one card).

Contrast is often not a simple comparison of one color with another but is a visual impression of the prominence of the one color against a background commonly involving several colors.

Soil structure

Soil structure refers to units composed of primary particles. The cohesion within these units is greater than the adhesion among units. As a consequence, under stress, the soil mass tends to rupture along predetermined planes or zones. Three planes or zones, in turn, form the boundary. A structural unit that is the consequence of soil development is called a ped. The surfaces of peds persist through cycles of wetting and drying in place. Commonly, the surface of the ped and its interior differ as to composition or organization, or both, because of soil development.

Some soils lack structure and are referred to as structureless. In sturctureless layers or horizons, no units are observable in place or after the soil has been gently disturbed, such as by tapping a space containing a slice of soil against a hard surface or by dropping a large fragment on the ground. When structureless soils are ruptured, soil fragments, single grains, or both, result. Structureless soil material may be either single grain or massive. Soil material of single grains lacks structure. In addition, it is loose. On rupture, more than 50 percent of the mass consists of discrete mineral particles.

Some soils have simple structure, each unit being an entity without component smaller units. Others have compound structure, in which large units are composed of smaller units separated by persistent planes of weakness.

In soils that have structure, the shape, size, and grade (distinctness) of the units are described. Field terminology for soil structure consists of separate sets of terms designating each of the three properties, which by combination form the names for structure.

Shape

Several basic shapes of structural units are recognized in soils.

Platy: The units are flat and platelike. They are generally oriented horizontally. A special form, lenticular platy structure, is recognized for plates that are thickest in the middle and thin toward the edges.

Prismatic: The individual units are bounded by flat to rounded vertical faces. Units are distinctly longer vertically, and the faces are typically casts or molds of adjoining units. Vertices are angular or subrounded; the tops of prisms are somewhat indistinct and normally flat.

Columnar: The units are similar to prisms and are bounded by flat or slightly rounded vertical faces. The tops of columns, in contrast to those prisms, are very distinct and normally rounded.

Blocky: The units are block like or polyhedral. They are bounded by flat or slightly rounded surfaces that are casts of the faces of surrounding peds. Typically, blocky structural units are nearly equidimensional but grade to prisms and to plates. The structure is described as angular blocky if the faces intersect at relatively sharp angles; a subangular blocky if the faces are a mixture of rounded and plane faces and the corners are mostly rounded.

Granular: The units are approximately spherical or polyhedral and are bounded by curved or very irregular faces that are not casts of adjoining peds.

Size

Five classes are employed: very fine, fine, medium, coarse, and very coarse. The size limits differ according to the shape of the units. The size limit classes are given in Table B-3. The size limits refer to the smallest dimension of plates, prisms, and columns.

Table B-3
Size Classes of Soil Structure

	Shape of Structure			
Size Classes	**Platy1 mm**	**Prismatic & Columnar mm**	**Blocky mm**	**Granular mm**
Very Fine	<1	<10	<5	<1
Fine	1 – 2	10 – 20	5 – 10	1 – 2
Medium	2 – 5	20 – 50	10 – 20	2 – 5
Coarse	5 – 10	50 – 100	20 – 50	5 – 10
Very Coarse	>10	>100	>50	>10

1 In describing plates, “thin” is used instead of “fine” and “thick” instead of “coarse.”

Grade

Grade describes the distinctness of units. Criteria are the ease of separation into discrete units and the proportion of units that hold together when the soil is handled. Three classes are used:

Weak: The units are barely observable in place. When gently disturbed, the soil material parts into a mixture of whole and broken units and much material that exhibits no planes of weakness. Faces that indicate persistence through wet-dry-wet cycles are evident if the soil is handled carefully. Distinguishing structurelessness from weak structure is sometimes difficult. Weakly expressed structural units in virtually all soil materials have surfaces that differ in some way from the interiors.

Moderate: The units are well formed and evident in undisturbed soil. When disturbed, the soil material parts into a mixture of mostly whole units, some broken units, and material that is not in units. Peds part from adjoining peds to reveal nearly entire faces that have properties distinct from those of fractured surfaces.

Strong: The units are distinct in undisturbed soil. They separate cleanly when the soil is disturbed. When removed, the soil material separates mainly into whole units. Peds have distinctive surface properties.

Three terms for soil structure are combined in order (1) grade, (2) size, (3) shape. "Strong fine granular structure" is used to describe a soil that separates almost entirely into discrete units that are loosely packed, roughly spherical, and mostly between 1 and 2 mm in diameter.

Compound structure

Smaller structural units may be held together to form larger units. Grade, size, and shape are given for both, and the relationship of one set to the other is indicated: "strong medium blocks within moderate coarse prisms," or "moderate coarse prismatic structure parting to strong medium blocky."

Concentrations

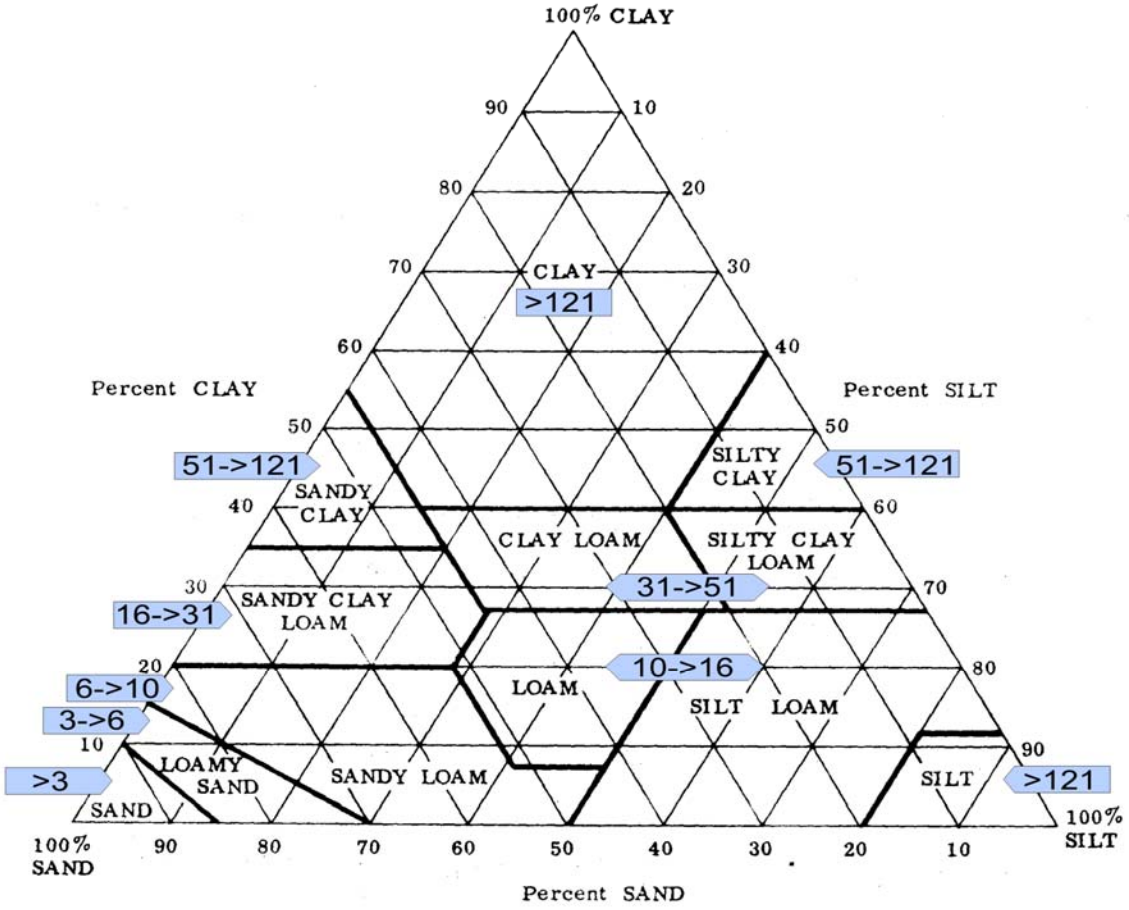
The features discussed here are identifiable bodies within the soil that were formed by pedogenesis. Some of these bodies are thin and sheetlike; some are nearly equidimensional; others have irregular shapes. They may contrast sharply with the surrounding material in strength, composition, or internal organization. Masses are non-cemented concentrations of substances that commonly cannot be removed from the soil as a discrete unit. Most accumulations consist of calcium carbonate, fine crystals of gypsum or more soluble salts, or iron and manganese oxides. Except for very unusual conditions, masses have formed in place.

Nodules and concretions are cemented bodies that can be removed from the soil intact. Composition ranges from material dominantly like that of the surrounding soil to nearly pure chemical substances entirely different from the surrounding material.

Concretions are distinguished from nodules on the basis of internal organization. Concretions have crude internal symmetry organized around a point, a line, or a plane. Nodules lack evident, orderly internal organization.

Textural Triangle

Soil Percolation Rate min/in



APPENDIX C - GROUND WATER OBSERVATION WELL INSTALLATION AND MEASURING PROCEDURES

Observation Schedule

Observation must be done during the time when ground water levels are highest. This is typically during spring runoff or during the irrigation period, but may also be at some other time during the year. Observation must be done weekly or more frequently during the appropriate periods of suspected high ground water. Observation must include at least two weeks of observation prior to and after the ground water peak, otherwise the reviewing authority may reject the results. The applicant is encouraged to consult with the state and/or county before installing wells. The monitoring of the observation well must be completed by an ~~individual~~ a qualified site evaluator as defined in Section 1.2.68 approved by the reviewing authority.

Surface water levels may be indicative of the ground water levels that may peak several weeks after spring runoff and irrigation seasons.

Local conditions may indicate that there is more than one geologic horizon that can become seasonally saturated. This may require observation wells to be installed at different horizons. The well should be placed in, but not extended through, the horizon that is to be monitored.

The reviewing authority may refuse to accept seasonal high ground water data when the total precipitation for the previous year (defined as May 1 of the previous year to April 30 of the current year), of April 1 snowpack equivalent, measured at the nearest officially recognized observation station, is more than 25 percent below the 30-year historical average. This is based upon the definition of drought conditions created by the National Drought Mitigation Center. The reviewing authority may consider soil morphology and data from nearby ground water observation sites with similar soil, geology, and proximity to streams or irrigation ditches, if available, to determine maximum ground water elevation during periods of drought.

Where to Install

The observation well(s) must be installed within 25 feet of the proposed absorption trench and on the same elevation. The reviewing authority may require the placement of the well(s) in an exact location. Additional observation wells may be required if the recommended observation sites show ground water higher than 6 feet below the ground surface.

Installation Process

The observation well must be installed vertically into a dug or drilled hole.

A slotted water well pipe should be used that is 2 to 4 inches in diameter and 10 feet long.

A. Slotted pipe (PVC is the most common material) with slot sizes between 40 and 100 (i.e. slot widths between 0.04 and 0.10 inches wide) is suggested. Slots should be horizontal and spaced at intervals less than or equal to 0.5 inches.

B. Check with the reviewing authority to determine if an alternate well material is acceptable.

The pipe should be perforated from 1 foot below ground surface to 8 feet below the ground surface unless multiple horizons exist.

The casing must be unperforated 1 foot below ground surface to the top of the observation well. The well must extend at least 2 feet above the ground surface.

The top of the observation well must be sealed with a watertight cap.

The area around the well must be backfilled with native material to 1 foot below ground surface.

The observation well must be sealed in such a manner that prevents surface runoff from running along the outside of the well casing. The well should be sealed from 1 foot below ground surface to slightly above grade to allow for subsidence and to maintain a positive ground slope away from well casing. The material used to seal the well can be either fine-grained material or bentonite.

Each observation well should be flagged to facilitate locating the well and labeled with the lot number, location, and subdivision name.

Measuring Procedures

Lower a measuring tape or stick to the water level and measure the distance from the water level to the top of the pipe (see example, the next page). Water levels should be measured to the nearest inch. A plunking device or electronic water sensor can also be used. Data should be submitted in a similar form to that of the example.

Measure the distance from the top of the pipe to the natural ground surface; this is B distance (see example). Then measure the distance from the top of the pipe to the water level; this is A (see example). Subtract B from A; this value equals the actual separation between the water table and the natural ground surface.

Decommissioning

The applicant should consult with the reviewing authority before decommissioning observation wells.

Ground Water Observation Results

Monitored By:

Location :

Section _____ Township_____ Range_____ Lot #_____

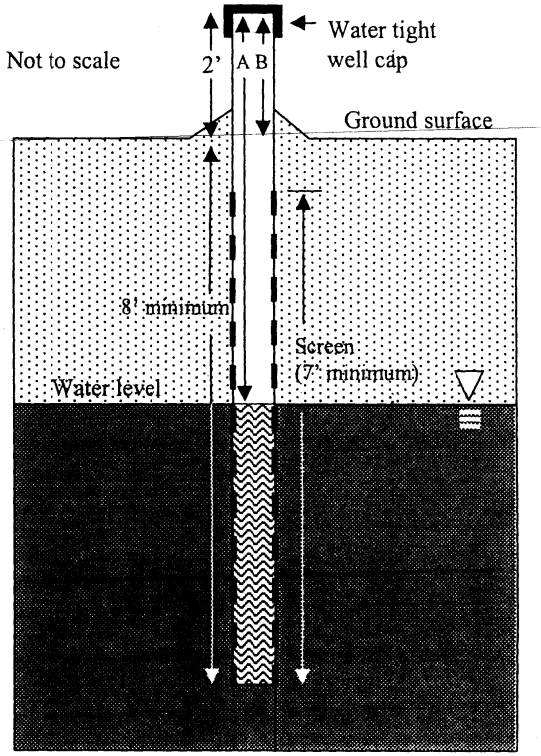
Observation Well # _____

Other Location Information:

A= Distance to top of casing to the ground water level in pipe (inches).
Note: If the observation pipe is dry, enter the total depth measured and "dry" in this column.
B= Distance from top of casing to the natural ground surface (inches).

Date	Time	A (inches)	B (inches)	A-B (inches)

Ground Water Observation Well Design



APPENDIX D - OPERATION AND MAINTENANCE PLAN

Continued service and maintenance of the wastewater system must be addressed for the life of the system by an approved operation and maintenance plan.

~~Wastewater treatment systems are to be operated and maintained in accordance with the manufacturer's instructions.unless a written exception to those procedures has been approved by the reviewing authority and the product manufacturer~~

The owner of the residence or facility ~~served by the system~~ is responsible for assuring proper operation and providing timely maintenance of the system. ~~unit~~. ~~The septic tank or other primary or settling tanks must be pumped as specified by manufacturer and in accordance with Chapter 7.The authorized representative for the system must instruct or assure that instruction regarding proper operation of the system is provided to the owner of the residence or facility.~~ A copy of the approved operation and maintenance plan must be given to the local health department for their files. Some health departments may require that this document be presented in electronic format. If observations reveal a system failure, absorption trench failure or history of ~~long-term, continuous, and increasing~~ effluent ponding within the absorption trench, the owner of the system must take appropriate action. ~~according to the direction and satisfaction of the reviewing authority, to alleviate the situation.~~ . Notification to the local health department and if appropriate, the service provider, must be made within two business days if any unit of the system fails to function properly.

~~Continued service and maintenance must be addressed for the life of the system by an operation plan~~

The reviewing authority will consider the complexity and maintenance required of the system along with the stability of the processes in determining the adequacy, level of maintenance, and monitoring frequency of the system. The monitoring frequency should be sufficient to establish the treatment efficiency and response to varying wastewater flows, strengths, and climatic condition.

The operation and maintenance plan must include the following: an owner's manual, a system installation manual, an operation and maintenance manual and as-built plans with the name of the designer and installer.

Owner's manual

A comprehensive owner's manual must be submitted to the reviewing authority and include: ~~for the wastewater system. The manual may be a collection of individual system component manuals. This document must include a system installation manual, an operation and maintenance manual, a troubleshooting and repair manual, and as-built plans with the name of the designer and installer.~~

~~The information in this manual must include:~~

A. A clear statement providing examples of the types of waste that can be effectively treated by the system;

B. Requirements for periodic removal of residuals from the system; the septic tank, grease trap or other settling tanks should be pumped as specified by manufacturer;

C. A course of action to be applied if the system will be used intermittently, or if extended periods of non-use are anticipated;

D. The name and telephone number of a service representative, pumpers and the local health department to be contacted in the event that the system experiences a problem; and

E. Description of the initial and extended service policies.

~~Emergency contact numbers for service providers, pumpers, the local health department, and the reviewing authority.~~

Installation manual

~~The~~ A comprehensive installation manual must be submitted to the reviewing authority and include:

A. A numbered parts list of system components with accompanying illustrations, photographs, or prints in which the components are respectively identified;

B. Design, construction, and material specifications for the system's components;

C. Schematic drawings of the system's electrical components;

D. A process overview explaining the function of each component and a description of how the entire system functions when all components are properly assembled and connected;

E. A clear description of installation requirements for, but not limited to, plumbing, electrical power, ventilation, air intake protection, bedding, hydrostatic displacement protection (floating in high ground water conditions), watertightness, slope, and miscellaneous fittings and appurtenances;

F. A sequential installation procedure from the residence out to the effluent discharge connection; and

G. A detailed start-up procedure.

Operations and maintenance manual

Comprehensive instruction in the operation and maintenance of the system must be provided to the reviewing authority and must include: ~~The system designer or manufacturer must provide comprehensive and detailed operation and maintenance instructions to the reviewing authority. The operation and maintenance manual must include~~:

A. Maintenance procedures and schedules for all components;

B. Requirements and recommended procedures for periodic removal of residuals from the system;

C. A detailed procedure for visually evaluating function of system components; and

D. Safety concerns that may need to be addressed.

As-built plans

A comprehensive set of as-built plans must be submitted to the reviewing authority and include the name of the designer and installer. As-builts will be added to the operation and maintenance plan after initial approval and construction of the system.

~~**Service-related obligations**~~

Proprietary and High Strength Wastewater Treatment Systems

In addition to the requirements of this appendix, all proprietary and high strength wastewater treatment systems must have both an initial and a renewed service contract for the life of the system. ~~or through other means approved by the reviewing authority.~~ Service contracts must include:

A. Owner's name and address;

B. Property address and legal description;

C. Local health department permit requirements;

D. Detail of service to be provided. The owner must be notified, in writing, about any improper system function that cannot be remedied during the time of inspection, and an estimate for the date of correction;

E. Schedule of service provider duties. Initial two-year service policies must stipulate a minimum of four inspection/service visits (scheduled at least once every six months over the two-year period) during which electrical, mechanical, and other components are inspected, adjusted, and serviced;

F. Cost and length of service contract/time period;

G. Details of product warranty; and

H. Owner's responsibilities;

For subsurface wastewater treatment systems that are classified under ARM 17.30.718 as level 1a, level 1b, or level 2 for nutrient reduction, the system vendor or manufacturer must offer an operation and maintenance plan that meets the requirements of this Appendix and ARM 17.30 718(8).

~~Service providers must maintain accurate records of their service contracts, customers, performance data, and time lines for renewing the contracts. These records must be available for inspection upon request by the reviewing authority. The reviewing authority may require copies of these records to be submitted.~~

~~A two-year initial service policy must be furnished to the owner by the designer, manufacturer or authorized representative with the following conditions.~~

~~A. The initial service policy must contain provisions for four inspection/service visits (scheduled once every six months over the two-year period) during which electrical, mechanical, and other components are inspected, adjusted, and serviced;~~

~~B. The service policy must contain a clause stating that the owner must be notified, in writing, about any improper system function that cannot be remedied during the time of inspection, and the written notification must include an estimated date of correction by the designer, manufacturer or its representative.~~

~~Service providers must maintain accurate records of their service contracts, customers, performance data, and time lines for renewing the contracts. These records must be available for inspection upon request by the reviewing authority. The reviewing authority may require copies of these records to be submitted.~~

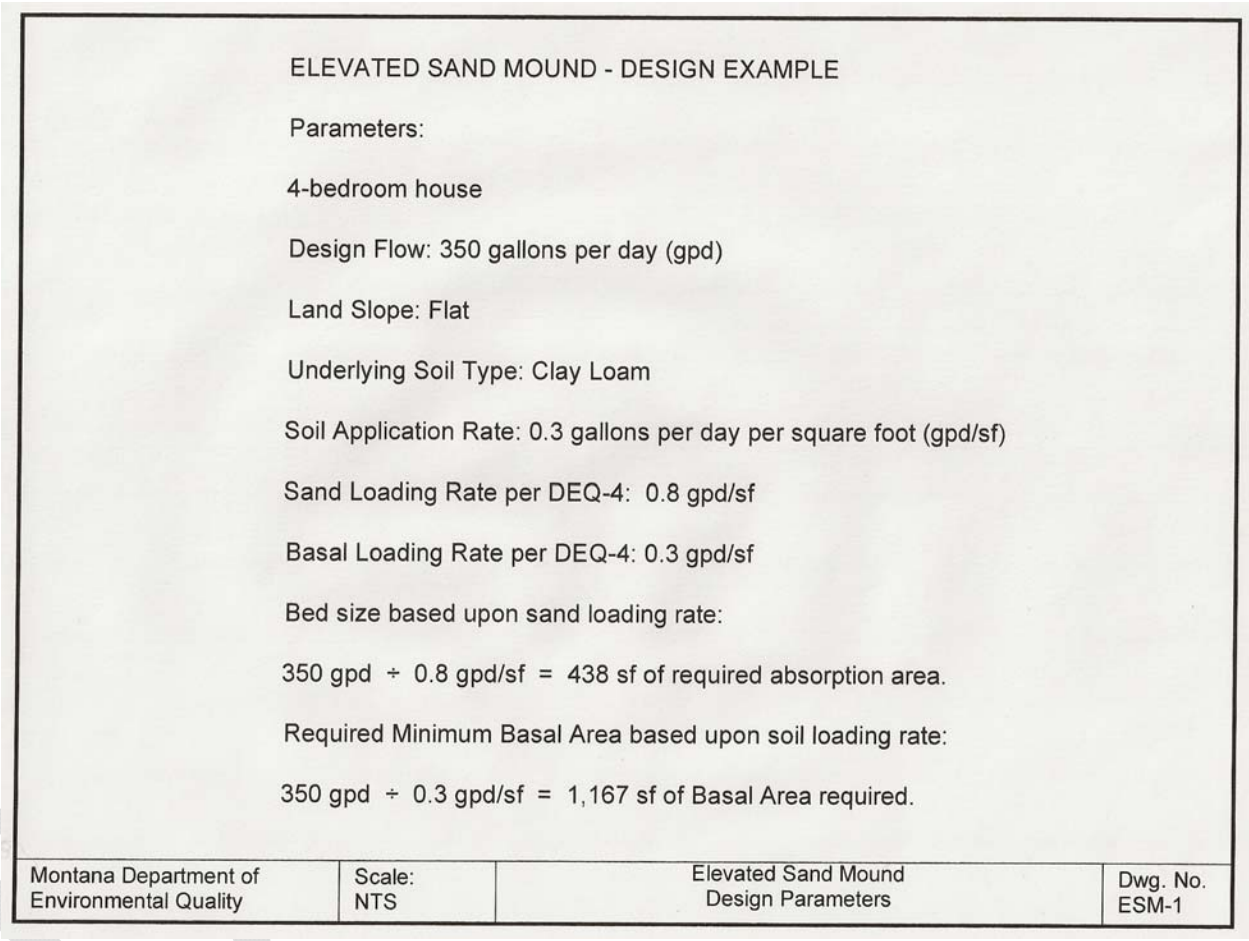
~~The designer, manufacturer or authorized representative must make available, for purchase by the owner, an extended service policy with terms comparable to those of the initial service policy, which includes operation and maintenance O & M service for the entire wastewater system. The service provider must notify the reviewing authority and local health department of service contracts that are not renewed.~~

~~In the event that a mechanical or electrical component of the system requires off-site repair, the local authorized representative must maintain a stock of mechanical and electrical components that can be temporarily installed until repairs are completed if repairs are expected to render the unit inoperable for longer than 24 hours.~~

~~Emergency service must be available within 48 hours of a service request.~~

APPENDIX E - DESIGN EXAMPLES

Elevated Sand Mound



BED DESIGN

438 sf of bed required.

§6.6.3.7 requires a minimum 3:1 ratio of length to width.

Let "x" = width, then "3x = length

Thus:

$3x^2 = 438$

$x = \sqrt{438/3}$

x = 12.08' ; 3x = 32.25'

Round to 12.5' x 37.5' so §6.6.3.7 is still met.

Check Basal Area Requirements:

Overall Width of Mound:

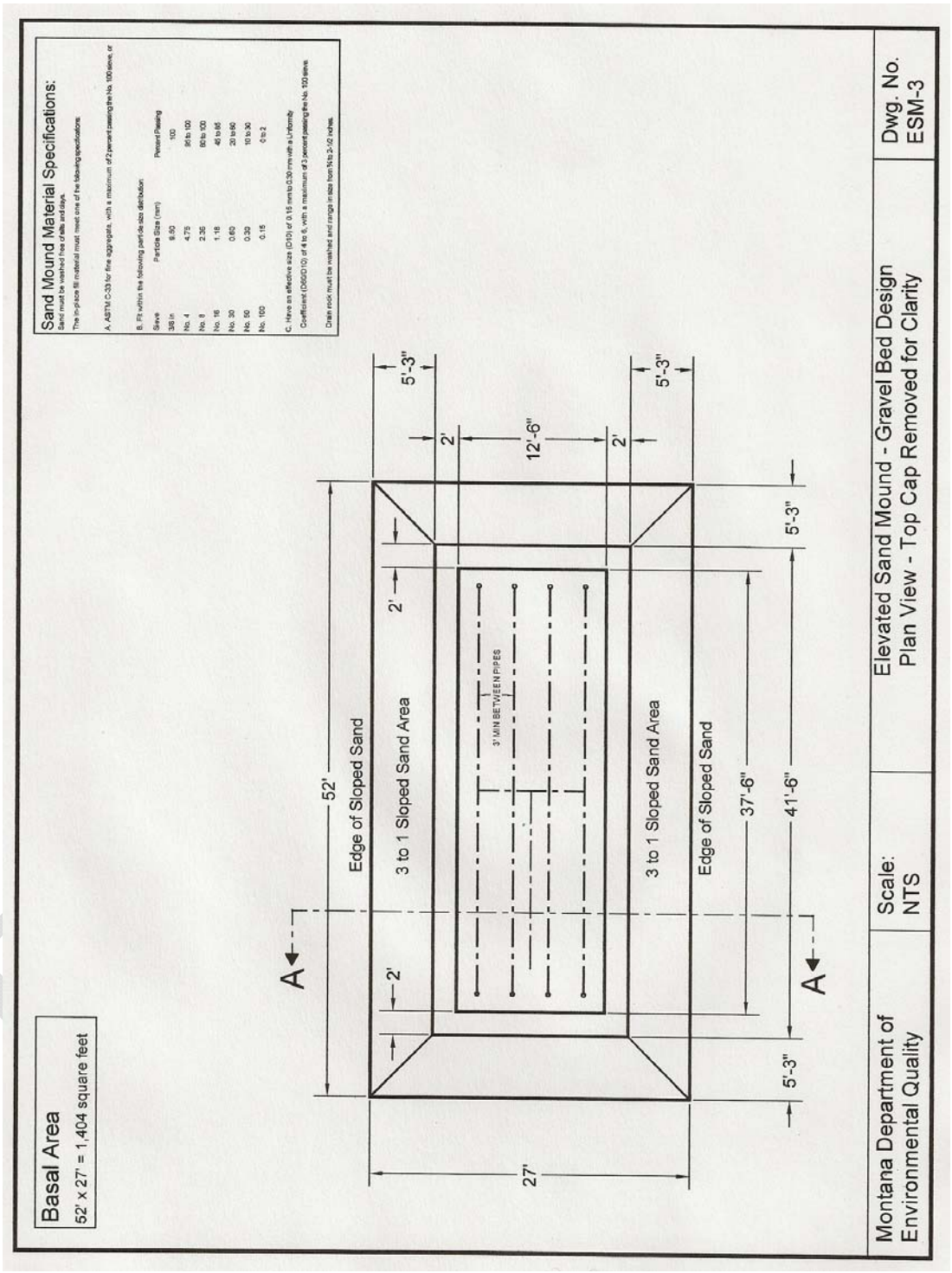
5.25' + 2' + 12.5' + 2' + 5.25' = 27'

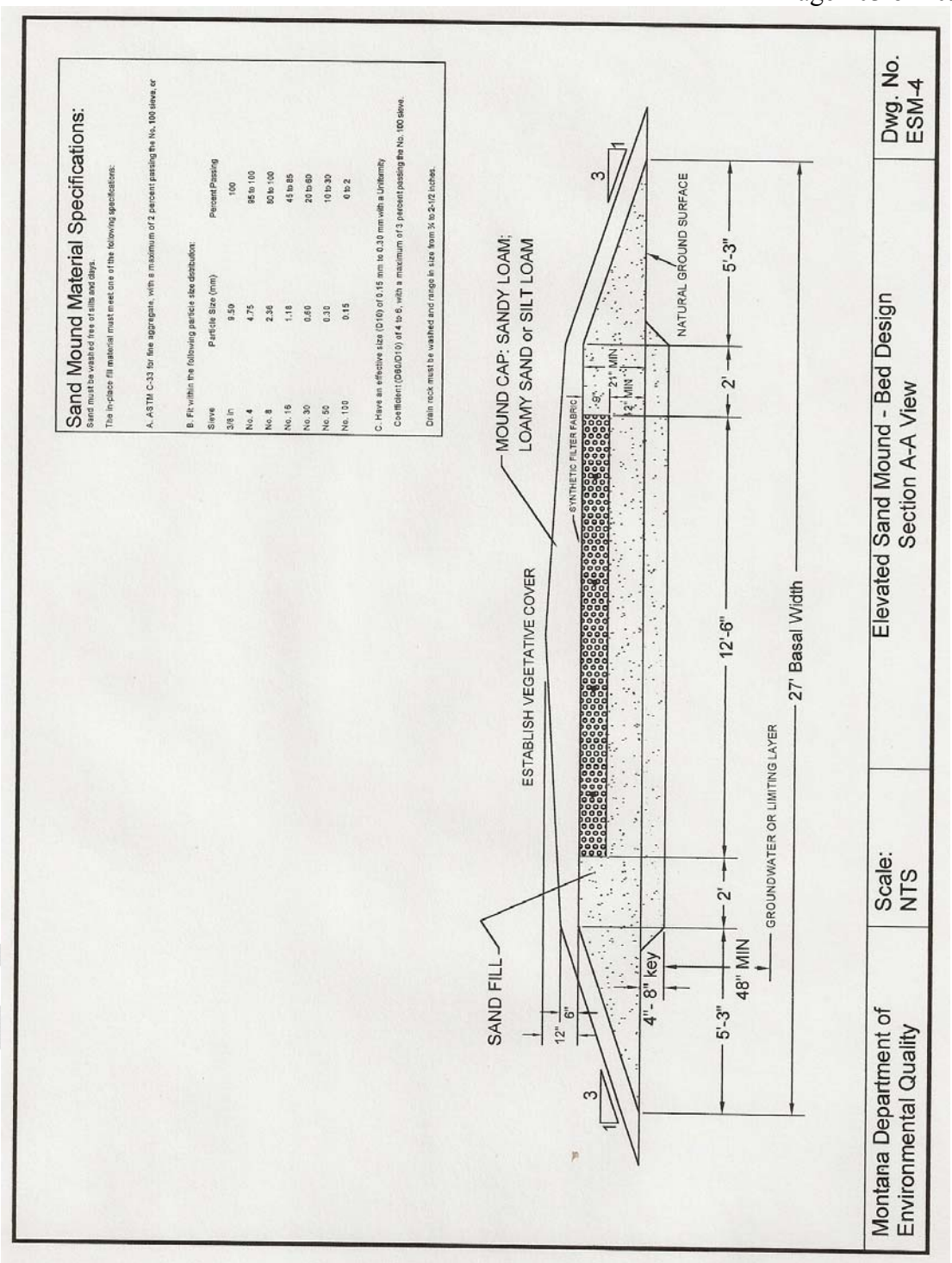
Overall Length of Mound:

5.25' + 2' + 37.5' + 2' + 5.25' = 52'

52' x 27' = 1,404 sf > 1,167 sf so §6.6.3.3 requirement met

Montana Department of Environmental Quality	Scale: NTS	Elevated Sand Mound Gravel Bed Design Parameters	Dwg. No. ESM-2


Basal Area
52' x 27' = 1,404 square feet
Sand Mound Material Specifications:
Sand must be washed free of silts and clays.
The in-place fill material must meet one of the following specifications:
A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or
B. Fit within the following particle size distribution:
Sieve
Particle Size (mm)
Percent Passing
3/8 in
9.50
100
No. 4
4.75
95 to 100
No. 8
2.36
80 to 100
No. 16
1.18
45 to 85
No. 30
0.60
20 to 60
No. 50
0.30
10 to 30
No. 100
0.15
0 to 2
C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.
Drain rock must be washed and range in size from 3/4 to 2-1/2 inches.
52'
Edge of Sloped Sand
3 to 1 Sloped Sand Area
2'
3' MIN BETWEEN PIPES
12'-6"
5'-3"
37'-6"
41'-6"
27'
A
Montana Department of Environmental Quality
Scale: NTS
Elevated Sand Mound - Gravel Bed Design
Plan View - Top Cap Removed for Clarity
Dwg. No. ESM-3


Sand Mound Material Specifications:
Sand must be washed free of silts and clays.
The in-place fill material must meet one of the following specifications:
A. ASTM C-33 for fine aggregate, with a maximum of 2 percent passing the No. 100 sieve, or
B. Fit within the following particle size distribution:
Sieve
Particle Size (mm)
Percent Passing
3/8 in
9.50
100
No. 4
4.75
95 to 100
No. 8
2.36
80 to 100
No. 16
1.18
45 to 85
No. 30
0.60
20 to 80
No. 50
0.30
10 to 30
No. 100
0.15
0 to 2
C. Have an effective size (D10) of 0.15 mm to 0.30 mm with a Uniformity Coefficient (D60/D10) of 4 to 6, with a maximum of 3 percent passing the No. 100 sieve.
Drain rock must be washed and range in size from ¾ to 2-½ inches.
SAND FILL
ESTABLISH VEGETATIVE COVER
MOUND CAP: SANDY LOAM; LOAMY SAND or SILT LOAM
SYNTHETIC FILTER FABRIC
NATURAL GROUND SURFACE
12"
6"
4" - 8" key
48" MIN
GROUNDWATER OR LIMITING LAYER
8"
24" MIN
12" MIN
5'-3"
2'
12'-6"
2'
5'-3"
27' Basal Width
3
1
3
1
Montana Department of Environmental Quality
Scale: NTS
Elevated Sand Mound - Bed Design
Section A-A View
Dwg. No. ESM-4

Evaportanspiration Absorption System Example

EVAPOTRANSPIRATION ABSORPTION SYSTEM - DESIGN EXAMPLE

Parameters: 4-bedroom house near Terry; design flow 350 gallons per day (gpd)

Land Slope: Flat; Underlying Soil Type: Clay

Soil Application Rate Based Upon Percolation Test: 0.15 gpd/sf (Section 6.7.3.5)

Bed Material Void Ratio 40 %

Required Factor of Safety: 1.5 (per Section 6.7.3.7)

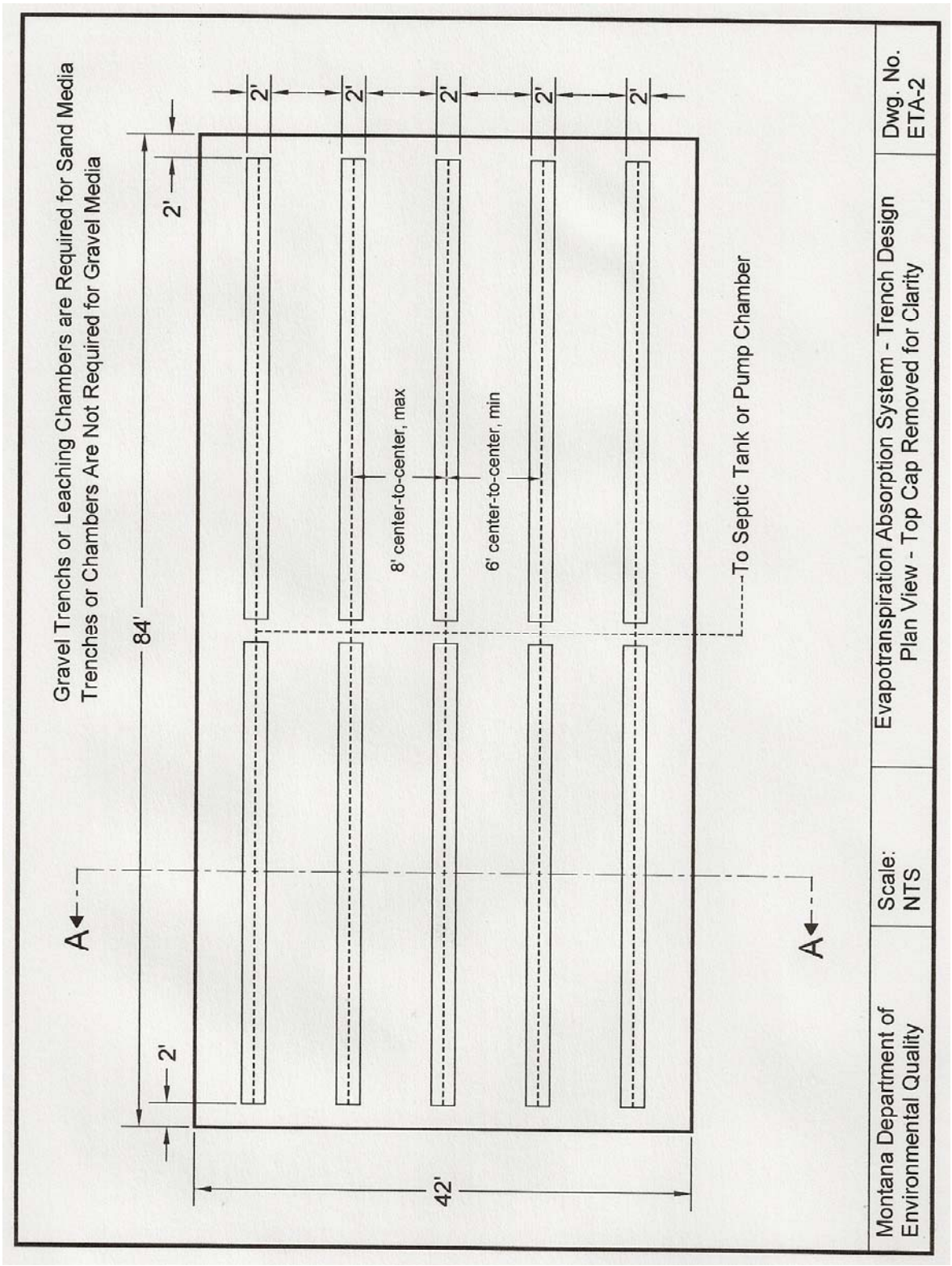
ET Bed Size Based Upon Maximum Allowed Application Rate: 0.15gpd/sf (per Section 6.7.3.5)

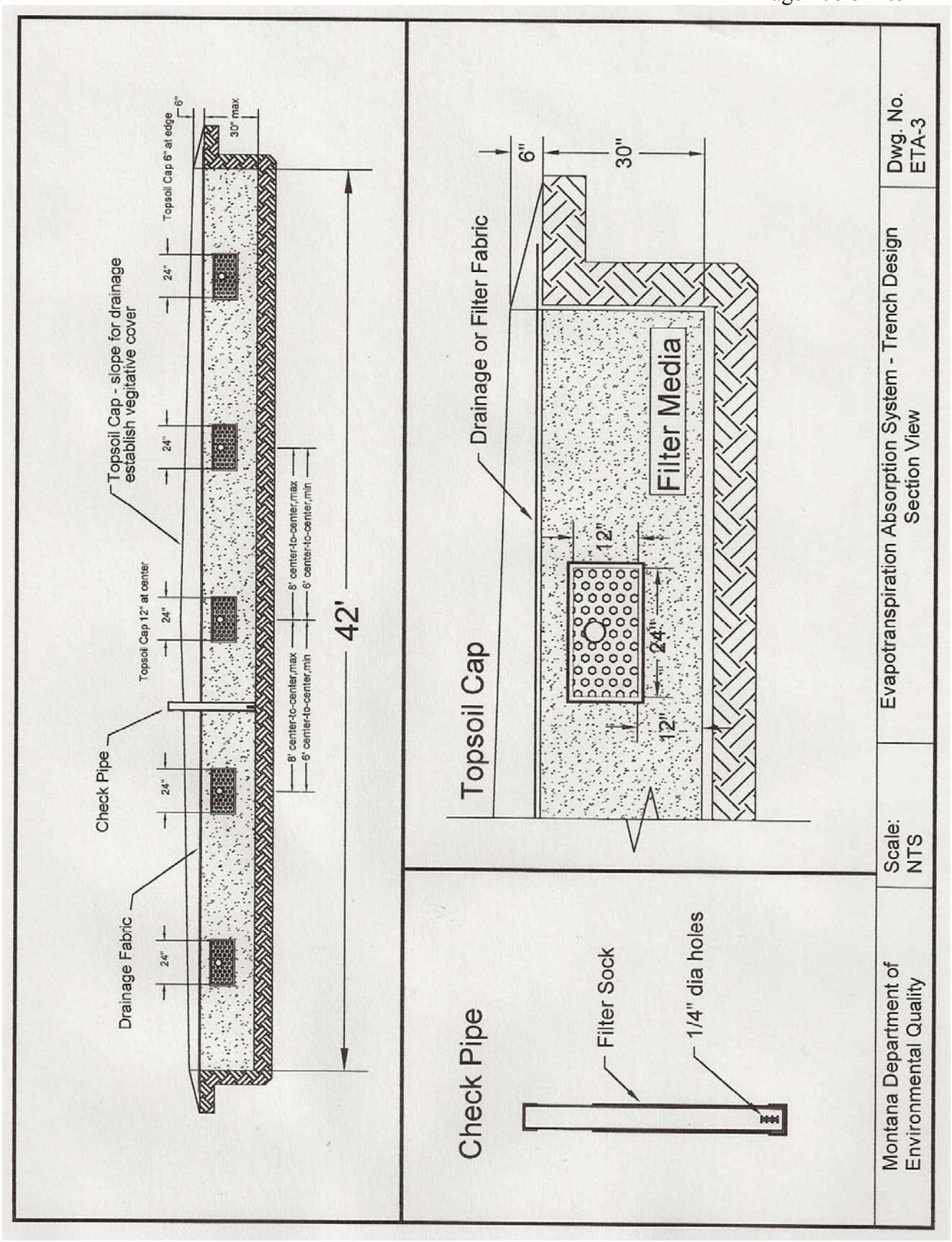
350/0.15 = 2,333 square feet. 2,333 square feet x 1.5 factor of safety = 3,500 square feet

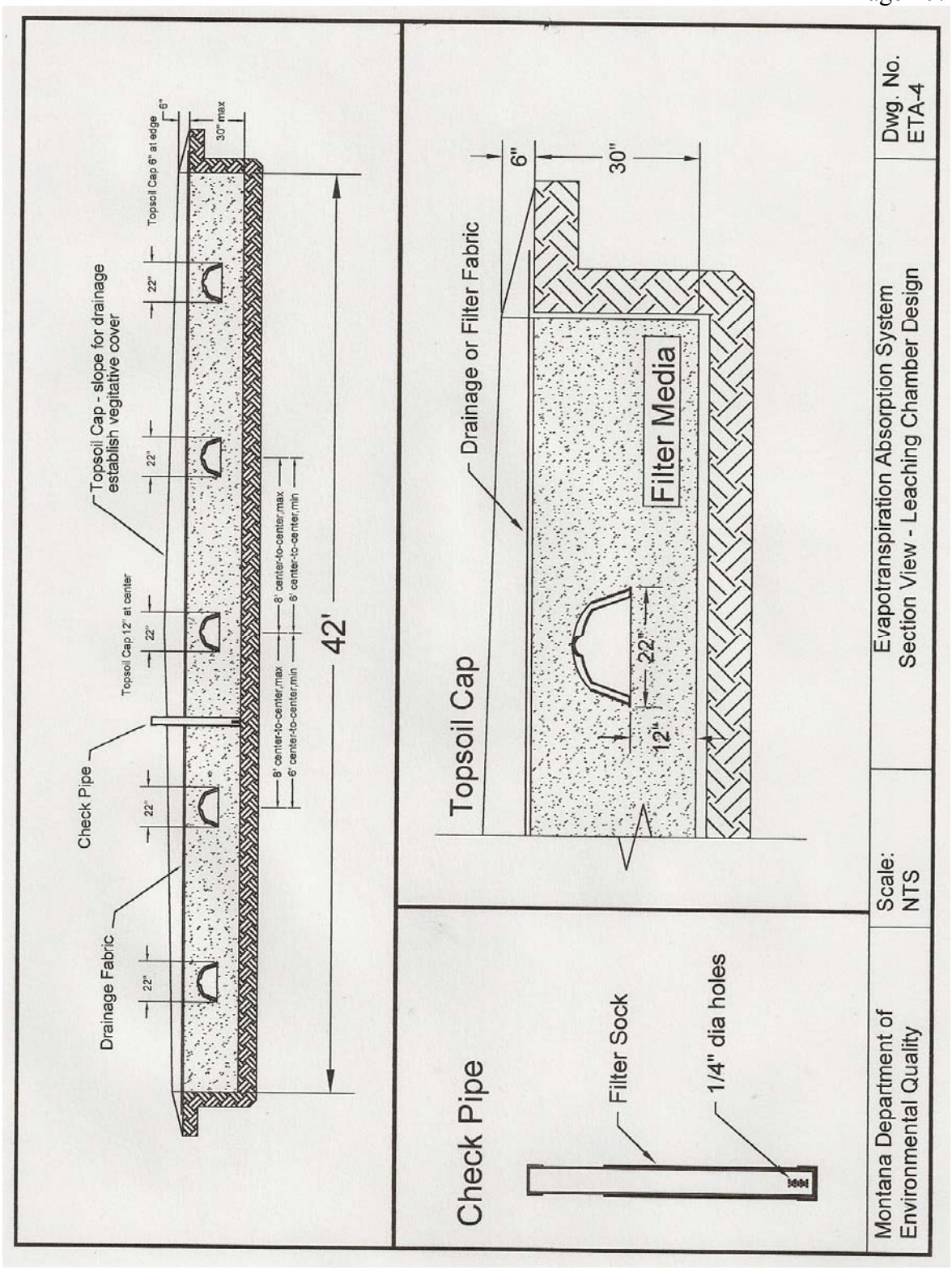
Bed Dimensions: Square 59' x 59'

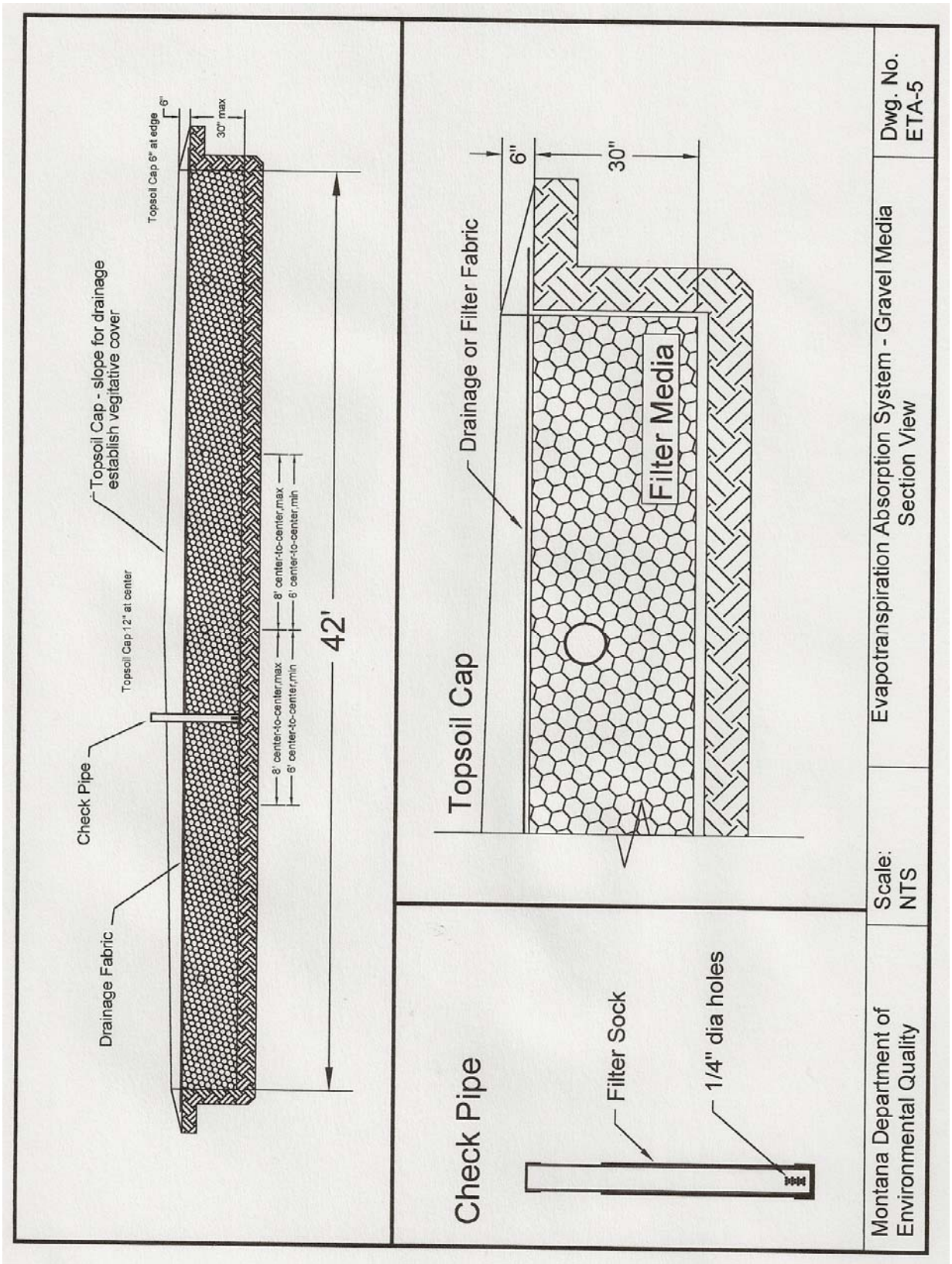
Bed Dimensions: 2:1 Rectangle 42' x 84'

Montana Department of Environmental Quality	Scale: NTS	Evapotranspiration Absorption System Design Parameters	Dwg. No. ETA-1


Gravel Trenchs or Leaching Chambers are Required for Sand Media
Trenches or Chambers Are Not Required for Gravel Media
A
A
84'
42'
2'
2'
2'
2'
2'
2'
2'
8' center-to-center, max
6' center-to-center, min
To Septic Tank or Pump Chamber
Montana Department of Environmental Quality
Scale: NTS
Evapotranspiration Absorption System - Trench Design
Plan View - Top Cap Removed for Clarity
Dwg. No. ETA-2


Topsoil Cap - slope for drainage establish vegitative cover
Topsoil Cap 6" at edge
6"
30" max
24"
Topsoil Cap 12" at center
Check Pipe
Drainage Fabric
8' center-to-center,max
6' center-to-center,min
42'
Drainage or Filter Fabric
Topsoil Cap
Filter Media
12"
24"
30"
Check Pipe
Filter Sock
1/4" dia holes
Montana Department of Environmental Quality
Scale: NTS
Evapotranspiration Absorption System - Trench Design
Section View
Dwg. No. ETA-3


Topsoil Cap - slope for drainage establish vegitative cover
Topsoil Cap 6" at edge
6"
30" max
Topsoil Cap 12" at center
22"
Check Pipe
Drainage Fabric
8' center-to-center,max
6' center-to-center,min
42'
Topsoil Cap
Drainage or Filter Fabric
6"
30"
Filter Media
22"
12"
Check Pipe
Filter Sock
1/4" dia holes
Montana Department of Environmental Quality
Scale: NTS
Evapotranspiration Absorption System
Section View - Leaching Chamber Design
Dwg. No. ETA-4


Topsoil Cap - slope for drainage establish vegitative cover
Topsoil Cap 5" at edge
6"
30" max
Check Pipe
Topsoil Cap 12" at center
Drainage Fabric
8' center-to-center,max
6' center-to-center,min
42'
Topsoil Cap
Drainage or Filter Fabric
6"
30"
Filter Media
Check Pipe
Filter Sock
1/4" dia holes
Montana Department of Environmental Quality
Scale: NTS
Evapotranspiration Absorption System - Gravel Media Section View
Dwg. No. ETA-5

REFERENCES

Environmental Health Programs. October 1990. *Vertical Separation: A Review of Available Scientific Literature and a Listing from Fifteen Other States*. Olympia: Washington State Department of Health.

Puget Sound Water Quality Authority. April 1996. *Guidance Handbook for On-site Sewage System Monitoring Programs in Washington State.* Olympia: Washington State Department of Health.

Soil Survey Division Staff, United States Department of Agriculture. October 1993. *Soil Survey Manual.* Washington D.C.: United States Government Printing Office.

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US Environmental Protection Agency. February 2002. *Onsite Wastewater Treatment Systems Manual.* EPA/625/R-00/008. Office of Water, Office of Research and Development, US Environmental Protection Agency. Washington D. C.

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM
EXECUTIVE SUMMARY FOR ACTION ON RULE ADOPTION

Agenda # III.B.1.

Agenda Item Summary: The Department requests approval of the amendments proposed in MAR Notice No. 17-337 updating the air quality incorporation by reference (IBR) rules to adopt more recent editions of federal statutes and regulations and state administrative rules.

List of Affected Rules: This rulemaking would amend ARM 17.8.102.

Affected Parties Summary: The proposed rule amendments would affect sources of air pollution subject to regulation under the air quality rules in ARM Title 17, Chapter 8, that are subject to revisions codified in the July 1, 2010, edition of the Code of Federal Regulations (CFR), revisions codified in the 2006 edition of United States Code (USC) Supplement IV (2010), and revisions codified in the December 31, 2010, edition of the Administrative Rules of Montana (ARM).

Scope of Proposed Proceeding: The board would provide an opportunity for public comment regarding its action and consider and act on the proposed rule amendments.

Background: Annually, the Department requests that the Board update the rules incorporating by reference federal statutes and regulations and state administrative rules. The IBR updating is accomplished by amending the dates of the editions of the CFR, U.S. Code, and ARM set forth in ARM 17.8.102(1). The failure to adopt the most recent edition of the CFR may result in the loss of state primacy for administering the air program.

Hearing Information: Katherine Orr presided over a public hearing on September 7, 2012, to take comment on the proposed amendments.

Board Options: The Board may:

1. Adopt the proposed amendments as set forth in the attached Notice of Public Hearing on Proposed Amendment;
2. Adopt the proposed amendments with revisions that the Board finds are appropriate and that are consistent with the scope of the Notice of Public Hearing on Proposed Amendment and the record in this proceeding; or
3. Decide not to adopt the amendments.

DEQ Recommendation: The Department recommends adoption of the proposed amendments as set forth in the attached Notice of Public Hearing on Proposed Amendment.

Enclosures:

1. Notice of Public Hearing on Proposed Amendment
2. HB 521 and 311 Analysis
3. Hearing Officer's Report
4. Draft Notice of Amendment

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.8.102 pertaining to incorporation by reference of current federal regulations and other materials into air quality rules	NOTICE OF PUBLIC HEARING ON PROPOSED AMENDMENT (AIR QUALITY)

TO: All Concerned Persons

1. On September 7, 2012, at 2:30 p.m., the Board of Environmental Review will hold a public hearing in Room 111, Metcalf Building, 1520 East Sixth Avenue, Helena, Montana, to consider the proposed amendment 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., August 27, 2012, 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 rule proposed to be amended provides as follows, stricken matter interlined, new matter underlined:

17.8.102 INCORPORATION BY REFERENCE--PUBLICATION DATES

(1) In this chapter where the board has:

(a) adopted a federal regulation by reference, the reference is to the July 1, ~~2009~~ 2010, edition of the Code of Federal Regulations (CFR);

(b) adopted a section of the United States Code (USC) by reference, the reference is to the 2006 edition of the USC and Supplement ~~II~~ IV (~~2009~~ 2010);

(c) adopted another rule of the department or of another agency of the state of Montana by reference, the reference is to the December 31, ~~2009~~ 2010, edition of the Administrative Rules of Montana (ARM).

(2) through (3)(c) remain the same.

AUTH: 75-2-111, MCA
IMP: Title 75, chapter 2, MCA

REASON: The board is proposing to amend the air quality rules to adopt the current editions of federal and state statutes and regulations that are incorporated by reference in the rules. The board is proposing to amend ARM 17.8.102(1) to adopt revisions which were published in the July 1, 2010, edition of the Code of Federal Regulations (CFR), the 2006 edition of the United States Code (USC) Supplement IV (2010), and the 2010 edition of the Administrative Rules of Montana (ARM). The board adopts and incorporates by reference federal regulation to ensure that Montana's air quality rules are at least as stringent as federal air quality regulations,

to maintain primacy, to maintain federal delegation of Montana's air quality program, and to implement federal emission standards pursuant to a federal program of emissions control.

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., September 14, 2012. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

5. Katherine Orr, 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.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

/s/ John F. North
JOHN F. NORTH
Rule Reviewer

BY: */s/ Joseph W. Russell*
JOSEPH W. RUSSELL, M.P.H.,
Chairman

Certified to the Secretary of State, July 30, 2012.

Montana Department of
ENVIRONMENTAL QUALITY MEMO

TO: Board of Environmental Review
FROM: Norman J. Mullen DEQ Staff Attorney
SUBJECT: House Bill 521 (stringency) and House Bill 311 (takings) review of Annual Air Incorporation by Reference (IBR) rulemaking in ARM Notice No. 17-337
DATE: September 5, 2012

HB 521 REVIEW
(Comparing Stringency of State and Local Rules to Any Comparable Federal Regulations or Guidelines)

Sections 75-2-111 and 207, MCA, codify the air quality provisions of House Bill 521, from the 1995 legislative session, by requiring that the Board of Environmental Review, prior to adopting a rule to implement the Clean Air Act of Montana that is more stringent than a comparable federal regulation or guideline, make certain written findings after a public hearing and receiving public comment.

In this proceeding, the Board is proposing to amend ARM 17.8.102 by adopting more recent versions of the federal regulations, federal statutes, and rules of other Department programs and other Montana state agencies that are incorporated by reference into the state's air quality rules.

None of the proposed amendments would make the state rules more stringent than comparable federal regulations or guidelines. Rather, the proposed amendments to ARM 17 .8.102 would update the Board's air quality rules to make them more consistent with federal air quality regulations and statutes. Therefore, no further House Bill 521 analysis is required.

HB 311 REVIEW
(Assessing Impact on Private Property)

Sections 2-10-101 through 105, MCA, codify House Bill 311, the Private Property Assessment Act, from the 1995 legislative session, by requiring that, prior to taking an action that has taking or damaging implications for private real property, a state agency must prepare a taking or damaging impact assessment. Under Section 2-10-103(1), MCA, "action with taking or damaging implications" means:

> a proposed state agency administrative rule, policy, or permit condition or denial pertaining to land or water management or to some other environmental matter

that if adopted and enforced would constitute a deprivation of private property in violation of the United States or Montana constitution.

Section 2-10-104, MCA, requires the Montana Attorney General to develop guidelines, including a checklist, to assist agencies in determining whether an agency action has taking or damaging implications.

The present proposed action involves rules affecting use of private real property, and the Board has discretion legally not to take the action.

I have completed an Attorney General's Private Property Assessment Act Checklist, which is attached to this memo. The proposed rule amendments would not:

* result in either a permanent or indefinite physical occupation of private property;

* deprive any owner of all economically viable uses of private property;

* deny a fundamental ownership attribute of private property;

* require a private property owner to dedicate a portion of property or grant an easement;

* have a severe impact on the value of private property; or

* damage private property by causing a physical disturbance with respect to the property in excess of that sustained by the public generally.

Based upon completion of the attached Attorney General's Checklist, the proposed rulemaking does not have taking or damaging implications, and no further House Bill 311 assessment is required.

Encls.

Name of Project: Proposed amendment of ARM 17.8.102 pertaining to incorporation by reference of current federal regulations and other materials into air quality rules, as proposed in MAR Notice 17-337

PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST

DOES THE PROPOSED AGENCY ACTION HAVE TAKING OR DAMAGING 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 or some other environmental matter?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (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? (consider economic impact, investment-backed expectations, character of government action)
	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?
		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 lowered 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?
	X	Takings or damaging implications? (Taking or damaging implications 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; the shaded areas)

Signature of Reviewer

September 5, 2012
Date

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.8.102 pertaining to incorporation by reference of current federal regulations and other materials into air quality rules	))))	Presiding Officer Report

1. On September 7, 2012, at 2:30 p.m., the undersigned Presiding Officer presided over and conducted the public hearing held in Room 111 of the Metcalf Building, 1520 East Sixth Avenue, Helena, Montana, to take public comment on the above-captioned proposed amendments. The amendments within ARM 17.8.102 adopt regulatory revisions which were published in the July 1, 2010, edition of the Code of Federal Regulations, the 2006 edition of the Unites States Code, Supplement IV (2010) and the December 31, 2010, edition of the Administrative Rules of Montana (ARM). The purpose of the rule amendments is to maintain primacy and integrity of the air quality program. The incorporated regulations include the New Source Performance standards and the National Emissions Standards for Hazardous Air Pollutants.

2. Notice of the hearing was contained in the Montana Administrative Register (MAR), Notice No. 17-337, published on August 9, 2012, in Issue No.15 at pages 1554 through 1555. A copy of the notice is attached to this report. (Attachments are provided in the same order as they are referenced in this report.)

3. The hearing began at 2:30 p.m. The Court Reporter, Ms. Laurie Crutcher, of Helena, Montana, recorded the hearing.

4. There were no members of the public at the hearing. At the hearing, the Presiding Officer identified and summarized the MAR notice and read the Notice of Function of Administrative Rule Review Committee as required by Mont. Code Ann. § 2-4-302(7)(a).

SUMMARY OF HEARING

5. Ms. Debra Wolfe, Regulatory Analyst of the Air Resources Management Bureau of the Department of Environmental Quality (Department), submitted a written statement and gave a brief oral summary of the changes at the hearing. (The written statement is attached.)

6. No written comments were submitted at the hearing or afterward.

7. A written memorandum was submitted from Department staff attorney, Mr. Norman Mullen containing HB 521 and HB 311 reviews of the proposed amendments and a Private Property Assessment Act Checklist. (Mr. Mullen's memorandum is attached to this report.)

8. None of the proposed amendments would make the state rules more stringent than comparable federal regulations or guidelines. Instead, the proposed amendments to ARM 17.8.102 would make the amendments more consistent with federal air quality regulations and statutes. In summary, no further HB 521 analysis is required.

9. With respect to HB 311 (the Private Property Assessment Act, Mont. Code Ann. §§ 2-10-101 through 105), the State is required to assess the taking or damaging implications of a proposed rule or amendments affecting the use of private real property. This rulemaking affects the use of private real property. A Private Property Assessment

Act Checklist was prepared, which shows that the proposed amendments do not have taking or damaging implications. Therefore, no further assessment is required.

10. The period to submit comments ended at 5 p.m. on September 14, 2012.

PRESIDING OFFICER COMMENTS

11. The Board has jurisdiction to make the proposed amendments. See Mont. Code Ann. §§ 75-2-111.

12. The conclusions in the memorandum of Mr. Mullen concerning House Bill 521 (1995) and House Bill 311 (1995) are correct.

13. The procedures required by the Montana Administrative Procedure Act, including public notice, hearing, and comment, have been followed.

14. The Board of Environmental Review (Board) may adopt the proposed rule amendments, reject them, or adopt the rule amendments with revisions not exceeding the scope of the public notice.

15. Under Mont. Code Ann. § 2-4-305(7), for the rulemaking process to be valid, the Board must publish a notice of adoption within six months of the date the Board published the notice of proposed rulemaking in the Montana Administrative Register, or by February 9, 2013.

Dated this 26th day of November, 2012.

KATHERINE J. ORR
Presiding Officer

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.8.102 pertaining to incorporation by reference of current federal regulations and other materials into air quality rules	NOTICE OF AMENDMENT (AIR QUALITY)

TO: All Concerned Persons

1. On August 9, 2012, the Board of Environmental Review published MAR Notice No. 17-337 regarding a notice of public hearing on the proposed amendment of the above-stated rule at page 1554, 2012 Montana Administrative Register, issue number 15.

2. The board has amended the rule exactly as proposed.

3. No public comments or testimony were received.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

_____ By: _____

JOHN F. NORTH
Rule Reviewer

JOSEPH W. RUSSELL, M.P.H.
Chairman

Certified to the Secretary of State, _____, 2012.

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM
EXECUTIVE SUMMARY
FOR
RULE ADOPTION

AGENDA ITEM # III.B.2.

AGENDA ITEM SUMMARY: The Department requests that the Board adopt Montana's Policy for Nutrient Trading.

LIST OF AFFECTED RULES: No existing rules would be amended. A new water quality rule would be adopted and incorporate the policy by reference.

AFFECTED PARTIES SUMMARY: The proposed new rule could affect any wastewater facility or other facility that may want to include nutrient trading as a part of the MPDES permit application and/or renewal.

SCOPE OF PROPOSED PROCEEDING: The Department requests that the Board adopt the rule that incorporates the trading policy.

BACKGROUND: Nutrient trading is a market-based approach to reduce nutrient loads and improve water quality in a watershed. Trading programs allow dischargers facing higher pollution control costs to meet their regulatory obligations by purchasing environmentally equivalent or superior pollution reductions from another source at lower costs, thus achieving the same water quality improvements at lower overall cost. EPA encourages and support nutrient trading for nitrogen and phosphorus.

The Nutrient Trading Policy was developed using other state policies and programs as examples. The policy is intended to provide a voluntary tool for dischargers to comply with TMDL load limits, offset new or increased discharge of nutrients, or comply with water quality-based effluent limits for nutrients. The Department presented the policy to the Nutrient Workgroup numerous times and, at its recommendation, organized a Nutrient Trading Subgroup to assist with development of the policy. Numerous meetings and conference calls were held in 2010 and 2011 to solicit input, comment, and respond to comments. A two-day Nutrient Trading Workshop was held in Helena in April 2010. The Nutrient Trading Policy was presented to the Water Pollution Control Advisory Council (WPCAC) twice. At its June 2012 meeting, WPCAC recommended that DEQ proceed to the BER for rulemaking and was very complimentary of the policy.

HEARING INFORMATION: A hearing was held in Helena on October 29. In addition, the Board received comments from three persons.

BOARD OPTIONS:

The Board may:

1. Adopt the rule and policy as proposed;
2. Modify and adopt the proposed rule or policy or both; or
3. Decide not to adopt the rule and policy.

DEQ RECOMMENDATION:

The Department recommends that the Board adopt the rule and policy with modifications as indicated in the attached notice, the proposed responses to comment, and the hearing officer report, and the 311 and 521 findings.

ENCLOSURES:

1. Notice of Public Hearing on Proposed Adoption
2. HB 521 and 311 Analysis
3. Public Comments
4. Hearing Officer's Report
5. Modified Nutrient Trading Policy (Circular DEQ-13)
6. Draft Notice of Adoption

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the adoption of New Rule I pertaining to nutrient trading	))))	NOTICE OF PUBLIC HEARING ON PROPOSED ADOPTION (WATER QUALITY)

TO: All Concerned Persons

1. On November 13, 2012, at 2:00 p.m., the Board of Environmental Review will hold a public hearing in Room 111, Metcalf Building, 1520 East Sixth Avenue, Helena, 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., October 29, 2012, 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 NUTRIENT TRADING (1) The board adopts and incorporates by reference Department Circular DEQ-13, entitled Montana's Policy for Nutrient Trading ([month and year of adoption] edition). Copies are available from the Department of Environmental Quality, Technical and Financial Assistance Bureau, P.O. Box 200901, Helena, MT 59620-0901.

(2) The department shall approve a nutrient trade that is consistent with the requirements and guidelines established in Montana's Policy for Nutrient Trading.

(3) An owner or operator of a point source discharge may submit an application for nutrient trading to the department prior to or concurrent with an application for a new or renewed MPDES permit. The application must include the information specified in Montana's Policy for Nutrient Trading and be consistent with the guidelines and requirements contained in that policy.

(4) An application to trade may be submitted for any of the following purposes:

(a) to comply with an approved total maximum daily load (TMDL) for nutrients;

(b) to offset a new or increased discharge of nutrients into a nutrient-impaired water;

(c) to comply with Montana's base numeric nutrient criteria or a variance from those criteria;

(d) to offset a new or increased discharge of nutrients into waters that are high quality for nutrients; or

(e) to comply with the nonsignificance criteria for nutrients in ARM 17.30.715.

(5) A trade proposed pursuant to (3) must be described in the draft permit and is subject to public comment. If approved, the trade must be described in the final permit and is not effective until the final permit is issued. The final permit must contain permit conditions that ensure that the terms of the trade are enforceable.

AUTH: 75-5-201, 75-5-401, MCA
IMP: 75-5-401, MCA

REASON: The board proposes adoption of New Rule I to establish clear guidelines and requirements for evaluating nutrient trading proposals. Rather than integrating the numerous and detailed trading requirements into the rule, New Rule I incorporates by reference Department Circular DEQ-13, entitled Montana's Policy for Nutrient Trading ([month and year of adoption] edition) (Trading Policy). The Trading Policy sets out a framework for evaluating prospective nutrient trades.

Although the current water quality standards for nutrients (nitrogen and phosphorus) are narrative rather than numeric, the department sometimes establishes numeric nutrient limits on a case-by-case basis in individual permits. In addition, the board may soon propose adoption of numeric water quality standards for nutrients in Montana surface waters. These numeric limits are designed to protect the beneficial uses of such surface waters. However, because of the limitations of available treatment technology and the potential economic harm resulting from immediate enforcement of the numeric standards, point source dischargers will be granted a temporary general variance from the base numeric limits. The department may employ general variances and subsequent variances to provide interim goals and a timeframe for point sources to begin reducing nutrient loading. The long-term goal is to reduce nutrient loading by an amount necessary to achieve compliance with the nutrient limits.

Nutrient trading is a tool to assist point source dischargers to meet their interim and long-term nutrient discharge limits. A point source discharger may buy "credits," in the form of an additional allocation of nutrient discharge, from another point source discharger that is discharging to the same water body and is discharging below its nutrient limit. A point source discharger may also obtain "credits" by entering into agreements with nonpoint source dischargers to employ nutrient management practices that reduce the nonpoint source's discharge of nutrients to a common water body.

The intent of the Trading Policy is to encourage cooperation between point and nonpoint sources as a means to reduce nutrient loading into surface waters. Given that nutrient discharges from nonpoint dischargers presently are not regulated, the best potential for reduction of nutrient discharges to a water body lies in cooperation between point source and nonpoint source dischargers. The Trading Policy would allow point source to point source trading and point source to nonpoint source trading. In addition, it would provide guidance that could be used for nonpoint source to nonpoint source trading, although the department has no regulatory authority over these trades.

The Trading Policy provides flexibility, yet also establishes firm criteria that must be met by either a point or a nonpoint source before credits can be generated and sold for use in a trade. The Trading Policy establishes baseline requirements

from which trading credits will be calculated. Other requirements in the Trading Policy include a limit on the duration of credits, restrictions on the boundaries of a trade, limitations on banking credits, and a requirement that all trades will be enforced through an applicable MPDES permit. The boundary restrictions for trades are necessary to ensure that the transfer of nutrient discharge occurs between dischargers in the same watershed. The credit duration and banking restrictions will ensure that the decrease in nutrient discharge from the source selling the credit and the increase in nutrient discharge from the source purchasing the credit occur contemporaneously. Enforcement of trades through the MPDES permit system will allow the department to monitor nutrient trades and ensure compliance with this policy.

In addition, the Trading Policy provides for adjustments in the trading credits received by a discharger, referred to as trading ratios, designed to: (1) account for the reduction of the nutrient load from a nonpoint source that would have occurred naturally prior to discharge to the applicable water body (delivery ratio); (2) provide for reduction of the overall nutrient load for a water body (water quality ratio); and (3) provide a margin of error (uncertainty ratio). Together, these requirements ensure that trading will not adversely affect water quality in the short term and will improve water quality in the long term.

For the reasons given above, the board finds it reasonable and necessary to adopt the Trading Policy.

4. The proposed Montana Policy for Nutrient Trading can be viewed at http://deq.mt.gov/wqinfo/NutrientWorkGroup/default.mcpx.

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., November 14, 2012. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

6. Katherine Orr, 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.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

/s/ John F. North
JOHN F. NORTH
Rule Reviewer

BY: */s/ Joseph W. Russell*
JOSEPH W. RUSSELL, M.P.H.,
Chairman

Certified to the Secretary of State, October 1, 2012.

Montana Department of
ENVIRONMENTAL QUALITY
Brian Schweitzer, Governor
P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

MEMORANDUM

To: Board of Environmental Review
From: David Dennis, DEQ Staff Attorney
Re: Stringency Review and Takings Checklist for Proposed New Rule I Nutrient Trading - MAR Notice No. 17-339.

Date: November 15, 2012

STRINGENCY REVIEW

Prior to adopting a rule that is more stringent than a comparable federal standard or guidelines, § 75-5-203, MCA, requires the Board of Environmental Review to make certain written findings after a public hearing and after receiving public comment. No written findings are required if the more stringent standard is "required by state law." In addition, § 75-5-309, MCA, requires the Board of Environmental Review to make certain written findings that are accompanied by a Board opinion evaluating the environmental and public health information in the record prior to adopting a rule that is more stringent than corresponding federal draft or final regulations, guidelines, or criteria.

New Rule I establishes guidelines and requirements for evaluating nutrient trading proposals. Nutrient trading is a tool to assist point source dischargers to meet their interim and long-term nutrient discharge limits. A point source discharger may buy "credits," in the form of an additional allocation of nutrient discharge, from another point source discharger that is discharging to the same water body and is discharging below its nutrient limit. A point source discharger may also obtain "credits" by entering into agreements with nonpoint source dischargers to employ nutrient management practices that reduce the nonpoint source's discharge of nutrients to a common water body.

No comparable federal rules or regulations exist for "nutrient trading." Further, participation in a nutrient trading arrangement is discretionary on the part of a point source discharger.

The proposed rule does not render any Montana water quality rule or standard more stringent than any corresponding federal water quality rule or standard. Therefore, no written findings are required pursuant to §§ 75-5-203, and 75-5-309, MCA.

TAKINGS REVIEW

The Private Property Assessment Act, codified as § 2-10-101, MCA, requires that, prior to adopting a proposed rule that has taking or damaging implications for private real property, an agency must prepare a taking or damaging impact statement. "Action with taking or damaging implications" means:

> [A] proposed state agency administrative rule, policy, or permit condition or denial pertaining to land or water management or to some other environmental matter that if adopted and enforced would constitute a deprivation of private property in violation of the United States or Montana Constitution.

§ 2-10-103, MCA.

Section 2-10-104, MCA, requires the Montana Attorney General to develop guidelines, including a checklist, to assist agencies in determining whether an agency action has taking or damaging implications. I have completed an Attorney General's "Private Property Assessment Act Checklist" pertaining to the Board's adoption of proposed revisions in MAR Notice No. 17-339, which is attached to this memo. Based upon completion of the checklist, the proposed revisions do not have taking or damaging implications. Therefore, no further HB 311 assessment is required.

PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST FOR AMENDMENTS PROPOSED IN MAR NOTICE 17-339

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights or some other environmental matter?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (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? (consider economic impact, investment-backed expectations, character of government action)
	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?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered 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?
	X	Takings or damaging implications? (Taking or damaging implications 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; the shaded areas)

David G. Dennis
DEQ Legal Unit

11/7/2017
Date

Hydrometrics, Inc.
consulting scientists and engineers

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November 14, 2012

Ms. Elois Johnson, Paralegal
Department of Environmental Quality
1520 East 6th Ave
P.O. Box 200901
Helena, MT 59620-0901

RE: Adoption of New Rule I pertaining to Nutrient Trading, MAR Notice No. 17-339

Dear Elois,

The following comments pertain to the adoption of new rules implementing nutrient trading. While the new rules are straight forward (New Rule I, Parts 1-5), I have comments on Circular DEQ-13 Montana's Policy for Nutrient Trading (Draft).

1. Part II Definitions (1) Baseline
   The definition of baseline needs to be clarified. Although several instances are called out, the term is used to define an effluent limit (as described in a discharge permit) and also to describe numeric criteria for a receiving water. Baseline also needs to be defined for instances before numeric criteria for nutrients are adopted (i.e., to achieve variance levels).

2. Part II Definitions (2) Credit
   Further clarification of credits in the context of baseline is required. Perhaps the department can generate guidance with examples to clarify what would constitute a credit verses achieving baseline conditions.

3. Part II Definitions (7) Trading Ratios
   a. Delivery Ratios as described is a nebulas term that could equate to anything or nothing. If natural attenuation is used to discount credits removed from the receiving water, then the actual condition of the receiving water at the point of discharge should be used to determine the baseline condition to establish the evaluation. Please define criteria used to define delivery ratios to prevent arbitrary assignments.

   b. Uncertainty Ratios need to be defined. Criteria used to establish uncertainty ratios must be expressed and defined.

4. Part III Key Principles (2) Trading in an impaired waterbody…
   Variance is used as an exemption to TMDL loads, but the term variance is not defined in the policy. Please define the application of variances in context of the trading policy.

Anderson~Montgomery
CONSULTING ENGINEERS

1064 N. Warren
Helena, Montana 59601
Telephone: (406) 449-3303
FAX: (406) 449-3304

Infrastructure Specialists

Date: 11/13/12 1:30 PM

To: Montana Board of Environmental Review

From: Scott Anderson, P.E., President
Anderson-Montgomery Consulting Engineers
1064 N. Warren Helena, MT 59601

Re: **Written Comments – Nutrient Trading Rules**

Comment #1 We would ask the Department to consider including metals trading as quickly as possible. While we realize, as per other comments, the Department wishes to implement nutrient trading before taking on other pollutants but very stringent metals limits are now showing up in municipal permits. These limits require very costly technologies which generally have not been adapted to traditional wastewater treatment processes. Implementing controls of metals, typically caused by historical mining activity, through non-point source controls could be very cost-effective versus removal in the wastewater plant.

Comment #2 The notice for this hearing on the new rules indicates that proposals for nutrient trading credits will only be considered during or before the application for renewal of a MPDES discharge permit. We hope that there is some flexibility when the department considers a request for nutrient trading, particularly given what can be a long period of time between when a permit is applied for and ultimately reissued in final form. Could the reopener provision of the discharge permit be used for consideration of a nutrient trading proposal?

Thank you for considering these comments.

CLARK FORK COALITION

November 15, 2012

Elois Johnson
Department of Environmental Quality
1520 E. Sixth Ave., P.O. Box 200901
Helena, Montana 59620-0901

Re: Comments on Montana's Draft Policy for Nutrient Trading

Dear Ms. Johnson,

The Clark Fork Coalition appreciates the opportunity to comment on the Draft Policy for Nutrient Trading. As a river conservation organization representing citizens, business people, and recreationists throughout the Clark Fork watershed, we've been actively engaged in local water quality issues for 27 years.

In general, we support the concept of nutrient trading, and agree that an incentivized system of market-based trades may help maintain and even improve water quality as Montana's population grows. We also recognize the potential benefits of ancillary benefits that accrue to the ecosystem, beyond a reduction of nutrient loads, such as wetland and riparian restoration. Ultimately, we hope that this will afford some flexibility during the period of time between adoption of nutrient standards, and the development of more effective and affordable methods of removing nutrients from point-source waste discharges.

We also recognize that the devil is in the details with nutrient trading and we list below several concerns and questions from the Draft Policy, listed by page number and section.

p. 1 Section I. Introduction: The document states.. *"Trading under this policy may take place under a variety of conditions that may arise after or before the adoption of numeric criteria for nutrients, including circumstances where trading is used to: (1) comply with an approved total maximum daily load (TMDL) for nutrients; (2) offset a new or increased discharge of nutrients; (3) comply with water quality-based effluent limits for nutrients; or (4) offset a new or increased discharge of nutrients into "high quality" waters."* It is unclear how part (4) above would work with the State's nondegradation rule, and feel that the trading policy should include a brief section on how nondegradation rules would apply with respect to nutrient trading.

p. 1 Section I. Introduction: The document states... *"All trades that involve point source discharges will be monitored and enforced under a Montana Pollutant*

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BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the adoption of New Rule I pertaining to nutrient trading	)))	Presiding Officer Report

1. On November 13, 2012, at 2 p.m., the undersigned Presiding Officer conducted the public hearing held in Room 111 of the Metcalf Building, 1520 East Sixth Avenue, Helena, Montana, to take public comment on the above-captioned proposed amendment. New Rule I establishes guidelines and requirements for evaluating nutrient trading proposals.

2. Notice of the hearing was contained in the Montana Administrative Register (MAR), Notice No. 17-339, published on October 11, 2012, in Issue No. 19. A copy of the notice is attached to this report. (Attachments are provided in the same order as they are referenced in this report.)

3. The hearing was taped and the Department of Environmental Quality representative, Mr. Eric Regensburger, retained the tape.

4. There was one member of the public who testified at the hearing, Mr. Scott Anderson. He submitted written comments which reflect his written comments. These comments are attached. At the hearing, the Presiding Officer identified and summarized the MAR notice and read the Notice of Function of Administrative Rule Review Committee as required by Mont. Code Ann. § 2-4-302(7)(a).

SUMMARY OF HEARING

5. Mr. Eric Regensburger, water quality specialist, of the Montana Department of Environmental Quality (Department) submitted a written statement and gave a brief oral summary of the new rule at the hearing. (The written statement is attached.)

6. Written comments were submitted by, Mr. Scott Anderson, Mr. James Lloyd, P.E. of Hydrometrics, Inc. and by Ms. Christine Brick of the Clark Fork Coalition. These comments are attached.

7. A written memorandum was submitted from Department staff attorney, Mr. David Dennis containing HB 521 and HB 311 reviews of the proposed adoption of the New Rule together with a Private Property Assessment Act Checklist. (Mr. Dennis' memorandum is attached to this report.)

8. Mr. Dennis stated that no comparable federal rules or regulations exist for nutrient trading and participation in a nutrient trading arrangement is discretionary on the part of a point source discharger. He concluded that the proposed rule does not render any Montana water quality rule or standard more stringent than any corresponding federal water quality rule or standard and therefore no written findings are required pursuant to Mont. Code Ann. §§ 75-5-203 and 75-5-309.

9. With respect to HB 311 (the Private Property Assessment Act, Mont. Code Ann. §§ 2-10-101 through 105), the Board of Environmental Review (Board) is required to assess the taking or damaging implications of a proposed rule or amendments affecting the use of private real property. This rulemaking affects the use of private real property.

A Private Property Assessment Act Checklist was prepared, which shows that the proposed amendments do not have taking or damaging implications. Therefore, no further assessment is required.

10. The period to submit comments ended at 5 p.m. on November 14, 2012.

PRESIDING OFFICER COMMENTS

11. The Board has jurisdiction to make the proposed amendments. See Mont. Code Ann. §§ 75-5-201 and 75-5-401.

12. The conclusions in the memorandum of Mr. Dennis concerning House Bill 521 (1995) and House Bill 311 (1995) are correct.

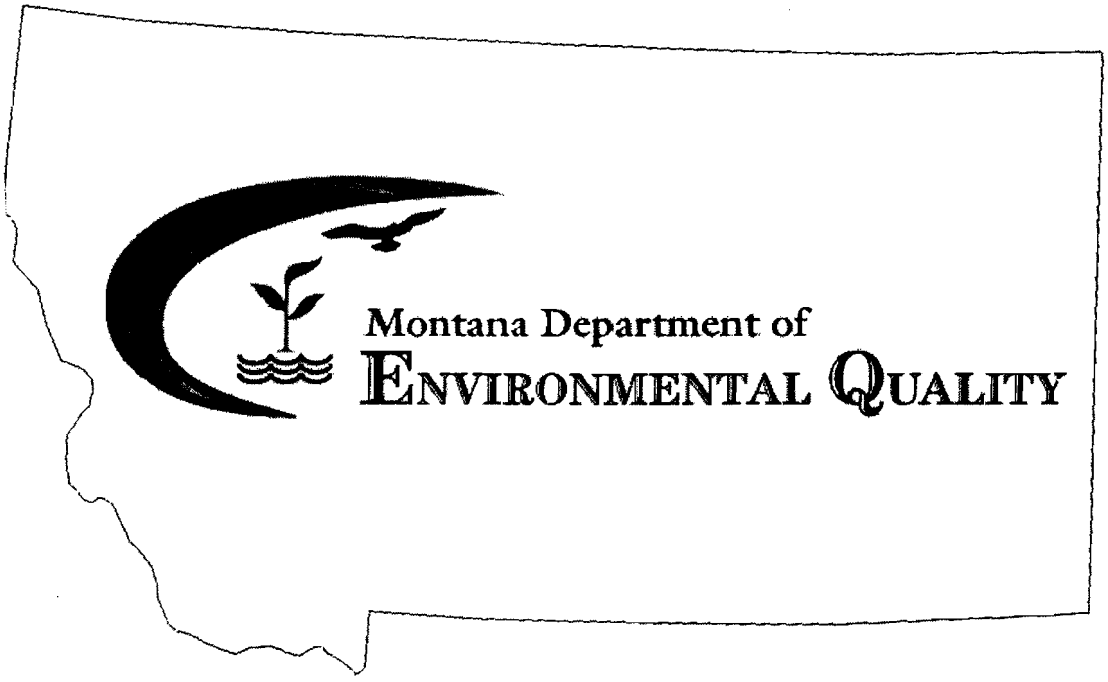
13. The procedures required by the Montana Administrative Procedure Act, including public notice, hearing, and comment, have been followed.

14. The Board may adopt the proposed new rule, reject it, or adopt it with revisions not exceeding the scope of the public notice.

15. Under Mont. Code Ann. § 2-4-305(7), for the rulemaking process to be valid, the Board must publish a notice of adoption within six months of the date the Board published the notice of proposed rulemaking in the Montana Administrative Register, or by April 11, 2012.

DATED this 23rd day of November, 2012.

KATHERINE J. ORR
Presiding Officer



CIRCULAR DEQ-13

MONTANA'S POLICY FOR NUTRIENT TRADING

December 2012

MONTANA'S POLICY FOR NUTRIENT TRADING

I. INTRODUCTION

Montana may soon adopt numeric criteria for nutrients (nitrogen and phosphorous) that will protect the beneficial uses of state surface waters.[1]

Implementation of the criteria is supported by legislation that allows for the adoption of an individual variance or the approval of a general variance[2] from the base numeric nutrient standards for a specific point source discharge due to: (1) substantial and widespread economic harm or (2) the limits of technology, or both.[3]

Obtaining a nutrient standards variance, as defined in 75-5-103(22), MCA, will allow a point source to commence or continue discharging in compliance with the terms of the variance for a defined period of time without significant and costly upgrades. Although a variance will provide interim goals and a time frame for point sources to begin reducing nutrient loading, the State's long-term goal is that each point source will reduce nutrient loading in the amount necessary to achieve compliance with the State's nutrient criteria as soon as feasible. This policy provides the framework for allowing point source discharges to use trading as a cost-effective method of achieving the State's numeric criteria for nutrients without delay and avoid the need for a variance. Trading under this policy is intended to provide a flexible and voluntary alternative to meeting the numeric nutrient criteria or, when applicable, a variance from those criteria. Although the policy does not provide for Department of Environmental Quality (DEQ) review and approval of nonpoint to nonpoint source trading, DEQ may consider such trades when needed.

Trading under this policy may take place under a variety of conditions that may arise after or before the adoption of numeric criteria for nutrients, including circumstances where trading is used to: (1) comply with an approved total maximum daily load (TMDL) for nutrients; (2) offset a new or increased discharge of nutrients; (3) comply with water quality-based effluent limits for nutrients; or (4) offset a new or increased discharge of nutrients into "high quality" waters. This policy allows point source to point source trading, point source to nonpoint source trading, and nonpoint to nonpoint source trading. All trades that involve point source discharges will be monitored and enforced under a Montana Pollutant Discharge Elimination System (MPDES) permit. DEQ will not allow the use of credits or trades that would cause an impairment of existing or designated uses, adversely affect water quality at an intake for drinking water supply, or that would exceed a cap[4] established under a TMDL.

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[1] The terms "numeric criteria for nutrients" and "numeric nutrient criteria" are used interchangeably and have the same meaning as "base numeric nutrient standards" as defined in § 75-5-103(2), MCA.

[2] A variance, if adopted or approved by DEQ for a specific point source, provides a defined period of time in which a specific point source is not required to comply with the base numeric nutrient standards. A variance may not exceed 20 years.

[3] The term "limits of technology" will be defined in rulemaking.

[4] The cap that cannot be exceeded refers to a particular watershed's total load of nutrients established by a TMDL. Consequently, the prohibition against allowing trades that exceed a cap established by a TMDL

1. Purpose

The purpose of this policy is to facilitate trading among watershed stakeholders interested in participating in nutrient trading opportunities. Consistent with *EPA Water Quality Trading Policy,* DEQ encourages water quality trading when it does not result in adverse ecological consequences and supports one or more of the following objectives:

*To provide a cost-effective method for achieving compliance with Montana's base numeric nutrient standards or for achieving compliance with a nutrient standards variance appoved or adopted by DEQ.

* To offset new or increased discharges resulting from growth in order to *maintain and improve* levels of water quality that support all designated uses.

* To establish economic incentives for *reductions* from all sources within a watershed.

* To reduce the cost of implementing nutrient TMDLs or water quality-based effluent limits for nutrients through greater efficiency and flexible approaches.

* To achieve greater environmental benefits than through the existing regulatory framework. For example, DEQ supports the creation of water quality trading credits that achieve ancillary environmental benefits beyond the required reductions of pollutant loads, such as the creation and restoration of wetlands and riparian habitat.

II. DEFINITIONS

1. Baseline: The baseline for generating pollution reduction credits must be consistent with applicable water quality standards. The term pollution reduction credits ("credits"), as used in this policy, means pollutant reductions greater than those required by a regulatory requirement for nonpoint sources or established under a TMDL waste load allocation or water quality-based effluent limit for point sources. For purposes of determining baseline, the term "water quality-based effluent limit" means an effluent limit that ensures compliance with the base numeric nutrient criteria. Examples of "baseline" for impaired waters where a TMDL has been approved or established and for waters where no TMDL has been established, including "high quality" waters,[5] are as follows:

(a) Impaired waters where a TMDL has been approved or established
Where a TMDL has been established or approved, the applicable point source waste load allocation would establish the point source's baseline for generating credits. In distinction, the baseline for nonpoint sources is the level of pollutant load associated with existing land uses and management practices that comply with applicable state, local, or

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does not prohibit trades that may result in an exceedance of an invidual waste load allocation, as long as the cap for the total load is not exceeded.

[5] As used in this policy,"high quality" water is a water body with water quality that is better than the base numeric nutrient standards adopted by the Board of Environmental Review.

tribal regulations. See §75-5-317(2)(a) and (b), MCA. A nonpoint source may generate credits by achieving greater nutrient load reductions than required by any statute or rule governing its nonpoint source activity. A nonpoint source may not, however, terminate an existing Best Management Practice (BMP) to reduce the baseline requirement in order to generate credits for future trading purposes.

(b) Waters where no TMDL has been established

For trades that occur where the quality of water is better than the numeric nutrient standards (i.e., "high quality" waters), or in impaired waters prior to a TMDL being established, the baseline for point sources would be established by a water quality-based effluent limitation. In this instance, like the previous instance, the baseline for nonpoint sources is the level of pollutant load associated with existing land uses and management practices that comply with applicable state, local, or tribal regulations. A nonpoint source may generate credits by achieving greater nutrient load reductions than required by any statute or rule governing its nonpoint source activity. A nonpoint source may not, however, terminate an existing BMP to reduce the baseline requirement in order to generate credits for future trading purposes.

2. Credit: In general, a credit is a reduction in nutrient loads beyond baseline conditions. More specifically, it is a measured or estimated unit of pollutant reduction per unit of time adjusted to account for applicable trading ratios. A seller generates excess load reductions by controlling its discharge beyond what is needed to meet its baseline through controlling its flow and/or its discharge concentrations. A buyer compensates a seller for creating the excess load reductions that are then converted into credits by using trading ratios. Where appropriate, the buyer can use the credits to meet a regulatory obligation. Credits are expressed as pounds of nitrogen or phosphorous per applicable period of time that is delivered to surface waters in the watershed. Credits will need to be measured or estimated, verified, and accounted for according to that time period. Credits cannot be banked for a future time period, unless it can be demonstrated that an off-season reduction provides a water quality benefit within the applicable period of the standards.

(a) Point source credits

A point source may generate credits by achieving measured nutrient reductions greater than the waste load allocation established for the point source under a TMDL or greater than a water quality-based effluent limitation for its discharge derived from the State's numeric nutrient criteria. A credit may not be generated by achieving nutrient reductions greater than required by a nutrient standards variance approved or adopted by DEQ for the point source.

(b) Nonpoint source credits

A nonpoint source may generate credits by achieving nutrient reductions greater than required by a regulatory requirement applicable to that source. For those nonpoint sources not subject to regulatory requirements, nutrient reductions achieved by changing existing practices or conditions will qualify for credits. Nonpoint source credits will be based upon a measured or estimated reduction of nutrients adjusted to account for applicable trading ratios. For example, such loads may be calculated by using watershed

model delivery ratios that will be applied to edge-of-fields loads or may be calculated by a model used in a Department-approved TMDL. (See Appendix A)

3. Nonpoint Source: A "nonpoint source" is any source of diffuse runoff or discharge that is not a "point source," as defined in Montana's water quality laws, § 75-5-103, MCA. Examples of nonpoint sources include, but are not limited to, farming activities, cattle grazing, timber harvesting, unpaved roads, septic systems, and eroding stream banks.

4. Nutrient Trading: Trading is a market-based approach to achieving water quality standards in which a point source purchases pollutant reduction credits from another point source or a nonpoint source in the applicable trading region that are then used to meet the source's pollutant discharge obligations. To be creditable to the source purchaser, the credits must reflect an actual, pollutant load differential below the credit seller's baseline. Under certain circumstances, a point source buyer may have to purchase more than one pound of pollutant reduction to equal a pound discharged at its outfall.

5. Nutrient Reduction: The difference in nutrient (total nitrogen or total phosphorus) discharges to surface waters achieved by activities such as best management practices or technical upgrades, compared to the applicable baseline after meeting eligibility requirements.

6. Total Maximum Daily Loads (TMDL): A TMDL is "...the sum of the individual waste load allocations for point sources and load allocations for both nonpoint sources and natural background sources established at a level necessary to achieve compliance with applicable water quality standards." § 75-5-103(37), MCA. In other words, a TMDL establishes the maximum amount of pollutant load that a waterbody can receive and still meet applicable water quality standards. A TMDL includes an allocation of pollutant loadings to point sources (waste load allocations **WLAs**), an allocation on pollutant loadings to nonpoint sources or natural sources (load allocations **LAs**), and a margin of safety.

7. Trading Ratio: Discount factors applied to pollutant reductions to account for delivery or uncertainty. The following are examples of trading ratios:

(a) Delivery Ratios

Delivery ratios apply discount factors to compensate for a pollutant's travel over land or in water (or both) and may be applied to point, as well as, nonpoint sources. Delivery ratios generally account for attenuation (i.e., the rate at which nutrients are reduced through natural processes, such as hydrolysis, oxidation, and biodegradation, on their way to the mainstem of the waterbody). The ratio may vary depending on the location of the source. Generally, the greater the distance the pollutant has to travel, the greater the pollutant loss will be. This ratio would work to equalize a trade between a source in the headwaters and one near the mainstem. This ratio is often referred to as the "location ratio." Delivery ratios will be based upon information from applicable and accepted data sources as reviewed and approved by DEQ. Delivery ratios may incorporate time-variable credits to account for delays between implementation of a load

reduction (e.g. connecting a Wastewater Soil Disposal System (WSDS) to a permitted wastewater treatment plant) and the time that load reduction is actually realized in the receiving water.

(b) Uncertainty Ratios

Uncertainty ratios are intended to account for variation in the expected reliability and efficiency of the source or type of reduction being applied toward credit for another. They are calibrated to create a margin of safety or otherwise attempt to ensure that the credited practice provides a minimum level of reductions to ensure water quality is improved as a result of the trade, even if actual reduction efficiencies and units removed are on the low end of an expected range. In some instances uncertainty ratios will not be employed because they are already accounted for in quantification methods used in delivery ratios.

Once a trading ratio has been established for a specific BMP DEQ cannot change the ratio unless the BMP is not mainained as originally proposed.

8. Load Allocation (LA): The portion of the receiving water's loading capacity that is allocated to one of its existing or future nonpoint sources of pollution or natural background sources.

9. Waste Load Allocation (WLA): The portion of receiving water's loading capacity that is allocated to one or more of its existing or future point sources of pollution. WLAs implemented in discharge permits constitute a type of water-quality based effluent limit.

10. Wastewater Soil Disposal System (WSDS): Any system that disposes of sewage effluent on top or beneath the soil surface such that the wastewater migrates downward below the soil surface.

III. KEY PRINCIPLES

1. All new or expanded point source nutrient loads must be fully offset on streams that are impaired by nutrients.

To participate in trading, new point source dischargers with no allocation in the watershed or point source discharges requesting an increase in a waste load allocation in the watershed must fully offset any increased point source loading.

2. Trading in an impaired waterbody for which a TMDL has been approved or established must be consistent with the assumptions in the TMDL's WLA or any interim WLA.

Nutrient trades must not exceed the total load imposed by the TMDL, except when a variance has been granted. There are two phased TMDLs currently existing (Lake Helena and Flathead Lake.), which provide interim goals that establish interim waste load allocations. For these phased TMDLs, trading must comply with the interim waste load allocations or a variance from the interim waste load allocation approved by DEQ.

3. All nutrient trades involving point sources will be implemented and enforced via MPDES permits.

When trading involves a point source, the permit limits of the point source discharge will incorporate the nutrient trade. The permit will also provide the vehicle for enforcement of the trade condition. In the event of default by another source generating credits for a MPDES permittee, the MPDES permittee using those credits is responsible for complying with the effluent limitations that would have applied if no trade had occurred. The use of the discharge permit program will ensure that credits are accountable, reliable, and enforceable. When specific conditions of the trade need to be verified over time, the permit will require that the permittee submit an annual update to the Department verifying that the conditions of the trade are being complied with. The public will have an opportunity to comment on any permit conditions that allow trading during the public comment period on the draft permit. These conditions will be subject to the normal comment process and period for comment, along with all other conditions of the permit.

4. What may be traded.

DEQ supports the concept of trading and through this Policy seeks to specifically facilitate the trading of nutrient (total phosphorous and total nitrogen) credits. Such trades must involve comparable credits (e.g., total nitrogen traded for total nitrogen).

5. Duration of Credits

A point source discharger submitting a trading proposal must demonstrate that it has secured credits for at least the permit cycle (i.e., 5 years).

Other safeguards should be considered by the permittee and by the non-point source that is generating credits to ensure that the appropriate amount of credits are generated during the entire 5-year permit cycle. They may include such things as backup plans and alternative options to address failures by nonpoint sources to provide the contracted credits.

IV. FUNDAMENTALS

1. Credit Funding Sources

Credits may be generated from point or nonpoint source discharges funded through a variety of sources such as the State Revolving Fund, local funds, or private funds. The cost of credits are determined by the market.

2. Who May Participate in Trading

(a) Point sources (e.g., sources required by law to obtain a Montana Pollutant Elimination Discharge (MPDES) discharge permit)
(b) Nonpoint sources (e.g., any source that is not required to obtain an MPDES permit, such as logging activities, agricultural activities, or septic systems)

(c) Third parties (e.g., county governments, nonprofits, aggregators, private brokers, etc.)
(d) Any combination of the above

3. Examples of Obtaining Nutrient Credits

Credits may be obtained by: a) implementing any of the options listed below: b) implementing a BMP described or referenced (see references to BMPs in other states) inAppendix A: or c) implementing other options that may be proposed on a case-by-case basis through the MPDES public participation process.

A person proposing to implement a BMP may calculate load credits using an applicable method described in Appendix A as guidance. Alternatively, a person may calculate load credits using any other method applicable to the site where a BMP will be implemented. DEQ will review each proposed load calculation during the application process prior to approving its use in a MPDES permit.

Potential Sources of Nutrient Reduction Credits

1. Retiring an existing WSDS with a demonstrated hydrologic connection to surface water by connecting to a permitted wastewater treatment facility. Where existing WSDS's are connected to DEQ permitted wastewater systems as part of a trading plan, the following elements, as a minimum, must be included:
   (i) GIS mapping of septic system locations;
   (ii) Annual nutrient loading at the edge of the WSDS discharge (including septic type if it is a significant factor in loading values); and
   (iii) Nutrient delivery ratio and uncertainty ratio based on site-specific conditions.
2. Land application of wastewater with any applicable treatment and nutrient management controls;
3. Optimizing treatment operations;
4. Animal waste management (i.e., ponds, lagoons, holding tanks);
5. Conservation tillage (e.g., no-till, low-till);
6. Cover crops;
7. Retirement of highly erodible land;
8. Installation of new runoff or erosion control;
9. Installation of new stream protection;
10. Installation of new forest conservation or harvesting practices;
11. Enhanced storm water management;
12. Forested or grass buffers;
13. Other protection practices as approved by DEQ.

4. Where Trading May Occur (Boundaries)

Geographical boundaries for trading will be based on watershed boundaries. Other boundary conditions may exist in certain instances, such as when the stream passes through a reservoir, lake, or large wetland complex. Generally credits should be generated upstream in the watershed.

Certain site specific conditions may allow for downstream credit generation for downstream trading. Downstream trades will be structured to minimize increased loading to any portion of an impaired water body or to prevent exceedences of water quality standards on a non-impaired waterbody. DEQ may include increased trading ratios when approving a downstream trade to meet those objectives.

5. Effect of Policy

The policy and procedures outlined in this document are intended to supplement existing requirements established under Montana's Water Quality Act and rules implementing that Act. Nothing in the policy or procedures reduces or replaces these existing regulatory requirements.

DEQ's authority to allow MPDES permits to use trading is provided for under Montana's Water Quality Act, and rules implementing the State's MPDES program. This document establishes the framework for DEQ to exercise its administrative discretion when allowing nutrient trading in MPDES permits. Neither the load allocations established for both point and nonpoint sources under TMDLs nor the credits generated or purchased under this policy are a property right. For point sources, waste load allocations and trading baselines will be implemented through MPDES permits.

V. IMPLEMENTATION

This section describes the requirements and process for obtaining DEQ approval of nutrient trades in MPDES permits. DEQ will provide a pre-application process to work with any point source interested in trading to assist in determining the appropriate information needed to incorporate the trade in an MPDES permit and inform the permittee of any new permit conditions that will be required to implement the trade.

1. Identifying Trading Partners

Sources seeking to acquire or sell credits are responsible for finding trading partners. For example, trading partners may be identified by contacting individual sources that have been identified as contributors of nutrient loading in an approved TMDL or by contacting third-party stakeholder groups.

2. Application Process and Documentation Procedures

Point sources planning to enter into a trading agreement shall submit an application for approval of the trade. The application shall be composed of three parts: (1) specific details of the trade; (2) credit buyer documentation; and (3) credit seller documentation. The point source trading partner will be responsible for including the trade application information in any permit application or permit modification request.

3. The Trading Application - Specific Details of the Trade

The applicant proposing the trade shall provide specific information about the proposed trading arrangement. Depending on the details of the specific trade, the following information may be required:

* time period for the trading arrangement;
* the number of credits to be exchanged each year during this period;
* how the number of credits was determined;
* source of the credits;
* the general contractual arrangements;
* timeline for credit generation and use;
* need for the trade, including the waste load allocation status, flow and load projections;
* the consistency of the trade with any approved TMDL;
* the eligibility of the facility to trade;
* the location of the facilities and any applicable watershed delivery factor;
* the credit acquisition plan;
* how the discharge credits will be generated;
* inspection and verification requirements; and
* any other relevant information requested by DEQ.

DEQ will review the application to trade and evaluate it based upon the requirements described in this policy. DEQ may approve the application, approve it with conditions, or deny the application. The approved trade will be included in a draft MPDES permit and public comment on the trade will be accepted during the formal public comment period required for all MPDES permits. DEQ approval is not final until the MPDES permit is issued incorporating the trade.

APPENDIX A

1. SUMMARY OF TRADE CREDIT CALCULATIONS FOR NON-POINT BMPs USED BY OTHER STATES

IDAHO

Summary: Have a list of 12 specific BMPs for phosphorus reduction with a pre-determined "Effectiveness" percentage and a pre-determined "Uncertainty" percentage. Prior to using those tables, applicant must determine the site-specific reduction in soil loss from the proposed BMP by using an NRCS program called Surface Irrigation Soil Loss (SISL) tool.

http://www.deq.idaho.gov/media/488798-water_quality_pollutant_trading_guidance_0710.pdf

Notes:

- BMP list only applies to the Lower Boise Watershed. BMP effectiveness and uncertainty for other Idaho watersheds have not been determined yet.
- The SISL tool is designed for irrigated croplands.
- Pre-determined BMPs do not include effectiveness or uncertainty for nitrogen.
- BMPs not on the pre-determined list must go through a detailed monitoring program to determine the appropriate effectiveness percentages.

OREGON

Summary: Provides simple calculations for determining nitrogen and phosphorus reductions for 3 BMPs (grassy swales, vegetative buffers, and livestock fencing). Applicant only needs to provide annual precipitation value and land use area affected. Also includes trading ratios for the three BMP (ratios vary between 2.5 and 2.8)

http://www.deq.state.or.us/wq/pubs/imds/wqtrading.pdf (see Appendix D).

Notes:

- Calculations apply over the entire state.
- Does not address how to determine credits for any other BMPs.

USEPA

Summary: Uses the Spreadsheet Tool for Estimating Pollutant Loads (STEPL) model and the Region 5 model. Includes and describes 62 BMPs that can be used in the "BMP Efficiency Calculator for STEPL". The BMP efficiency calculator requires the user to enter the state, county and nearest weather station (from a list provided) and the local soil hydrologic group (A, B, C or D).

http://it.tetratech-ffx.com/steplweb/

Notes:

- Includes a list of simple, mid-range, and complex models that can be used to estimate sediment and nutrient loads before and after BMPs. STEPL and Region 5 models are considered "simple" models in this list.
- Region 5 model includes a detailed manual.

OHIO

Summary: Uses the Region 5 model described in the USEPA section. Also suggests use of the NRCS Revised Universal Soil Loss Equation (RUSLE), Version 1.

http://www.dnr.state.oh.us/tabid/8856/Default.aspx

NRCS

Summary: Has developed the Revised Universal Soil Loss Equation, Version 2 (RUSLE2) that includes more user friendly interface.

http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm

MONTANA'S SEPTIC TRADING METHOD

Table 1

NITROGEN ATTENUATION FACTORS FOR SEPTIC SYSTEM DISCHARGES TO GROUND WATER

Percent Nitrogen Load Reduction[1]	Soil Type @ Drainfield[2]	Soil Type within 100' of surface water[2]	Distance to surface water (ft)
0	A	A	0 – 100
10	B		101 – 500
20	C	B	501 – 5,000
30	D	C	5,001 – 20,000
50		D	20,001+
Data Source	NRCS Web Site / GIS STATSGO or SSURGO		GIS – County Records / State Cadastral

Notes:

APPENDIX A

(1) The total nitrogen reduction is the sum of the individual reductions for each column of the table. For example a drainfield that is in a type C soil (20%) that drains to a surface water with type B soil (20%) and is 200 feet from the surface water (10%) would reduce their nitrogen load to the surface water by 50% from what is discharged from the drainfield.

(2) Soil descriptions are available via the NRCS web soil survey at: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx . Once the Area Of Interest (AOI) has been defined information is accessed by clicking on following links: "Soil Data Explorer" – "Soil Properties and Qualities" – "Soil Qualities and Features" – "Drainage Class". The NRCS soil survey has seven soil drainage classes that are correlated to the A, B, C and D designation in the table as follows:

A = excessively drained or somewhat excessively drained
B = well drained or moderately well drained
C = somewhat poorly drained
D = poorly drained or very poorly drained

Within the defined area of interest, the soil survey application provides the percent of soil types with these attributes. That feature provides a quick way to determine the percent of each soil type and therefore the percent reduction for each area of interest defined.

Table 2
PHOSPHORUS ATTENUATION FACTORS FOR SEPTIC SYSTEM DISCHARGES TO GROUND WATER

Percent Phosphorus Load Reduction[1]	Soil Type @ Drainfield[2,3] (CaCO3 <= 1%)	Soil Type @ Drainfield[2,3] (CaCO3 >1% and <15%)	Soil Type @ Drainfield[2,3] (CaCO3 >=15%)	Distance to surface water (ft)
0	A	A	A	0 – 100
10			B	
20		B	C	
30	B		D	101 - 500
40		C		
60	C	D		501 - 5,000
90	D			
100				5,001 +
Data Source	NRCS Web Site / GIS STATSGO or SSURGO			GIS – County Records / State Cadastral

APPENDIX A

Notes:

(1) The total phosphorus reduction is the sum of the individual reductions for the soil type (only use one of the three soil columns) and the distance to surface water. For example a drainfield that is in a type B soil with less than 1% CaCO3 (30%) and is 200 feet from the surface water (40%) would reduce their nitrogen load to the surface water by 70% from what is discharged from the drainfield.

(2) Soil descriptions are available via the NRCS web soil survey at: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx . Once the Area Of Interest (AOI) has been defined information is accessed by clicking on following links: "Soil Data Explorer" – "Soil Properties and Qualities" – "Soil Qualities and Features" – "Drainage Class". The NRCS soil survey has seven soil drainage classes that are correlated to the A, B, C and D designation in the table as follows:

A = excessively drained or somewhat excessively drained
B = well drained or moderately well drained
C = somewhat poorly drained
D = poorly drained or very poorly drained

Within the defined area of interest, the soil survey application provides the percent of soil types with these attributes. That feature provides a quick way to determine the percent of each soil type and therefore the percent reduction for each area of interest defined.

(3) CaCO3 percent is available via the NRCS web soil survey at: http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx . Once the area of interest has been defined information is accessed by clicking on following links: "Soil Data Explorer" – "Soil Properties and Qualities" -- "Soil Chemical Properties" – "Calcium Carbonate (CaCO3)". Within the defined area of interest, the soil survey application provides the percent of land with the percent of CaCO3. That feature provides a quick way to determine the percent of area of different CaCO3 percentages and therefore the percent reduction for each area of interest defined.

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the adoption of New Rule I pertaining to nutrient trading	)))	NOTICE OF ADOPTION (WATER QUALITY)

TO: All Concerned Persons

1. On October 11, 2012, the Board of Environmental Review published MAR Notice No. 17-339 regarding a notice of public hearing on the proposed, adoption of the above-stated rule at page 1902, 2012 Montana Administrative Register, issue number 19.

2. The board has adopted New Rule I (17.30.1701) as proposed, but with the following changes, new matter underlined, stricken matter interlined:

NEW RULE I (17.30.1701) NUTRIENT TRADING (1) and (2) remain the same.

(3) An owner or operator of a point source discharge may submit an application for nutrient trading to the department prior to or concurrent with an application for a new, ~~or~~ renewed, or modified MPDES permit. The application must include the information specified in Montana's Policy for Nutrient Trading and be consistent with the guidelines and requirements contained in that policy.

(4) through (5) remain the same.

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

COMMENT NO. 1: We would ask the department to consider including metals trading as quickly as possible. While we realize, as per other comments, the department wishes to implement nutrient trading before taking up other pollutants but very stringent metals limits are now showing up in municipal permits. These limits require very costly technologies which generally have not been adapted to traditional wastewater treatment processes. Implementing controls of metals, typically caused by historical mining activity, through non-point source controls could be very cost-effective versus removal in the wastewater plant.

RESPONSE: Currently trading is allowed for many pollutants in addition to nutrients pursuant to 75-5-703(2), Montana Code Annotated (MCA). The new rule and Circular DEQ-13 focus on nutrients because they are some of the most common pollutants in surface waters and because the department is developing numeric nutrient standards that will require many point source discharges to reduce their nutrient discharges. Even though metals are not specifically addressed in Circular DEQ-13, metals trading is currently allowed and may be proposed by a discharger for incorporation into their Montana Pollution Discharge Elimination System (MPDES) permit. Circular DEQ-13 may be used as a guideline for non-nutrient trades with changes made where necessary to address the particular issues

associated with other pollutants. Circular DEQ-13 can be updated as needed for improvements to nutrient trading and to possibly include other pollutants as the need for that arises.

COMMENT NO. 2: The notice for this hearing on the new rules indicates that proposals for nutrient trading credits will only be considered during or before the application for renewal of a MPDES discharge permit. We hope that there is some flexibility when the department considers a request for nutrient trading, particularly given what can be a long period of time between when a permit is applied for and ultimately reissued in final form. Could the reopener provision of the discharge permit be used for consideration of a nutrient trading proposal?

RESPONSE: Section (3) of the new rule has been modified to specifically allow a trade to be incorporated during a permit modification.

COMMENT NO. 3: Part II Definitions (1) Baseline: The definition of baseline needs to be clarified. Although several instances are called out, the term is used to define an effluent limit (as described in a discharge permit) and also to describe numeric criteria for receiving water. Baseline also needs to be defined for instances before numeric criteria for nutrients are adopted (i.e., to achieve variance levels).

RESPONSE: For the case where a TMDL has been established (or is scheduled to be completed) in the absence of a numeric standard, the TMDL will have a waste load allocation defined for each point source discharge. That waste load allocation becomes the baseline for the point source discharger. For cases where a TMDL is not needed and there are no numeric standards, the department can work with a discharger to interpret the narrative standards into a value to be used to develop a baseline.

COMMENT NO 4: Part II Definitions (2) Credit: Further clarification of credits in the context of baseline is required. Perhaps the department can generate guidance with examples to clarify what would constitute a credit verses achieving baseline conditions.

RESPONSE: The definition of credit expresses the concept in relation to baseline in the first and third sentence of the definition. The board believes that existing definition is adequate to explain the concept that the seller needs to meet its applicable baseline before it can generate saleable credits.

COMMENT NO. 5: Part II Definitions (7) Trading Ratios: Delivery Ratios as described is a nebulus term that could equate to anything or nothing. If natural attenuation is used to discount credits removed from the receiving water, then the actual condition of the receiving water at the point of discharge should be used to determine the baseline condition to establish the evaluation. Please define the criteria used to define delivery ratios to prevent arbitrary assignments.

RESPONSE: Circular DEQ-13 does not specify a particular method for deriving trading ratios for each potential trade scenario, but simply explains what these ratios are and how they are typically applied in the calculation of a credit. This allows the department to rely on the experiences derived from other federal and state agencies when determining site-specific trading ratios. However, based on

previous public input to the department, the board did include Appendix A in Circular DEQ-13. It provides trade ratios and/or delivery ratios for common nonpoint source BMPs and for septic system connections. The board believes that these examples will cover a significant portion of future nutrient trades.

The existing condition of the receiving surface water has no bearing on the calculation of the delivery ratio between the source of nutrients and the surface water. Thus, it is not factored into the delivery ratio analysis as the comment suggests it should be.

COMMENT NO. 6: Part II Definitions (7) Trading Ratios: Uncertainty Ratios need to be defined. Criteria used to establish uncertainty ratios must be expressed and defined.

RESPONSE: Circular DEQ-13 does not specify a particular method for deriving uncertainty ratios for each potential trade scenario, but simply explains what these ratios are and how they are typically applied in the calculation of a credit. The department will rely on the experiences derived from other federal and state agencies when determining site-specific trading ratios, as is already provided for some best management practices in Appendix A of Circular DEQ-13.

COMMENT NO. 7: Part III Key Principles (2) Trading in an impaired waterbody...: Variance is used as an exemption to TMDL loads, but the term is not defined in the policy. Please define the application of variances in context of the trading.

RESPONSE: This section is referring to nutrient standards variances, which are defined in 75-5-103(22), MCA. Circular DEQ-13 has been amended to clarify this throughout the document.

The department believes that Circular DEQ-13 adequately addresses variances in the context of trading. Variances are also is discussed throughout Part I, in Part II 2., and in Part III 2.(a).

COMMENT NO. 8: Part III Key Principles (3) ...enforced via MPDES permit: The draft policy places the burden for compliance on the MPDES permittee for their trading partner's actions. This is not reasonable or equitable action. The DEQ must develop enforceable mechanisms applicable to both trading partners.

RESPONSE: Assurance that the trade will remain viable through the term of the permit will be provided through the contractual obligations that will be required between the permittee and their trade partner (see Part V. 3. of Circular DEQ-13). The permittee is responsible to maintain water quality, and the permit holder can best monitor compliance with the agreement. Furthermore, holding the permittee responsible will give the department a single entity responsible for all permit terms.

COMMENT NO. 9: Part III Key Principles (4) What may be traded: The DEQ should open up trading options for other parameters which are resulting in the same economic hardships to dischargers (e.g. metals and other conventional/ nonconventional pollutants). Most municipal WWTP cannot effectively control metals removal and must upgrade their facilities to meet WQBEL for metals placed in their discharge permits.

RESPONSE: See Response to Comment No. 1.

COMMENT NO. 10: Part V Implementation (3) Trading Application: The draft policy lists general details needed to evaluate the generation and use of credits to be incorporated into a discharge permit. However, the specific requirements needed to determine completeness for an application to trade is lacking. Also, one item on the list is outside the regulatory purview of the department (e.g., general contractual arrangements).

RESPONSE: The information required for each trade is anticipated to vary based on the specifics of the trade. Rather than include a defined set of requirements that may or may not be applicable or useful in assessing a specific trade proposal, Circular DEQ-13 allows that information to be flexible to meet the needs of the trade. As trading is a new tool to both permittees and the department, the board expects and encourages that permittees contemplating a trade will meet with the department early on in the permit application process to decide many of the details and information that need to be supplied to incorporate the proposed trade into the permit.

Requiring evidence of a contract to support the trade is within the board's and department's authority. The department is required to insure that conditions of a MPDES permit will not result in pollution of state waters and must have reasonable expectation that the permittee can and will meet those conditions.

COMMENT NO. 11: P. 1 Section I. Introduction: The document states: "Trading under this policy may take place under a variety of conditions that may arise after or before the adoption of numeric criteria for nutrients, including circumstances where trading is used to: (1) comply with an approved total maximum daily load (TMDL) for nutrients; (2) offset a new or increased discharge of nutrients; (3) comply with water quality-based effluent limits for nutrients; or (4) offset a new or increased discharge of nutrients into 'high quality' waters." It is unclear how part (4) above would work with the State's nondegradation rule, and feel that the trading policy should include a brief section on how nondegradation rules would apply with respect to nutrient trading.

RESPONSE: Details of a trade would be the same regardless of whether the permittees effluent limit is based on nondegradation, water quality standards, variance, or a TMDL load allocation as they all result in a numeric limit. A numeric limit based on the nondegradation rule is no different than a numeric limit based on another method. The board believes that Part I of Circular DEQ-13 already addresses this comment in the section that is quoted in the comment.

COMMENT NO. 12: P. 1 Section I. Introduction: The document states: "All trades that involve point source discharges will be monitored and enforced under a Montana Pollutant Discharge Elimination System (MPDES) permit, except those that involve only nonpoint source trading partners." Maintaining the monitoring requirements through the MPDES permit is good for the point source discharge, but it's unclear whether the non-point source credit would be verified by on-the-ground monitoring. And it raises the question of how nonpoint to nonpoint source trades

would be monitored. We feel strongly that monitoring and verification of real nutrient reduction is critical for the credit side of the trade equation.

RESPONSE: Many trades involving nonpoint sources are difficult to verify by in-stream monitoring due to the multiple and variable sources of nutrients into most surface waters, and due to natural in-stream variation in nutrient concentrations. The examples of nonpoint trade ratios provided in Appendix A use conservative assumptions or values derived from other states/federal agencies that have measured load reductions associated with a particular best management practice (BMP).

When the specific conditions of the trade warrant periodic verification, each permit will require the permittee to annually verify that the conditions of the trade are being adequately met and maintained to meet the enforcement provision of section (5) of the rule (enforcement and compliance are also addressed in Part III. 3. and Part IV. 3. of Circular DEQ-13). For example, verifying that connection of a septic system is being maintained is not necessary nor practical, but verifying that fencing along a stream is maintained is a reasonable requirement. Part III.3. of Circular DEQ-13 will be modified to include the following language: "When specific conditions of the trade need to be verified over time, the permit will require that the permittee submit an annual update to the Department verifying that the conditions of the trade are being complied with."

The DEQ, however, will have the right to audit and inspect sites to ensure that statements made in the reports are accurate. In addition, Circular DEQ-13 states that the trade credit can be changed or terminated in the permit if the conditions of the trade are not being met. Nonpoint to nonpoint trades will not be enforced by the department as there is no regulatory authority to require reporting to the department. The phrase "except those that involve only nonpoint source trading partners" has been deleted because the sentence applies only to trades that involve point sources.

COMMENT NO. 13: P. 3 II. Definitions 1(a): "A nonpoint source may not, however, terminate an existing Best Management Practice (BMP) to reduce the baseline requirement in order to generate credits for future trading purposes." We believe this is a good and important requirement, but we're not convinced that it can be effectively enforced. The department needs to develop a set of verifiable criteria to ensure that existing BMPs aren't terminated.

RESPONSE: The potential for misuse of the trading program can be minimized through the public comment that is incorporated into every trade involving a point source discharger through the MPDES permit public comment period. Persons with local knowledge of existing BMPs that have been terminated and subsequently re-instated to provide credits for trading can provide that information to the Department during the public comment period. The department will then be able to address those comments accordingly to insure the trade complies with Circular DEQ-13. As necessary, the department may also use other methods to insure BMPs have not been terminated. One example would be analysis of historic air photography to document past practices that are being proposed for trade credits.

COMMENT NO. 14: P. 3 II. Definitions 2(b): "A nonpoint source may generate credits by achieving nutrient reductions greater than required by a

regulatory requirement applicable to that source." We don't fully understand this statement, because most nonpoint sources have no applicable regulatory requirement. If this refers to the TMDL, then it should be stated as such.

RESPONSE: Circular DEQ-13 has been amended to include nonpoint sources not subject to regulatory requirements. For these sources nutrient reductions achieved by changing existing practices or conditions will qualify for credits.

COMMENT NO. 15: P. 5, Section 7, Trading Ratios: "Once a trading ratio has been established for a specific BMP DEQ cannot change the ratio unless the BMP is not maintained as originally proposed." We suggest that changes to ratios should be considered on a regular basis (permit cycles) if observation and/or monitoring indicates that the trading ratio is either not realistic or performing as expected. Again, this is why we feel that ongoing monitoring of nonpoint source credits (by monitoring stream water quality) is important.

RESPONSE: Based on experiences in other states and discussions with experts in trading policies across the country, if the agreed upon trade ratios are periodically reviewed and changed it will effectively kill any incentive for trading to occur. Permittees must have confidence that the resources spent to incorporate trades into the permit will remain valid and consistent from permit cycle to permit cycle. However, as allowed in Part II.7.(b) of the permit, the trade ratio can be changed if the BMP is not maintained as it is described in the permit.

COMMENT NO. 16: P. 8, Where Trading May Occur (Boundaries): "Geographical boundaries for trading will be based on watershed boundaries." The watershed scale needs to be better defined, perhaps using HUC or stream order.

RESPONSE: It is necessary to limit trading to a specific HUC (hydrologic unit code) level or stream order because all trades will be reviewed for their site specific impacts on water quality. For example, if the location of a trade is relatively far from the location where water quality needs to be improved the department can apply a delivery ratio to account for pollutant attenuation if applicable. Maintaining the trade boundary at a watershed scale allows more flexibility and thus more incentive for trading to occur.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

_____ By: _____

JOHN F. NORTH
Rule Reviewer

JOSEPH W. RUSSELL, M.P.H.
Chairman

Certified to the Secretary of State, _____, 2012.

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM
EXECUTIVE SUMMARY FOR RULEMAKING ADOPTION

AGENDA ITEM # III.B.3.

AGENDA ITEM SUMMARY - The Department is requesting the Board amend rules pertaining to permit exclusions and application requirements for discharge permits issued under the Montana Pollutant Discharge Elimination System Permit (MPDES) program and repeal a rule pertaining to general incorporations by reference of federal rules. The Department is requesting these amendments and repeal in order to maintain compliance with federal regulations governing states with delegated authority to implement the federal Clean Water Act's permitting program.

LIST OF AFFECTED RULES - ARM 17.30.1304, 17.30.1310, 17.30.1322, and 17.30.1303

AFFECTED PARTIES SUMMARY - Persons or facilities holding permits issued pursuant to the Montana Water Quality Act, Title 75, chapter 5, MCA, and persons or facilities who wish to obtain a permit under the Act.

SCOPE OF PROPOSED PROCEEDING - The Board is considering final action on adoption of amendments and repeal of the above-referenced rules as proposed in the Montana Administrative Register.

BACKGROUND – The proposed amendments are intended to update rules establishing permit application requirements, permit exclusions, and definitions used in Subchapter 13. ARM 17.30.1303, a rule which includes miscellaneous incorporations of federal rules and statutes by reference, is proposed to be repealed. The rulemaking is necessary to maintain compliance with federal regulations governing states that are delegated to implement the federal Clean Water Act's permitting program in accordance 40 CFR 123.25. That regulation requires delegated states to adopt permit application requirements found at 40 CFR 122.21. Permit exclusions found at ARM 17.30.1310 are not a required component of a state program under 40 CFR 123.25; however, the proposed amendment will maintain consistency with the federal program.

ARM 17.30.1303 incorporates 49 different federal rules and statutes, including many that are not required by 40 CFR 123.25 for delegated state programs. Incorporations by reference that are necessary are all found elsewhere in Title 17, chapter 30, subchapters 11, 12, or 13. Repeal of ARM 17.30.1303 will eliminate duplication and confusion regarding these requirements.

The proposed amendments are necessary to: (1) incorporate changes in federal permit application requirements between 1990 and 2008; (2) clarify that water transfers are not subject to discharge permit requirements adopted under this chapter; (3) update definitions used in this subchapter; (4) update incorporations by reference of federal rules that are too cumbersome to publish into state rules; (5) repeal existing incorporations by reference that are either duplicative or inapplicable to state permit programs; and (6) clarify existing language.

Hearing Information: Kathryn Orr conducted a public hearing on September 5, 2012, to take comment on the proposed amendments and repeal. No public comments or testimony were received on the proposed amendments and repeal.

Board Options: The Board may:

1. Adopt the proposed amendments and repeal as set forth in the attached Notice of Public Hearing on Proposed Amendment and Repeal;
2. Adopt the proposed amendments with revisions that the Board finds are appropriate and that are consistent with the scope of the Notice of Public Hearing on Proposed Amendment and Repeal and the record in this proceeding; or
3. Decide not to adopt the proposed amendments and repeal.

DEQ Recommendation: The Department recommends that the Board adopt the amendments and repeal as proposed.

Enclosures:

1. Notice of Public Hearing on Proposed Amendment and Repeal;
2. HB 521 and 311 Analysis
3. Presiding Officer's Report; and
4. Draft Notice of Amendment.

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.30.1304, 17.30.1310, and 17.30.1322 pertaining to Montana pollutant discharge elimination system permits, permit exclusions, and application requirements and repeal of ARM 17.30.1303 pertaining to incorporations by reference	NOTICE OF PUBLIC HEARING ON PROPOSED AMENDMENT AND REPEAL (WATER QUALITY)

TO: All Concerned Persons

1. On September 5, 2012, at 1:00 p.m., the Board of Environmental Review will hold a public hearing in Room 35, Metcalf Building, 1520 East Sixth Avenue, Helena, 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., August 27, 2012, 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:

17.30.1304 DEFINITIONS In this subchapter, the following terms have the meanings or interpretations indicated below and shall be used in conjunction with and are supplemental to those definitions contained in 75-5-103, MCA.

(1) through (4) remain the same.

(5) "Application" means the department's standard form for applying for a permit including any additions, revisions, or modifications to the forms.

(5) through (11) remain the same, but are renumbered (6) through (12).

(13) "Concentrated animal feeding operation" (CAFO) is defined in 75-5-801, MCA.

(12) remains the same, but is renumbered (14).

(15) "Conventional pollutant" is defined in ARM 17.30.1202.

(16) "Cooling water" is defined in ARM 17.30.1202.

(17) "Cooling water intake structure" is defined in ARM 17.30.1202.

(13) through (15) remain the same, but are renumbered (18) through (20).

(21) "Discharge," when used without qualification, means the discharge of a pollutant.

(16) through (18) remain the same, but are renumbered (22) through (24).

(25) "Effluent limitation" is defined in ARM 17.30.1202.

(19) remains the same, but is renumbered (26).

~~(20)~~ (27) "Effluent standards" ~~means any restriction or prohibition on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into state waters~~ is defined in 75-5-103, MCA, and is synonymous with the term "effluent limitation," as defined in ARM 17.30.1202, with the exception that it does not include a schedule of compliance.

(28) "Entrainment" means the incorporation of all life stages of fish and shellfish with intake water flow entering and passing through a cooling water intake structure and into a cooling water system.

(21) through (26) remain the same, but are renumbered (29) through (34).

~~(27)~~ (35) "Hazardous substance" means any ~~substance~~ element or compound designated by EPA ~~under 40 CFR Part 116~~ pursuant to section 311(b)(2)(a) of the federal Clean Water Act and listed in 40 CFR 116.4.

(36) "Impingement" means the entrapment of all life stages of fish and shellfish on the outer part of an intake structure or against a screening device during periods of intake water withdrawal.

(28) through (36) remain the same, but are renumbered (37) through (45).

(46) "New facility" is defined in ARM 17.30.1202.

(37) through (58) remain the same, but are renumbered (47) through (68).

(69) "Source water" means the state water body (state surface waters) from which the cooling water is drawn.

(59) remains the same, but is renumbered (70).

(71) "Storm water" is defined in ARM 17.30.1102.

(72) "Storm water discharge associated with an industrial activity" is defined in 40 CFR 122.26(b)(14).

(73) "Storm water discharge associated with small construction activity" is defined in 40 CFR 122.26(b)(15).

(60) remains the same, but is renumbered (74).

~~(61)~~ (75) "Toxic pollutant" means any pollutant ~~listed as toxic pursuant to section 1317(a)(1)~~ designated by EPA under section 307(a)(1) of the federal Clean Water Act and ~~set forth~~ listed in 40 CFR ~~129~~ 401.15.

(62) and (63) remain the same, but are renumbered (76) and (77).

(78) "Variance" is defined in ARM 17.30.1202.

(79) "Whole effluent toxicity" means the aggregate toxic effect of an effluent measured by a toxicity test.

AUTH: 75-5-201, 75-5-401, MCA
IMP: 75-5-401, MCA

REASON: The board is proposing to amend the definitions in ARM 17.30.1304 in order to add definitions explaining technical terms that are used in the application requirements also being proposed for adoption in this rulemaking. In addition, the board is proposing to amend some of the current definitions in ARM 17.30.1304 to correct errors, ensure consistency with statutory definitions, and provide consistency among the definitions appearing in ARM 17.30.1202,

17.30.1102, and 17.30.1304.

17.30.1310 EXCLUSIONS (1) The following discharges do not require MPDES permits:

~~(1)~~ (a) ~~D~~discharges of dredged or fill material into waters of the United States ~~which~~ that are regulated under section 404 of the federal Clean Water Act~~.~~;

~~(2)~~ (b) ~~T~~the introduction of sewage, industrial wastes, or other pollutants into publicly owned treatment works by indirect dischargers. Plans or agreements to switch to this method of disposal in the future do not relieve dischargers of the obligation to have and comply with permits until all discharges of pollutants to state waters are eliminated (see also ARM 17.30.1350(2)). This exclusion does not apply to the introduction of pollutants to privately owned treatment works or to other discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other party not leading to treatment works~~.~~;

~~(3)~~ (c) ~~A~~any discharge in compliance with the instructions of an on-scene coordinator pursuant to 40 CFR Part 300 et seq. (The National Oil and Hazardous Substances Pollution Plan) or 33 CFR Parts 153-157 (Pollution by Oil and Hazardous Substances)~~.~~;

~~(4)~~ (d) ~~A~~any introduction of pollutants from non point-source agricultural and silvicultural activities, including storm water runoff from orchards, cultivated crops, pastures, range lands, and forest lands, but not discharges from concentrated animal feeding operations as defined in ARM 17.30.1304~~(3)~~(15), discharges from concentrated aquatic animal production facilities as defined in ARM 17.30.~~1304(6)~~ 1331(1), discharges to aquaculture projects as defined in ARM 17.30.1304(5), and discharges from silvicultural point sources as defined in ARM 17.30.1304~~(56)~~(65)~~.~~;

~~(5)~~ (e) ~~R~~return flows from irrigated agriculture~~.~~;

~~(6)~~ (f) ~~D~~discharges into a privately owned treatment works, except as the department may otherwise require under ARM 17.30.1344~~.~~; and

~~(7)~~ (g) ~~The board hereby adopts and incorporates herein by reference 40 CFR Part 300 and 33 CFR 153.101 which are federal agency rules setting forth requirements concerning releases of hazardous wastes or petroleum products. See ARM 17.30.1303 for complete information about all materials incorporated by reference.~~ discharges from a water transfer. Water transfer means an activity that conveys or connects waters of the state without subjecting the transferred water to intervening industrial, municipal, or commercial use. This exclusion does not apply to pollutants introduced by the water transfer activity itself to the water being transferred.

AUTH: 75-5-201, 75-5-401, MCA
IMP: 75-5-401, MCA

REASON: The board is proposing to amend ARM 17.30.1310(4) (renumbered (d)) in order to correct the citations to the various definitions referenced in that provision. The board is further proposing to eliminate the incorporation of federal rules in ARM 17.30.1310(7) (renumbered (g)), since the department does not implement these federal rules under the Montana Pollutant Discharge Elimination System (MPDES) permit program. Although the existing permit exclusion in ARM

17.30.1310(3) (renumbered (c)) requires a discharge to be in compliance with 40 CFR Part 300 and 33 CFR 153.01 in order to qualify for the exclusion, incorporating these rules by reference is not necessary to determine whether the discharge is in compliance with the federal rules.

Finally, the board is amending ARM 17.30.1310(7) (renumbered (g)) to add a new discharge to the current list of discharges that are not required to obtain an MPDES permit. The proposed amendment specifies that a discharge from a water transfer that conveys or connects waters of the state does not need an MPDES permit. The proposed amendment further specifies that the exclusion does not apply if pollutants are added to the transferred water or if the transferred water is used for other purposes prior to being discharged. The board is proposing this amendment to be consistent with the U.S. Environmental Protection Agency's (EPA's) recent promulgation of a rule clarifying that water transfers, as defined in the board's proposed amendment, are not subject to NPDES permits. This amendment is necessary in order to maintain consistency between the state and federal permit program and to avoid being more stringent than applicable federal regulations.

17.30.1322 APPLICATION FOR A PERMIT (1) Any person who discharges or proposes to discharge pollutants and who does not have an effective permit, except persons covered by general permits under ARM 17.30.1341, excluded under ARM 17.30.1310, or a user of a privately owned treatment works unless the department requires otherwise under ARM 17.30.1344, shall submit a complete application ~~(which must include a BMP program if necessary under 40 CFR 125.102)~~ to the department in accordance with this rule and ARM 17.30.1364 and 17.30.1365, 17.30.1370 through 17.30.1379, and 17.30.1383.

(a) All applicants for MPDES permits shall submit applications on department permit application forms. More than one application form may be required from a facility depending on the number and types of discharges or outfalls found there. Application forms may be obtained by contacting the Water Protection Bureau at (406) 444-3080; Department of Environmental Quality, Water Protection Bureau, 1520 East Sixth Avenue, P.O. Box 200901, Helena, MT 59620-0901; or on the department's web site at http://deq.mt.gov/default.mcpx.

(b) All applicants, other than publicly owned treatment works (POTWs), shall submit Form 1.

(c) Applicants for new and existing POTWs shall submit the information required in (12) using Form 2A.

(d) Applicants for concentrated animal feeding operations or concentrated aquatic animal production facilities shall submit Form 2B.

(e) Applicants for existing industrial facilities, including manufacturing facilities, commercial facilities, mining activities, and silvicultural activities, shall submit Form 2C.

(f) Applicants for new industrial facilities that discharge process wastewater shall submit Form 2D.

(g) Applicants for new and existing industrial facilities that discharge only non-process wastewater shall submit Form 2E.

(h) Applicants for new and existing facilities, whose discharge is composed entirely of storm water associated with industrial activity, shall submit Form 2F,

unless exempted by (11)(b) through (d). If the discharge is composed of storm water and non-storm water, the applicant shall also submit Forms 2C, 2D, and/or 2E, as appropriate, in addition to Form 2F.

(i) Applicants for new cooling water intake structures shall submit the information required in (17) in addition to any forms required in (e) through (g).

(2) remains the same.

(3) Any person proposing a new discharge shall submit an application at least 180 days before the date on which the discharge is to commence, unless permission for a later date has been granted by the department. Persons proposing a new discharge are encouraged to submit their applications well in advance of the 180-day requirement to avoid delay. See also ~~(11)~~ (13) through (15) requiring time frames where a variance may be available.

(4)~~(a)~~ Any ~~POTW~~ permittee with a currently effective permit shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the department. ~~(~~The department may not grant permission for applications to be submitted later than the expiration date of the existing permit.~~)~~

~~(b) All other permittees with currently effective permits shall submit a new application 180 days before the existing permit expires except that:~~

~~(i) the department may grant permission to submit an application later than the deadline for submission otherwise applicable, but no later than the permit expiration date.~~

(5) remains the same.

(6) All applicants for MPDES permits, other than POTWs, shall provide the following information to the department, using the department's application ~~form~~ Form 1 ~~provided by the department.~~ ~~(a~~Additional information required of applicants is set forth in (7) through (~~14~~ 17)~~)~~:

(a) through (f) remain the same.

(g) a topographic map, ~~(~~or other map if a topographic map is unavailable~~)~~, extending one mile beyond the property boundaries of the source, depicting:

(i) the facility and each of its intake and discharge structures;

(ii) each of its hazardous waste treatment, storage, or disposal facilities;

(iii) each well where fluids from the facility are injected underground; and

(iv) those wells, springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant in the map area; and

(h) a brief description of the nature of the business~~; and~~

~~(i) the following POTWs shall provide the results of valid whole effluent biological toxicity testing to the department:~~

~~(i) all POTWs with design influent flows equal to or greater than one million gallons per day;~~

~~(ii) all POTWs with approved pretreatment programs or POTWs required to develop a pretreatment program;~~

~~(j) In addition to the POTWs listed in (6)(i), the department may require other POTWs to submit the results of toxicity tests with their permit applications, based on consideration of the following factors:~~

~~(i) the variability of the pollutants or pollutant parameters in the POTW effluent (based on chemical-specific information, the type of treatment facility, and~~

~~types of industrial contributors);~~

~~(ii) the dilution of the effluent in the receiving water (ratio of effluent flow to receiving stream flow);~~

~~(iii) existing controls on point or nonpoint sources, including total maximum daily load calculations for the waterbody segment and the relative contribution of the POTW;~~

~~(iv) receiving stream characteristics, including possible or known water quality impairment, and whether the POTW discharges to a water designated as an outstanding natural resource; and~~

~~(v) other considerations (including but not limited to the history of toxic impact and compliance problems at the POTW) which the department determines could cause or contribute to adverse water quality impacts.~~

~~[p2924]~~

~~(k) for POTWs required under (6)(i) or (j) to conduct toxicity testing, POTWs shall use EPA's methods or other established protocols which are scientifically defensible and sufficiently sensitive to detect aquatic toxicity. This testing must have been conducted since the last MPDES permit reissuance or per modification under ARM 17.30.1361, whichever occurred later;~~

~~(l) all POTWs with approved pretreatment programs shall provide to the department a written technical evaluation of the need to revise local limits, as described in 40 CFR 403.5(c)(1).~~

(7) Existing manufacturing, commercial, mining, and silvicultural dischargers applying for MPDES permits, except for those facilities subject to the requirements of (8), shall provide the following information to the department, using application forms provided by the department:

(a) the latitude and longitude of the outfall to the nearest 15 seconds~~,~~ and the name of the receiving water;

(b) remains the same.

(c) a narrative identification of each type of process, operation, or production area ~~which~~ that contributes wastewater to the effluent for each outfall, including process wastewater, cooling water, and storm water runoff; the average flow ~~which~~ that each process contributes; and a description of the treatment the wastewater receives, including the ultimate disposal of any solid or fluid wastes other than by discharge. Processes, operations, or production areas may be described in general terms (for example, "dye-making reactor," "distillation tower"). For a privately owned treatment works, this information must include the identity of each user of the treatment works~~;~~. The average flow of point sources composed of storm water may be estimated. The basis for the rainfall event and the method of estimation must be indicated;

(d) through (f) remain the same.

(g) information on the ~~discharge~~ effluent characteristics of pollutants specified in this subsection, except information on storm water discharges that is specified in (11)(b), must be provided according to the following~~.~~:

(i) when "quantitative data" for a pollutant are required, the applicant ~~must~~ shall collect a sample of effluent and analyze it for the pollutant in accordance with analytical methods approved under 40 CFR Part 136, unless use of another method is required for the pollutant under 40 CFR subchapter N. When no analytical

method is approved under Part 136 or required under subchapter N, the applicant may use any suitable method, but ~~must~~ shall provide a description of the method. When an applicant has two or more outfalls with substantially identical effluents, the department may allow the applicant to test only one outfall and report that the quantitative data also apply to the substantially identical outfalls. The requirements in ~~(iii)(A), (B), and (iv)~~ (vi), (vii), and (viii), ~~below~~ that state that an applicant ~~must~~ shall provide quantitative data for certain pollutants known or believed to be present, do not apply to pollutants present in a discharge solely as the result of their presence in intake water; however, an applicant ~~must~~ shall report such pollutants as present. Grab samples must be used for pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, and fecal coliform, including Escherichia coli (E-coli). For all other pollutants, a 24-hour composite samples, using a minimum of four grab samples, must be used, unless specified otherwise at 40 CFR Part 136. However, a minimum of one grab sample may be taken for effluents from holding ponds or other impoundments with a retention period greater than 24 hours~~, and a minimum of one to four grab samples may be taken for storm water discharges depending on the duration of the discharge. One grab sample must be taken in the first hour (or less) of discharge with one additional grab sample taken in each succeeding hour of discharge up to a minimum of four grab samples for discharges lasting four or more hours~~. In addition, for discharges other than storm water discharges, the department may waive composite sampling for any outfall for which the applicant demonstrates that the use of an automatic sampler is infeasible and that the minimum of four grab samples will be a representative sample of the effluent being discharged. Results of analyses of individual grab samples for any parameter may be averaged to obtain the daily average. Grab samples that are not required to be analyzed immediately (see Table II at 40 CFR 136.3(e)) may be composited in the laboratory, provided that container, preservation, and holding time requirements are met (see Table II at 40 CFR 136.3 (e)) and that sample integrity is not compromised by compositing; ~~An applicant is expected to "know or have reason to believe" that a pollutant is present in an effluent based on an evaluation of the expected use, production, or storage of the pollutant. (For example, any pesticide manufactured by a facility may be expected to be present in contaminated storm water runoff from the facility.)~~

(ii) for storm water discharges, all samples must be collected from the discharge resulting from a storm event that is greater than 0.1 inch and at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Where feasible, the variance in the duration of the event and the total rainfall of the event should not exceed 50 percent from the average or median rainfall event in that area. For all applicants, a flow-weighted composite must be taken for either the entire discharge or for the first three hours of the discharge. The flow-weighted composite sample for a storm water discharge may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire discharge or for the first three hours of the discharge, with each aliquot being separated by a minimum period of fifteen minutes. However, a minimum of one grab sample may be taken for storm water discharges from holding ponds or other impoundments with a retention period greater than 24 hours. For a flow-weighted composite sample, only one analysis of the composite of

aliquots is required. For storm water discharge samples taken from discharges associated with industrial activities, quantitative data must be reported for the grab sample taken during the first thirty minutes, or as soon thereafter as practicable, of the discharge for all pollutants specified in (11)(e). For all storm water permit applicants taking flow-weighted composites, quantitative data must be reported for all pollutants specified in (11)(e) except pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, fecal coliform, and fecal streptococcus. The department may allow or establish appropriate site-specific sampling procedures or requirements, including sampling locations, the season in which the sampling takes place, the minimum duration between the previous measurable storm event and the storm event sampled, the minimum or maximum level of precipitation required for an appropriate storm event, the form of precipitation sampled (snow melt or rain fall), protocols for collecting samples under 40 CFR Part 136, and additional time for submitting data on a case-by-case basis. An applicant is expected to "know or have reason to believe" that a pollutant is present in an effluent based on an evaluation of the expected use, production, or storage of the pollutant, or on any previous analyses for the pollutant. For example, any pesticide manufactured by a facility may be expected to be present in contaminated storm water runoff from the facility;

~~(i)~~(A) (iii) ~~E~~every applicant ~~must~~ shall report quantitative data for every outfall for the following pollutants:

(A) biochemical oxygen demand ~~(BOD_5)~~;

(B) chemical oxygen demand;

(C) total organic carbon;

(D) total suspended solids;

(E) ammonia (as N);

(F) temperature (both winter and summer); and

(G) pH;

~~(B)~~ (iv) ~~T~~the department may waive the reporting requirements for individual point sources or for a particular industry category for one or more of the pollutants listed in the above subsection if the applicant has demonstrated that such a waiver is appropriate because information adequate to support issuance of a permit can be obtained with less stringent requirements~~.~~;

~~(ii)~~ (v) ~~E~~each applicant with processes in one or more primary industry category (see Appendix A of 40 CFR Part 122) contributing to a discharge ~~must~~ shall report quantitative data for the following pollutants in each outfall containing process wastewater:

(A) remains the same.

(B) the pollutants listed in Table III of Appendix D of 40 CFR Part 122 (the toxic metals, cyanide, and total phenols)~~.~~;

~~(iii)(A)~~ (vi) ~~E~~each applicant ~~must~~ shall indicate whether it knows or has reason to believe that any of the pollutants in Table IV of Appendix D of 40 CFR Part 122 (certain conventional and nonconventional pollutants) is discharged from each outfall. If an applicable effluent limitations guideline either directly limits the pollutant or, by its express terms, indirectly limits the pollutant through limitations on an indicator, the applicant ~~must~~ shall report quantitative data. For every pollutant discharged which is not so limited in an effluent limitations guideline, the applicant ~~must~~ shall either report quantitative data or briefly describe the reasons the pollutant

is expected to be discharged~~.~~;

~~(B)~~(vii) ~~E~~each applicant ~~must~~ shall indicate whether it knows or has reason to believe that any of the pollutants listed in Table II or Table III of Appendix D of 40 CFR Part 122 (the toxic pollutants and total phenols) for which quantitative data are not otherwise required under (7)(g)~~(ii)~~(v), is discharged from each outfall. For every pollutant expected to be discharged in concentrations of ~~10~~ ten ppb or greater, the applicant ~~must~~ shall report quantitative data. For acrolein, acrylonitrile, 2,4-dinitrophenol, and 2-methyl 4,6-dinitrophenol, where any of these four pollutants are expected to be discharged in concentrations of 100 ppb or greater, the applicant ~~must~~ shall report quantitative data. For every pollutant expected to be discharged in concentrations less than ~~10~~ ten ppb, or in the case of acrolein, acrylonitrile, 2,4-dinitrophenol, and 2-methyl 4,6-dinitrophenol, in concentrations less than 100 ppb, the applicant ~~must~~ shall either submit quantitative data or briefly describe the reasons the pollutant is expected to be discharged. An applicant qualifying as a small business under (7)(h) is not required to analyze for pollutants listed in Table II of Appendix D of 40 CFR Part 122 (the organic toxic pollutants)~~.~~;

~~(iv)~~ (viii) ~~E~~each applicant ~~must~~ shall indicate whether it knows or has reason to believe that any of the pollutants in Table V of Appendix D of 40 CFR Part 122 (certain hazardous substances and asbestos) are discharged from each outfall. For every pollutant expected to be discharged, the applicant ~~must~~ shall briefly describe the reasons the pollutant is expected to be discharged, and report any quantitative data it has for any pollutant~~.~~;

~~(v)~~ (ix) ~~E~~each applicant ~~must~~ shall report qualitative data, generated using a screening procedure not calibrated with analytical standards, for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) if it:

(A) remains the same.

(B) knows or has reason to believe that TCDD is or may be present in an effluent~~.~~;

(h) an applicant which qualifies as a small business under one of the following criteria is exempt from the requirements in (7)(g)~~(ii)~~(v)(A) or ~~(iii)~~(vi)~~(A)~~ to submit quantitative data for the pollutants listed in Table II of Appendix D of 40 CFR Part 122 (the organic toxic pollutants):

(i) remains the same.

(ii) for all other applicants, gross total annual sales averaging less than $100,000 per year (in second quarter 1980 dollars)~~.~~;

(i) a listing of any toxic pollutant which the applicant currently uses or manufactures as an intermediate or final product or byproduct. The department may waive or modify this requirement for any applicant if the applicant demonstrates that it would be unduly burdensome to identify each toxic pollutant and the department has adequate information to issue the permit~~.~~;

(j) an identification of any biological toxicity tests which the applicant knows or has reason to believe have been made within the last three years on any of the applicant's discharges or on a receiving water in relation to a discharge~~.~~;

(k) if a contract laboratory or consulting firm performed any of the analyses required by (7)(g), the identity of each laboratory or firm and the analyses performed~~.~~;

(l) remains the same.

(8) Except for storm water discharges, all manufacturing, commercial, mining, and silvicultural dischargers applying for MPDES permits ~~which~~ that discharge only non-process wastewater not regulated by an effluent limitations guideline or new source performance standard shall provide the following information to the department, using application forms provided by the department:

(a) through (c) remain the same.

(d)~~(i)~~ ~~Q~~quantitative data for the pollutants or parameters listed below, unless testing is waived by the department. The quantitative data may be data collected over the past 365 days, if they remain representative of current operations, and must include maximum daily value, average daily value, and number of measurements taken. The applicant ~~must~~ shall collect and analyze samples in accordance with 40 CFR Part 136. Grab samples must be used for pH, temperature, oil and grease, total residual chlorine, and fecal coliform, including E-coli. For all other pollutants, a 24-hour composite sample~~s~~, using a minimum of four grab samples, must be used, unless specified otherwise at 40 CFR Part 136. For a composite sample, only one analysis of the composite aliquots is required. New dischargers ~~must~~ shall include estimates for the pollutants or parameters listed below, instead of actual sampling data, along with the source of each estimate. All levels must be reported or estimated as concentration and as total mass, except for flow, pH, and temperature.

(i) The requirements of (d) apply to:

(A) through (I) remain the same.

(J) pH; ~~and~~

(K) temperature (winter and summer)~~.~~; and

(L) any pollutant not listed above, if the pollutant is present in the effluent and regulated by a state-adopted water quality standard;

(ii) The department may waive the testing and reporting requirements for any of the pollutants or flow listed in (i) if the applicant submits a request for such a waiver before or with ~~his~~ the application ~~which~~ that demonstrates that information adequate to support issuance of a permit can be obtained through less stringent requirements.

(iii) If the applicant is a new discharger, ~~he must~~ the applicant shall complete forms provided by the department by providing quantitative data in accordance with (d) no later than two years after commencement of discharge. However, the applicant need not complete those portions of the forms requiring tests ~~which he~~ that the applicant has already performed and reported under the discharge monitoring requirements of ~~his~~ the MPDES permit.

(iv) The requirements of ~~(i)~~ (d) and (d)(iii), that an applicant ~~must~~ shall provide quantitative data or estimates of certain pollutants, do not apply to pollutants present in a discharge solely as a result of their presence in intake water. However, an applicant ~~must~~ shall report such pollutants as present. Net credit may be provided for the presence of pollutants in intake water if the requirements of ARM 17.30.1345(9) are met~~.~~;

(e) remains the same.

(f) a brief description of any treatment system used or to be used;

(g) and (h) remain the same.

(9) New and existing concentrated animal feeding operations (CAFOs), defined in ARM 17.30.~~1330~~ 1304, and concentrated aquatic animal production

facilities, defined in ARM 17.30.~~1304(6)~~ 1331(1), shall provide the following information to the department, using ~~the~~ application ~~f~~Form2B ~~provided by the department~~:

(a) for CAFOs:~~, the information specified in ARM 17.30.1322(6)(a) through (f) and 40 CFR 122.21(i)(1), including a topographic map; and~~

(i) the name of the owner or operator;

(ii) the facility location and mailing addresses;

(iii) latitude and longitude of the production area (entrance to production area);

(iv) a topographic map of the geographic area in which the CAFO is located showing the specific location of the production area, in lieu of the requirements of (6)(g);

(v) specific information about the number and type of animals, whether in open confinement or housed under roof (beef cattle, broilers, layers, swine weighing 55 pounds or more, swine weighing less than 55 pounds, mature dairy cows, dairy heifers, veal calves, sheep and lambs, horses, ducks, turkeys, other);

(vi) the type of containment and storage (anaerobic lagoon, roofed storage shed, storage ponds, underfloor pits, above ground storage tanks, below ground storage tanks, concrete pad, impervious soil pad, other) and total capacity for manure, litter, and process wastewater storage (tons/gallons);

(vii) the total number of acres under control of the applicant available for land application of manure, litter, or process wastewater;

(viii) estimated amounts of manure, litter, and process wastewater generated per year (tons/gallons);

(ix) estimated amounts of manure, litter, and process wastewater transferred to other persons per year (tons/gallons); and

(x) a nutrient management plan that at a minimum satisfies the requirements specified in ARM 17.30.1343(1)(c), including, for all CAFOs subject to 40 CFR part 412, subpart C or subpart D, the requirements of 40 CFR 412.4(c), as applicable; and

(b) through (b)(v) remain the same.

(10) New manufacturing, commercial, mining, and silvicultural dischargers applying for MPDES permits (except for new discharges of facilities subject to the requirements of (8) or new discharges of storm water ~~runoff or facilities~~ associated with industrial activity that are subject to the requirements of ~~(10)~~ (11)) shall provide the following information to the department, using application forms provided by the department:

(a) and (b) remain the same.

(c)~~(i)~~ a description of the treatment that the wastewater will receive, along with all operations contributing wastewater to the effluent, average flow contributed by each operation, and the ultimate disposal of any solid or liquid wastes not discharged;

~~(ii)~~ (i) a line drawing of the water flow through the facility with a water balance as described in ~~ARM 17.30.1322(9)~~ (7)(b);

(iii) remains the same, but is renumbered (ii).

(d) remains the same.

(e) the requirements in (8)(d)~~(i), (ii), and (iii)~~, that an applicant ~~must~~ shall

provide estimates of certain pollutants expected to be present, do not apply to pollutants present in a discharge solely as a result of their presence in intake water; however, an applicant ~~must~~ shall report such pollutants as present. Net credits may be provided for the presence of pollutants in intake water if the requirements of ARM 17.30.1345(9) are met. All levels (except for discharge flow, temperature, and pH) must be estimated as concentration and as total mass~~;~~.

(i) Each applicant ~~must~~ shall report estimated daily maximum, daily average, and source of information for each outfall for the ~~following~~ pollutants or parameters in (ii). The department may waive the reporting requirements for any of these pollutants and parameters if the applicant submits a request for such a waiver before or with his application ~~which~~ that demonstrates that information adequate to support issuance of the permit can be obtained through less stringent reporting requirements.

(ii) The requirements of (e)(i) apply to:

(A) through (F) remain the same.

(G) temperature (winter and summer); ~~and~~

(H) pH~~.~~; and

(I) any pollutant not listed above, if the pollutant is present in the effluent and regulated by a state-adopted water quality standard.

~~(ii)~~ (iii) Each applicant ~~must~~ shall report estimated daily maximum, daily average, and source of information for each outfall for the following pollutants, if the applicant knows or has reason to believe they will be present or if they are limited by an effluent limitation guideline or new source performance standard either directly or indirectly through limitations on an indicator pollutant: all pollutants in Table IV of Appendix D of 40 CFR Part 122 (certain conventional and nonconventional pollutants).

~~(iii)~~ (iv) Each applicant ~~must~~ shall report estimated daily maximum, daily average and source of information for the following pollutants if he knows or has reason to believe that they will be present in the discharges from any outfall:

(A) and (B) remain the same.

(iv) through (iv)(F) remain the same, but are renumbered (v) through (v)(F).

~~(v)~~ (vi) Each applicant ~~must~~ shall report any pollutants listed in Table V of Appendix D of 40 CFR Part 122 (certain hazardous substances) if ~~he~~ the applicant believes they will be present in any outfall (no quantitative estimates are required unless they are already available).

~~(vi)~~ (vii) No later than two years after the commencement of discharge from the proposed facility, the applicant is required to complete and submit forms prescribed by the department. However, the applicant need not complete those portions of the forms requiring tests which he has already performed and reported under the discharge monitoring requirements of his MPDES permit~~.~~;

(f) each applicant ~~must~~ shall report the existence of any technical evaluation concerning his wastewater treatment, along with the name and location of similar plants of which he has knowledge;

(g) and (h) remain the same.

(11) Dischargers of storm water ~~from facilities or activities that are listed in ARM 17.30.1105(1)(a) through (f), must apply for an individual permit, or seek coverage under a storm water general permit as provided for in subchapter 11.~~

~~Individual permits for small municipal separate storm sewer systems are subject to the provisions stated in ARM 17.30.1111(1) through (18)~~ associated with industrial activity or with small construction activity that are required to obtain an individual permit or any other discharge of storm water that the department is evaluating for designation under ARM 17.30.1105(1)(f) and is not a municipal storm sewer, shall submit an MPDES permit application in accordance with the requirements of (6)(a) through (h), as modified and supplemented by the provisions of this section.

(a) Except as provided in (b) through (d), the operator of a storm water discharge associated with industrial activity that is required to obtain an individual permit shall provide:

(i) a site map showing topography (or indicating the outline of drainage areas served by the outfall(s) covered in the application if a topographic map is unavailable) of the facility including:

(A) each of its drainage and discharge structures;

(B) the drainage area of each storm water outfall;

(C) paved areas and buildings within the drainage area of each storm water outfall;

(D) each past or present area used for outdoor storage or disposal of significant materials;

(E) each existing structural control measure to reduce pollutants in storm water runoff;

(F) materials loading and access areas;

(G) areas where pesticides, herbicides, soil conditioners, and fertilizers are applied;

(H) each of its hazardous waste treatment, storage, or disposal facilities (including each area not required to have a RCRA permit that is used for accumulating hazardous waste under 40 CFR 262.34);

(I) each well where fluids from the facility are injected underground; and

(J) springs and other surface water bodies that receive storm water discharges from the facility;

(ii) an estimate of the area of impervious surfaces (including paved areas and building roofs), the total area drained by each outfall (within a mile radius of the facility), and a narrative description of the following:

(A) significant materials that in the three years prior to the submittal of this application have been treated, stored, or disposed in a manner to allow exposure to storm water;

(B) method of treatment, storage, or disposal of such materials;

(C) materials management practices employed, in the three years prior to the submittal of this application, to minimize contact by these materials with storm water runoff;

(D) materials loading and access areas;

(E) the location, manner, and frequency in which pesticides, herbicides, soil conditioners, and fertilizers are applied;

(F) the location and a description of existing structural and non-structural control measures to reduce pollutants in storm water runoff; and

(G) a description of the treatment the storm water receives, including the ultimate disposal of any solid or fluid wastes other than by discharge;

(iii) a certification that all outfalls that should contain storm water discharges associated with industrial activity have been tested or evaluated for the presence of non-storm water discharges that are not covered by an MPDES permit. Tests for such non-storm water discharges may include smoke tests, fluorometric dye tests, analysis of accurate schematics, as well as other appropriate tests. The certification must include a description of the method used, the date of any testing, and the on-site drainage points that were directly observed during a test;

(iv) existing information regarding significant leaks or spills of toxic or hazardous pollutants at the facility that have taken place within the three years prior to the submittal of this application;

(v) quantitative data based on samples collected during storm events and collected in accordance with (7)(g)(ii) from all outfalls containing a storm water discharge associated with industrial activity for the following parameters:

(A) any pollutant limited in an effluent guideline to which the facility is subject;

(B) any pollutant listed in the facility's MPDES permit for its process wastewater, if the facility is operating under an existing MPDES permit;

(C) oil and grease, pH, biochemical oxygen demand, chemical oxygen demand, total suspended solids, total phosphorus, total Kjeldahl nitrogen, and nitrate plus nitrite nitrogen;

(D) any information on the discharge required under (7)(g)(vi) through (viii);

(E) flow measurements or estimates of the flow rate, the total amount of discharge for the storm event(s) sampled, and the method of flow measurement or estimation; and

(F) the date and duration (in hours) of the storm event(s) sampled, rainfall measurements or estimates of the storm event (in inches) that generated the sampled runoff, and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event (in hours);

(vi) operators of a discharge that is composed entirely of storm water are exempt from the requirements of (7)(b), (c), (d), and (e), and (g)(iii), (iv), (v), and (ix);

(vii) operators of new sources or new discharges, as defined in ARM 17.30.1304, that are composed in part or entirely of storm water shall include estimates for the pollutants or parameters listed in (v) instead of actual sampling data, along with the source of each estimate. Operators of new sources or new discharges composed in part or entirely of storm water shall provide quantitative data for the parameters listed in (v) within two years after commencement of discharge, unless such data has already been reported under the monitoring requirements of the MPDES permit for the discharge. Operators of a new source or new discharge that is composed entirely of storm water are exempt from the requirements of (10)(c)(i) and (ii) and (e).

(b) An operator of an existing or new storm water discharge associated with industrial activity solely under the definition in 40 CFR 122.26(b)(14)(x) or associated with small construction activity solely under the definition in ARM 17.30.1304, is exempt from the requirements of (7) and (11)(a). Such operator shall provide a narrative description of:

(i) the location, including a map, and the nature of the construction activity;

(ii) the total area of the site and the area of the site that is expected to undergo excavation during the life of the permit;

(iii) proposed measures, including best management practices, to control pollutants in storm water discharges during construction, including a brief description of applicable state and local erosion and sediment control requirements;

(iv) proposed measures to control pollutants in storm water discharges that will occur after construction operations have been completed, including a brief description of applicable state or local erosion and sediment control requirements;

(v) an estimate of the runoff coefficient of the site and the increase in impervious area after the construction addressed in the permit application is completed, the nature of fill material and existing data describing the soil or the quality of the discharge; and

(vi) the name of the receiving water.

(c) The operator of an existing or new discharge composed entirely of storm water from an oil or gas exploration, production, processing, or treatment operation, or transmission facility is not required to submit a permit application in accordance with (a), unless the facility:

(i) has had a discharge of storm water resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 117.21 or 40 CFR 302.6 at any time since November 16, 1987;

(ii) has had a discharge of storm water resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 110.6 at any time since November 16, 1987; or

(iii) contributes to a violation of a water quality standard.

(d) The operator of an existing or new discharge composed entirely of storm water from a mining operation is not required to submit a permit application unless the discharge has come into contact with any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of such operations.

(e) Applicants shall provide such other information the department may reasonably require under (7)(l) to determine whether to issue a permit and may require any facility subject to (11)(b) to comply with (11)(a).

(12) ~~Dischargers of storm water associated with industrial, mining, oil and gas, and construction activity, shall apply for an individual permit as stated in 40 CFR 122.26(c)(1) if their discharge is not covered under a general permit provided for in ARM 17.30.1110 or another MPDES permit. Dischargers of storm water associated with construction activity are exempt from the application requirements of (7) and 40 CFR 122.26(c)(1)(i).~~ Unless otherwise indicated, all new and existing publicly owned treatment works (POTWs) and other dischargers designated by the department, shall provide, at a minimum, the information in (a) through (h) to the department, using Form 2A. Permit applicants shall submit all information available at the time of permit application. The information may be provided by referencing information previously submitted to the department. The department may waive any requirement of (a) through (h), if the department has access to substantially identical information. The department may also waive any requirement of (a) through (h) that is not of material concern for a specific permit, if approved by EPA. The waiver request to the EPA must include the department's justification for the waiver. The EPA's disapproval of the proposed waiver does not constitute final agency action, but does provide notice to the department and permit applicant that EPA may object

to any MPDES permit issued in the absence of the required information.

(a) All applicants shall provide the following basic information:

(i) name, mailing address, and location of the facility for which the application is submitted;

(ii) name, mailing address, and telephone number of the applicant and indication as to whether the applicant is the facility's owner, operator, or both;

(iii) identification of all environmental permits or construction approvals received or applied for, including dates, under any of the following programs:

(A) hazardous waste management program under the Resource Conservation and Recovery Act (RCRA), Subpart C;

(B) underground injection control program under the Safe Drinking Water Act (SDWA);

(C) MPDES program under the Clean Water Act (CWA);

(D) dredge or fill permits under section 404 of the CWA; and

(E) other relevant environmental permits, including state permits;

(iv) the name and population of each municipal entity served by the facility, including unincorporated connector districts. The applicant shall indicate whether each municipal entity owns or maintains the collection system and whether the collection system is separate sanitary or combined storm and sanitary, if known;

(v) information concerning whether the facility is located in Indian country and whether the facility discharges to a receiving stream that flows through Indian country;

(vi) the facility's design flow rate (the wastewater flow rate the plant was built to handle), annual average daily flow rate, and maximum daily flow rate for each of the previous three years;

(vii) identification of type(s) of collection system(s) used by the treatment works (i.e., separate sanitary sewers or combined storm and sanitary sewers) and an estimate of the percent of sewer line that each type comprises;

(viii) the following information for outfalls that discharge to state surface water and other discharge or disposal methods:

(A) for effluent discharges to state surface waters, the total number and types of outfalls (e.g., treated effluent, combined sewer overflows, bypasses, constructed emergency overflows);

(B) for wastewater discharged to surface impoundments:

(I) the location of each surface impoundment;

(II) the average daily volume discharged to each surface impoundment; and

(III) whether the discharge is continuous or intermittent;

(C) for wastewater applied to the land:

(I) the location of each land application site;

(II) the size of each land application site, in acres;

(III) the average daily volume applied to each land application site, in gallons per day; and

(IV) whether land application is continuous or intermittent;

(D) for effluent sent to another facility for treatment prior to discharge:

(I) the means by which the effluent is transported;

(II) the name, mailing address, contact person, and phone number of the organization transporting the discharge, if the transport is provided by a party other

than the applicant;

(III) the name, mailing address, contact person, phone number, and MPDES permit number (if any) of the receiving facility; and

(IV) the average daily flow rate from this facility into the receiving facility, in millions of gallons per day; and

(E) for wastewater disposed of in a manner not included in (a)(viii)(A) through (D) (e.g., underground percolation, underground injection):

(I) a description of the disposal method, including the location and size of each disposal site, if applicable;

(II) the annual average daily volume disposed of by this method, in gallons per day; and

(III) whether disposal through this method is continuous or intermittent.

(b) All applicants with a design flow greater than or equal to 0.1 million gallons per day shall provide the following additional information:

(i) the current average daily volume of inflow and infiltration, in gallons per day, and steps the facility is taking to minimize inflow and infiltration;

(ii) a topographic map (or other map if a topographic map is unavailable) extending at least one mile beyond property boundaries of the treatment plant, including all unit processes, and showing:

(A) the treatment plant area and unit processes;

(B) the major pipes or other structures through which wastewater enters the treatment plant and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Outfalls from bypass piping must be included, if applicable;

(C) each well where fluids from the treatment plant are injected underground;

(D) wells, springs, and other surface water bodies listed in public records or otherwise known to the applicant within 1/4 mile of the treatment works' property boundaries;

(E) sewage sludge management facilities (including on-site treatment, storage, and disposal sites); and

(F) the location at which waste classified as hazardous under RCRA enters the treatment plant by truck, rail, or dedicated pipe;

(iii) a process flow diagram or schematic, which includes:

(A) a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. This includes a water balance showing all treatment units, including disinfection, daily average flow rates at influent and discharge points, and approximate daily flow rates between treatment units; and

(B) a narrative description of the diagram; and

(iv) information regarding scheduled improvements and the schedule of implementation, which includes the following:

(A) the outfall number of each outfall affected;

(B) a narrative description of each required improvement;

(C) scheduled or actual dates of completion for the following:

(I) commencement of construction;

(II) completion of construction;

(III) commencement of discharge; and

(IV) attainment of operational level; and

(D) a description of permits and clearances concerning other state or federal requirements.

(c) Each applicant shall provide the following information for each outfall, including bypass points, through which effluent is discharged, as applicable:

(i) a description of each outfall that includes the following information:

(A) outfall number;

(B) county, city, or town in which outfall is located;

(C) latitude and longitude, to the nearest second;

(D) distance from shore and depth below surface;

(E) average daily flow rate, in million gallons per day;

(F) the following information for each outfall with a seasonal or periodic discharge:

(I) number of times per year the discharge occurs;

(II) duration of each discharge;

(III) flow of each discharge; and

(IV) months in which discharge occurs; and

(G) whether the outfall is equipped with a diffuser and the type (e.g., high-rate) of diffuser used;

(ii) a description of receiving waters that includes the following information, if known for each outfall through which effluent is discharged to state surface waters:

(A) name of receiving water;

(B) name of United States Geological Survey 8-digit hydrologic unit code and state water body identification code; and

(C) critical flow of receiving stream and total hardness of receiving stream at critical low flow (if applicable); and

(iii) a description of treatment system, including the following information describing the treatment provided for discharges from each outfall to state water:

(A) the highest level of treatment (e.g., primary, equivalent to secondary, secondary, advanced, other) that is provided for the discharge for each outfall and:

(I) design biochemical oxygen demand or carbonaceous oxygen demand removal (percent);

(II) design suspended solids removal (percent); and, where applicable,

(III) design phosphorus removal (percent);

(IV) design nitrogen removal (percent); and

(V) any other removals that an advanced treatment system is designed to achieve; and

(B) a description of the type of disinfection used and whether the treatment plant dechlorinates (if disinfection is accomplished through chlorination).

(d) As specified in (i) through (ix), all applicants shall submit to the department effluent monitoring information for samples taken from each outfall through which effluent is discharged to state surface waters. The department may allow applicants to submit sampling data for only one outfall, on a case-by-case basis, where the applicant has two or more outfalls with substantially identical effluent. The department may also allow applicants to composite samples from one or more outfalls that discharge into the same mixing zone.

(i) All applicants shall sample and analyze for the following pollutants:

(A) biochemical oxygen demand or carbonaceous oxygen demand;
(B) fecal coliform;
(C) design flow rate;
(D) pH;
(E) temperature (winter and summer); and
(F) total suspended solids.

(ii) All applicants with a design flow greater than or equal to 0.1 million gallons per day shall sample and analyze for the pollutants listed below. Facilities that do not use chlorine for disinfection, do not use chlorine elsewhere in the treatment process, and have no reasonable potential to discharge chlorine in their effluent are not required to analyze for chlorine:

(A) ammonia (as N);
(B) chlorine (total residual, TRC);
(C) nitrate/nitrite;
(D) Kjeldahl nitrogen;
(E) oil and grease;
(F) phosphorus; and
(G) total dissolved solids.

(iii) The following applicants shall sample and analyze for the pollutants listed in Appendix J, Table 2 of 40 CFR Part 122, and for any other pollutants for which the board has established water quality standards applicable to the receiving waters:

(A) all POTWs with a design flow rate equal to or greater than one million gallons per day;

(B) all POTWs with approved pretreatment programs or POTWs required to develop a pretreatment program; and

(C) other POTWs, as required by the department.

(iv) The department may require sampling for additional pollutants, as appropriate, on a case-by-case basis.

(v) Applicants shall provide data from a minimum of three samples taken within four and one-half years prior to the date of the permit application. Samples must be representative of the seasonal variation in the discharge from each outfall. Existing data may be used, if available, in lieu of sampling done solely for the purpose of this application. The department may require additional samples, as appropriate, on a case-by-case basis.

(vi) All existing data for pollutants specified in (i) through (iv) that is collected within four and one-half years of the application must be included in the pollutant data summary submitted by the applicant. If, however, the applicant samples for a specific pollutant on a monthly or more frequent basis, it is only necessary, for such pollutant, to summarize all data collected within one year of the application.

(vii) Applicants shall collect samples of effluent and analyze such samples for pollutants in accordance with analytical methods approved under 40 CFR Part 136 unless an alternative is specified in the existing MPDES permit. When analysis of pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, fecal coliform (including E. coli), or volatile organics is required by (i) through (iii), grab samples must be collected for those pollutants. For all other pollutants, 24-hour composite samples must be used. For a composite sample, only one analysis of the composite of aliquots is required.

(viii) The effluent monitoring data provided must include at least the following information for each parameter:

(A) maximum daily discharge expressed as concentration or mass, based upon actual sample values;

(B) average daily discharge for all samples, expressed as concentration or mass, and the number of samples used to obtain this value;

(C) the analytical method used; and

(D) the minimum detection limit (MDL) or minimum level (ML) for the analytical method used.

(ix) Unless otherwise required by the department, metals must be reported as total recoverable.

(e) All applicants shall provide an identification of any whole effluent toxicity tests conducted during the four and one-half years prior to the date of the application on any of the applicant's discharges or on any receiving water near the discharge.

(i) As specified in (ii) through (viii), the following applicants shall submit to the department the results of valid whole effluent toxicity tests for acute or chronic toxicity for samples taken from each outfall through which effluent is discharged to surface waters, except for combined sewer overflows:

(A) all POTWs with design flow rates greater than or equal to one million gallons per day;

(B) all POTWs with approved pretreatment programs or POTWs required to develop a pretreatment program; and

(C) other POTWs, as required by the department, based on consideration of the following factors:

(I) the variability of the pollutants or pollutant parameters in the POTW effluent (based on chemical-specific information, the type of treatment plant, and types of industrial contributors);

(II) the ratio of effluent flow to receiving stream flow;

(III) existing controls on point or non-point sources, including total maximum daily load calculations for the receiving stream segment and the relative contribution of the POTW;

(IV) receiving stream characteristics, including possible or known water quality impairment, a water designated as an outstanding natural resource water; and

(V) other considerations (including, but not limited to, the history of toxic impacts and compliance problems at the POTW) that the department determines could cause or contribute to adverse water quality impacts.

(ii) Where the POTW has two or more outfalls with substantially identical effluent discharging to the same receiving stream segment, the department may allow applicants to submit whole effluent toxicity data for only one outfall on a case-by-case basis. The department may also allow applicants to composite samples from one or more outfalls that discharge into the same mixing zone.

(iii) Each applicant required to perform whole effluent toxicity testing pursuant to (i) shall provide:

(A) results of a minimum of four quarterly tests for a year, from the year preceding the permit application; or

(B) results from four tests performed at least annually in the 4 1/2-year period

prior to the application, provided the results show no appreciable toxicity using a safety factor determined by the department.

(iv) Applicants shall conduct tests with multiple species (no less than two species, e.g., fish, invertebrate, plant) and test for acute or chronic toxicity, depending on the range of receiving water dilution. Applicants shall conduct acute or chronic testing based on the following dilutions:

(A) acute toxicity testing if the dilution of the effluent is greater than 100:1 at the edge of the mixing zone;

(B) acute or chronic toxicity testing if the dilution of the effluent is between 10:1 and 100:1 at the edge of the mixing zone; and

(C) chronic testing if the dilution of the effluent is less than 10:1 at the edge of the mixing zone.

(v) Each applicant required to perform whole effluent toxicity testing pursuant to (i) shall provide the number of chronic or acute whole effluent toxicity tests that have been conducted since the last permit reissuance.

(vi) Applicants shall provide the results using the form provided by the department, or test summaries if available and comprehensive, for each whole effluent toxicity test conducted pursuant to (i) for which such information has not been reported previously to the department.

(vii) Whole effluent toxicity testing conducted pursuant to (i) must be conducted using methods approved under 40 CFR Part 136.

(viii) For whole effluent toxicity data submitted to the department within four and one-half years prior to the date of the application, applicants shall provide the dates on which the data were submitted and a summary of the results.

(ix) Each POTW required to perform whole effluent toxicity testing pursuant to (i) shall provide any information on the cause of toxicity and written details of any toxicity reduction evaluation conducted, if any whole effluent toxicity test conducted within the past four and one-half years revealed toxicity.

(f) Applicants shall submit the following information about industrial discharges to the POTW:

(i) number of significant industrial users (SIUs) and categorical industrial users (CIUs) discharging to the POTW; and

(ii) POTWs with one or more SIUs shall provide the following information for each SIU, as defined at ARM 17.30.1402, that discharges to the POTW:

(A) name and mailing address;

(B) description of all industrial processes that affect or contribute to the SIU's discharge;

(C) principal products and raw materials of the SIU that affect or contribute to the SIU's discharge;

(D) average daily volume of wastewater discharged, indicating the amount attributable to process flow and non-process flow;

(E) whether the SIU is subject to local limits;

(F) whether the SIU is subject to categorical standards, and if so, under which category(ies) and subcategory(ies); and

(G) whether any problems at the POTW (e.g., upsets, pass through, interference) have been attributed to the SIU in the past four and one-half years.

(iii) The information required in (i) and (ii) may be waived by the department

for POTWs with pretreatment programs if the applicant has submitted either of the following that contain information substantially identical to that required in (i) and (ii):

(A) an annual report submitted within one year of the application; or

(B) a pretreatment program.

(g) POTWs receiving Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or RCRA corrective action wastes or wastes generated at another type of cleanup or remediation site shall provide the following information:

(i) if the POTW receives, or has been notified that it will receive, by truck, rail, or dedicated pipe any wastes that are regulated as RCRA hazardous wastes pursuant to 40 CFR Part 261, the applicant shall report the following:

(A) the method by which the waste is received (i.e., whether by truck, rail, or dedicated pipe); and

(B) the hazardous waste number and amount received annually of each hazardous waste;

(ii) if the POTW receives, or has been notified that it will receive, wastewaters that originate from remedial activities, including those undertaken pursuant to CERCLA and sections 3004(u) or 3008(h) of RCRA, the applicant shall report the following:

(A) the identity and description of the site(s) or facility(ies) at which the wastewater originates;

(B) the identities of the wastewater's hazardous constituents, as listed in Appendix VIII of 40 CFR Part 261, if known; and

(C) the extent of treatment, if any, the wastewater receives or will receive before entering the POTW; and

(iii) applicants are exempt from the requirements of (ii) if they receive no more than 15 kilograms per month of hazardous wastes, unless the wastes are acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e).

(h) Each applicant with combined sewer systems shall provide the following information:

(i) a map indicating the location of the following:

(A) all combined sewer overflow (CSO) discharge points;

(B) sensitive use areas potentially affected by CSOs (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems, and outstanding national resource waters); and

(C) waters supporting threatened and endangered species potentially affected by CSOs;

(ii) a diagram of the combined sewer collection system that includes the following information:

(A) the location of major sewer trunk lines, both combined and separate sanitary;

(B) the locations of points where separate sanitary sewers feed into the combined sewer system;

(C) in-line and off-line storage structures;

(D) the locations of flow-regulating devices; and

(E) the locations of pump stations;

(iii) the following information for each CSO discharge point (outfall) covered

by the permit application:

(A) outfall number;

(B) county, city, or town in which each outfall is located;

(C) latitude and longitude, to the nearest second;

(D) distance from shore and depth below surface;

(E) whether the applicant monitored any of the following in the past year for this CSO:

(I) rainfall;

(II) CSO flow volume;

(III) CSO pollutant concentrations;

(IV) receiving water quality; or

(V) CSO frequency; and

(F) the number of storm events monitored in the past year;

(iv) the following information about CSO overflows from each outfall:

(A) the number of events in the past year;

(B) the average duration per event, if available;

(C) the average volume per CSO event, if available; and

(D) the minimum rainfall that caused a CSO event, if available, in the last year;

(v) the following information about receiving waters:

(A) name of receiving water;

(B) name of watershed/stream system and the United States Soil Conservation Service watershed (14-digit) code, if known; and

(C) name of the United States Geological Survey hydrologic cataloging unit (8-digit) code and the state water body identification code, if known; and

(vi) a description of any known water quality impacts on the receiving water caused by the CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shellfish bed closings, fish kills, fish advisories, other recreational loss, or exceedance of any applicable water quality standard).

(i) All applicants shall provide the name, mailing address, telephone number, and responsibilities of all contractors responsible for any operational or maintenance aspects of the facility.

(j) All applications shall be signed by a certifying official in compliance with ARM 17.30.1323.

(13) A discharger that is not a publicly owned treatment works (POTW) may request a variance from otherwise applicable effluent limitations under any of the following statutory or regulatory provisions within the times specified below:

(a) through (a)(ii) remain the same.

(b) A request for a variance from the best available technology (BAT) requirements for federal Clean Water Act section 301(b)(2)(F) pollutants (commonly called "nonconventional" pollutants) pursuant to section 301(c) of the federal Clean Water Act because of the economic capability of the owner or operator, or pursuant to section 301(g) of the federal Clean Water Act because of certain environmental considerations, when those requirements were based on effluent limitation guidelines, must be made by:

(i) through (i)(B) remain the same.

(ii) submitting a completed request no later than the close of the public

comment period under ARM 17.30.1372 demonstrating that the requirements of ARM 17.30.1375 and the applicable requirements of 40 CFR Part 125 have been met. Notwithstanding this provision, the complete application for a request under section 301(g) of the federal Clean Water Act ~~shall~~ must be filed before the department must make a decision;

(iii) remains the same.

~~(c) An extension under federal Clean Water Act section 301(i)(2) of the statutory deadlines in section 301(b)(1)(A) or (b)(1)(C) of the federal Clean Water Act based on delay in completion of a POTW into which the source is to discharge must have been requested on or before June 26, 1978, or 180 days after the relevant POTW requested an extension under (14)(b), whichever is later, but in no event may this date have been later than January 30, 1988. The request must explain how the requirements of 40 CFR Part 125, subpart J, have been met.~~

~~(d) An extension under federal Clean Water Act section 301(k) from the statutory deadline of 301(b)(2)(A) for best available technology or 301(b)(2)(E) for best conventional pollutant control technology based on the use of innovative technology, may be requested no later than the close of the public comment period under ARM 17.30.1372 for the discharger's initial permit requiring compliance with section 301(b)(2)(A) or (b)(2)(E), as applicable. The request must demonstrate that the requirements of ARM 17.30.1375 and 40 CFR Part 125, subpart C, have been met.~~

(e) and (f) remain the same, but are renumbered (c) and (d).

(14) A discharger ~~which~~ that is a publicly owned treatment works (POTW) may request a variance from otherwise applicable effluent limitations under ~~either of the following statutory provisions as specified below:~~

~~(a) an extension under federal Clean Water Act section 301(i)(1) of the statutory deadlines in federal Clean Water Act section 301(b)(1)(B) or (b)(1)(C) based on delay in the construction of the POTW must have been requested on or before August 3, 1987; or~~

~~(b) a modification under~~ federal Clean Water Act section 302(b)(2) of the requirements under section 302(a) for achieving water quality based effluent limitations ~~must be requested~~ no later than the close of the public comment period under ARM 17.30.1372 on the permit from which the modification is sought.

(15) Notwithstanding the time requirements in (13) and (14):

(a) the department may notify a permit applicant before a draft permit is issued under ARM 17.30.1370 that the draft permit will likely contain limitations eligibility for variances. In the notice the department may require that the applicant, as a condition of consideration of any variance request, submit an explanation of how the requirements of ~~40 CFR Part 125~~ ARM 17.30.1203(4) applicable to the variance have been met. The department may require submission of the explanation within a specified reasonable time after receipt of the notice. The notice may be sent before the permit application has been submitted. The draft or final permit may contain the alternative limitations that may become effective upon final grant of the variance; and specified reasonable time after receipt of the notice. The notice may be sent before the permit application has been submitted. The draft or final permit may contain the alternative limitations that may become effective upon final grant of the variance; and

(b) remains the same.

(16) remains the same.

(17) ~~The board hereby adopts and incorporates herein by reference (see ARM 17.30.1303 for complete information about all materials incorporated by reference):~~

~~(a) 40 CFR 125.102, which is a federal agency rule setting forth requirements for best management practices for dischargers who use, manufacture, store, handle, or discharge any hazardous or toxic pollutant;~~

~~(b) 40 CFR Part 136, which is a series of federal agency rules setting forth guidelines establishing test procedures for the analysis of pollutants;~~

~~(c) Appendix A to 40 CFR Part 122, which is an appendix to a series of federal agency rules and sets forth a list of primary industrial categories;~~

~~(d) Tables I, II, and III of Appendix D to 40 CFR Part 122, which are part of appendices of federal agency rules and list, respectively, testing requirements for organic toxic pollutants by industry category for existing dischargers, organic toxic pollutants in each of four fractions in analysis by gas chromatography/mass spectroscopy (GC/MS), and other toxic pollutants (metals and cyanide) and total phenols;~~

~~(e) Tables IV and V of Appendix D to 40 CFR Part 122, which are lists appended to a federal agency rule setting forth, respectively, conventional and nonconventional pollutants, and toxic pollutants and hazardous substances required to be identified by existing dischargers if expected to be present;~~

~~(f) 40 CFR Part 125, which is a series of federal agency rules setting forth criteria and standards for the national pollutant discharge elimination system (NPDES), specifically including criteria for extending compliance dates for facilities installing innovative technology (Subpart C), criteria for determining the availability of a variance based on fundamentally different factors (FDF) (Subpart D), and criteria for extending compliance dates for achieving effluent limitations;~~

~~(g) 40 CFR 403.5(c)(i) (July 1, 1991), which requires POTWs to develop and enforce specific limits to prevent certain discharges; and~~

~~(h) 40 CFR 122.26(c)(1), which states requirements for individual permit applications for storm water discharges.~~

~~(i) Copies of the above listed materials are available from the Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901.~~ New facilities with new or modified cooling water intake structures, as defined in ARM 17.30.1202, shall submit to the department for review the information required in this section as part of their application. Requests for alternative requirements under ARM 17.30.1213 must be submitted with the facility's permit application required by ARM 17.30.1322. All applicants shall provide the following information:

(a) source water physical data, which includes:

(i) a narrative description and scaled drawings showing the physical configuration of all source water bodies used by the facility, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports a determination of the water body type where each cooling water intake structure is located;

(ii) identification and characterization of the source water body's hydrological and geomorphological features, as well as the methods used to conduct any

physical studies to determine the intake's area of influence within the water body and the results of such studies; and

(iii) locational maps;

(b) cooling water intake structure data, which includes:

(i) a narrative description of the configuration of each of the facility's cooling water intake structures and where they are located in the water body and in the water column;

(ii) latitude and longitude in degrees, minutes, and seconds for each of the cooling water intake structures;

(iii) a narrative description of the operation of each of the facility's cooling water intake structures, including design intake flows, daily hours of operation, number of days of the year in operation and seasonal changes, if applicable;

(iv) a flow distribution and water balance diagram that includes all sources of water to the facility, recirculating flows, and discharges; and

(v) engineering drawings of the cooling water intake structures; and

(c) a source water baseline biological characterization including information required to characterize the biological community in the vicinity of the cooling water intake structures and to characterize the operation of the cooling water intake structures. The department may also use this information in subsequent permit renewal proceedings to determine if the facility's design and construction technology plan, as required in ARM 17.30.1213, should be revised. This supporting information must include existing data (if they are available). However, supplemental data using newly conducted field studies may also be submitted at the discretion of the applicant. The following information must be submitted:

(i) a list of the data in (ii) through (vi) that are not available and efforts made to identify sources of the data;

(ii) a list of species (or relevant taxa) for all life stages and their relative abundance in the vicinity of the cooling water intake structures;

(iii) identification of the species and life stages that would be most susceptible to impingement and entrainment. Species evaluated should include the forage base as well as those most important in terms of significance to commercial and recreational fisheries;

(iv) identification and evaluation of the primary period of reproduction, larval recruitment, and period of peak abundance for relevant taxa;

(v) data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the cooling water intake structures;

(vi) identification of all threatened, endangered, and other protected species that might be susceptible to impingement and entrainment at the cooling water intake structures;

(vii) documentation of any public participation or consultation with federal or state agencies undertaken in development of the plan; and

(viii) if information is submitted to supplement the information requested in (i) with data collected using field studies, supporting documentation for the source water baseline biological characterization must include a description of all methods and quality assurance procedures for sampling, and data analysis including a description of the study area, taxonomic identification of sampled and evaluated

biological assemblages (including all life stages of fish and shellfish), and sampling and data analysis methods. The sampling and/or data analysis methods used must be appropriate for a quantitative survey and based on consideration of methods used in other biological studies performed within the same source water body. The study area should include, at a minimum, the area of influence of the cooling water intake structure.

(18) The board adopts and incorporates by reference the following federal regulations as part of the Montana pollutant discharge elimination system. Copies of these federal regulations may be obtained from the Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901.

(a) 40 CFR Part 136 (July 1, 2011), which sets forth guidelines establishing test procedures for the analysis of pollutants;

(b) Appendix A to 40 CFR Part 122 (July 1, 2011), which sets forth a list of primary industrial categories;

(c) Appendix D to 40 CFR Part 122 (July 1, 2011), which sets forth NPDES permit application testing requirements;

(d) Appendix J to 40 CFR Part 122 (July 1, 2011), which sets forth NPDES permit testing requirements for publicly owned treatment works;

(e) 40 CFR Part 125 (July 1, 2011), which sets forth criteria for extending compliance dates and for determining the availability of a variance;

(f) 40 CFR Part 412 (July 1, 2011), which sets forth effluent guidelines and standards for concentrated animal feeding operations.

AUTH: 75-5-201, 75-5-401, MCA
IMP: 75-5-401, MCA

REASON: The board is proposing to amend the application requirements in ARM 17.30.1322 in order to make them consistent with the equivalent federal requirements set forth in 40 CFR 122.21 and 122.26(c). In general, the proposed amendments add informational requirements for certain discharges, delete requirements that no longer apply, clarify which application forms and information must be submitted by various categories of discharges, add portions of the text of 40 CFR 122.21 and 122.26 into the existing text of ARM 17.30.1322, and update incorporations by reference of applicable federal rules. The board is proposing to adopt these federal application requirements because they are required elements of a delegated state's permit program. *See* 40 CFR 123.25. The board's specific reasons for adopting these federal requirements into various sections of ARM 17.30.1322 follow. The proposed amendments also make minor changes to wording and punctuation to conform to standard practices for rule formatting.

The board is proposing to amend (1) to clarify which application forms must be submitted for various categories of discharges that require an individual MPDES permit, as specified in 40 CFR 122.21(a). Given that the department currently provides these same federal application forms to MPDES applicants according to their type of discharge, no change or additional requirements are anticipated as a result of the proposed amendment. The board finds that adopting the proposed amendment is necessary to provide clear authority for the department to require the submission of information required by the various forms. In addition, the board is

proposing to delete language in (1) that requires the submittal of a best management program (BMP), because this language is no longer included in 40 CFR 122.21.

The board is proposing to amend (4) to eliminate the current language that establishes separate but identical application deadlines of 180-days that apply to publicly owned treatment works (POTWs) under (4)(a) and to "all other permittees" under (4)(b). Since 40 CFR 122.21(c) imposes on all permittees the obligation to submit an application 180 days prior to the expiration of an existing permit, the board is deleting language that provides separate application deadlines for POTWs and "all other permittees." To clarify that all permittees are subject to the same timeframe, the board is proposing to eliminate the deadline applicable to "all other permittees" in existing (4)(b) and amend (4)(a) to impose the 180-day time frame on "all permittees."

The board is proposing to amend (6) to clarify that POTWs, unlike all other permittees, do not have to submit Form 1 when applying for an individual MPDES permit. Since POTWs have different application requirements that must be submitted on a different form, the board is proposing to remove the existing application requirements for POTWs from (6) and combine those requirements with all of the other POTW application requirements being proposed for adoption in (12). This proposed amendment is necessary to provide clarity concerning the appropriate application forms and to consolidate all of the application requirements for POTWs under one section of the rule.

The board is proposing to amend (7), which sets forth the application requirements for existing manufacturing, commercial, mining, and silvicultural discharges in order to make Montana's requirements consistent with the federal requirements for these same facilities. In order to ensure consistency with the federal rule, the board is proposing to adopt all portions of the text from 40 CFR 122.21(g) that apply to delegated-states' permit programs, but are absent from the existing text of subsection (7). The portions of 40 CFR 122.21(g) being proposed for adoption under (7) consist of the following: (1) language clarifying that the application requirements do not apply to facilities that discharge only non-process wastewater; (2) sampling and analytical requirements for storm water discharges from these facilities; and (3) sampling requirements that are necessary to characterize the effluent discharged by these facilities. These amendments are necessary to maintain consistency with federal application requirements.

The board is proposing to amend (8), which sets forth the application requirements for all manufacturing, commercial, mining, and silvicultural discharges applying for MPDES permits that discharge only non-process wastewater. The proposed amendments to (8)(d) reformats the structure of the subsection by removing the list of pollutants currently in (8)(d)(i)(A) through (K) and including that list into the last sentence of (8)(d). Other amendments to (8)(d)(i) through (iii) are to proposed make the language gender neutral. The board is also proposing to add language clarifying the number of samples that must be used for a 24-hour composite sample. Finally, the board is proposing to add a new requirement for the submission of data relating to pollutants that are present in the discharge, if those pollutants are regulated by water quality standards. This new language is necessary to ensure that water quality standards are adequately considered and addressed during the application process.

The board is proposing to amend (9), which currently incorporates by reference the application requirements for concentrated animal feeding operations (CAFO) that apply for an individual permit. The proposed amendment will accomplish two objectives. First, it will correct citations to definitions that are incorrectly cited in the current text of (9). Second, it will eliminate the incorporation by reference of 40 CFR 122.21(i)(1) and replace that reference with the actual text of the federal rule. These proposed amendments are necessary to correct errors in internal citations and make more readily available to the public the specific application requirements that apply to CAFOs that are required to apply for an individual permit.

The board is proposing to amend (10), which specifies application requirements for new sources and new discharges, to make the language describing exceptions to those requirements consistent with the federal requirements in 40 CFR 122.21(k). The board is also proposing an amendment that will reformat (10)(e)(i). This amendment will not impose any new requirements, but will remove the list of pollutants in (10)(e)(i)(A) through (H) and move that list into the last sentence of (10)(e)(i). Finally, the board is proposing to add a new requirement for the submission of data relating to pollutants that are present in the discharge, if those pollutants are regulated by water quality standards. This new language is necessary to ensure that water quality standards are adequately considered and addressed during the application process.

The board is proposing to amend (11), which currently requires dischargers of storm water from certain facilities to apply for an individual permit or a general permit under subchapter 11. The current text also explains that individual permits for small municipal separate storm sewer systems (MS4s) are subject to the permit requirements in ARM 17.30.1111(1) through (18). Since general permit requirements for storm water and MS4s are addressed separately in subchapter 11, the reference to those requirements in ARM 17.30.1322, which is solely concerned with individual permit applications, is not necessary. Consequently, the board is proposing to delete the existing language in (11) and replace it with individual permit application requirements for storm water discharges, as required in 40 CFR 122.26(c). The proposed amendment to (11)(a) applies to dischargers of storm water associated with industrial activity that are required to obtain an individual permit and any other discharge that the department is evaluating for designation under subchapter 11, unless otherwise exempt under the proposed language in (11)(b), (c) or (d). The individual application requirements for storm water dischargers, provided in 40 CFR 122.26(c), including the exceptions to those requirements, are a required element of a delegated state's permit program, as specified in 40 CFR 123.25(a)(9).

The board is proposing to delete the current language in (12), which requires dischargers of storm water from certain industrial facilities to obtain coverage under a general permit or apply for an individual permit, pursuant to 40 CFR 122.26(c). Since general permit requirements for storm water dischargers are addressed separately in subchapter 11, and since the board is proposing to adopt the individual permit requirements required by 40 CFR 122.26(c) into (11), there is no need to retain these requirements in (12). Instead, the board is proposing to replace the current text of (12) with the application requirements for POTWs. Specifically, the

board is proposing to remove the application requirements for POTWs currently included under (6) and consolidate those requirements with all of the application requirements for POTWs that are required by 40 CFR 122.21(j), but currently absent from ARM 17.30.1322. This amendment is necessary to make more readily available to the public the entire list of specific application requirements that apply to POTWs.

The board is proposing to delete the current text in (13)(c) and (d) and (14)(a), which require dischargers intending to request a variance from certain effluent limitations do so by a certain date. The time periods for submitting a request under subsections (13)(c) and (d) and (14)(a) are taken from the federal Clean Water Act, which required such requests be submitted by, for (13)(c), January 30, 1988; for (13)(d), March 31, 1991; and for (14)(a), August 7, 1987. Since the timelines imposed by the federal Clean Water Act expired decades ago, the requirement to meet these deadlines serves no purpose. Given that EPA removed these particular timeframes from federal rules on June 29, 1995 (60 FR 33926), the board is proposing to remove them from Montana's rules as well.

The board is proposing to move the incorporations by reference of federal rules currently in (17) and place them in new (18). The board is then proposing to adopt the text of 40 CFR 122.21(r) into (17). The text of the federal rule being proposed for adoption in (17) applies to new cooling water intake structures and includes all of the information and application requirements that apply to these facilities. This amendment is necessary in order to be consistent with EPA's requirements for delegated states' permit programs, pursuant to 40 CFR 123.25(a)(4).

The board is proposing to incorporate and update all applicable federal rules necessary to support the provisions of ARM 17.30.1322 that were formerly in (17) and are now proposed for adoption in new (18). Some of the federal rules that are currently incorporated by reference are being eliminated, because they are no longer necessary to support the provisions of ARM 17.30.1322. The federal rules that are being omitted are the following: (1) 40 CFR 125.102, which sets forth requirements for BMP programs, is no longer necessary due to the proposed elimination of references to BMP programs from (1); (2) 40 CFR 403.5(c)(i), which establishes requirements for pretreatment programs, is not necessary because the department does not administer the federal pretreatment program; and (3) 40 CFR 122.26(c)(1), which sets forth individual permit application requirements for storm water dischargers, is no longer necessary due to the proposed adoption of those requirements into (11). The board is further proposing to add 40 CFR 412.4(c) to the list of federal rules proposed for incorporation by reference in (18), because that rule is necessary to support the CAFO application requirements in (9).

4. The rule proposed for repeal is as follows:

17.30.1303 INCORPORATIONS BY REFERENCE (75-5-304, MCA; IMP, 75-5-304, 75-5-401, MCA), located at page 17-2895, Administrative Rules of Montana. The board is proposing to repeal ARM 17.30.1303, which incorporates by reference 46 different federal rules or statutes that are included in the MPDES rules. Many of these rules and statutes are not implemented by the department under the MPDES

program because they are not a required element of a delegated state's permit program. The incorporations by reference in ARM 17.30.1303 that are a necessary component of a delegated state's permit program are already incorporated by reference into the specific MPDES rule that relies upon the federal rule. Repeal of ARM 17.30.1303 will eliminate duplication between this rule and the other MPDES rules in Title 17, chapter 30, subchapters 11 through 13.

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., September 12, 2012. To be guaranteed consideration, mailed comments must be postmarked on or before that date.

6. Katherine Orr, 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.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

/s/ James M. Madden BY: */s/ Joseph W. Russell*
JAMES M. MADDEN JOSEPH W. RUSSELL, M.P.H.,
Rule Reviewer Chairman

Certified to the Secretary of State, July 30, 2012.

MEMORANDUM

To: Board of Environmental Review
From: David Dennis, DEQ Staff Attorney DGD
Re: Stringency Analysis and Takings Checklist for Proposed Amendments to ARM 17.30.1304, 17.30.1310, 17.30.1322, and repeal of 17.30.1303. MAR Notice No. 17-338.

Date: September 5, 2012

HB 521 REVIEW

House Bill (HB) 521 (1995), codified in the Montana Water Quality Act at § 75-5-203, MCA, requires the Board of Environmental Review to make certain written findings after a public hearing and public comment prior to adopting a rule that is more stringent than a comparable federal standard or guideline. No written findings are required if the more stringent standard is "required by state law." In addition, § 75-5-309, MCA, requires the Board of Environmental Review to make certain written findings that are accompanied by a Board opinion evaluating the environmental and public health information in the record prior to adopting a rule that is more stringent than corresponding federal draft or final regulations, guidelines, or criteria.

The proposed action of the Board will accomplish the following: (1) add and amend definitions set forth in ARM 17.30.1304; (2) amend ARM 17.30.1310 to correct citations to various definitions, delete the incorporation of federal rules, and to exempt from MPDES permitting, discharges from a water transfer that conveys or connects waters of the state; and (3) amend application requirements in ARM 17.30.1322 to provide consistency with the federal requirements set forth in 40 CFR 122.21 and 122.26(c).

Addition and Amendment of Definitions—ARM 17.30.1304

The board is proposing to amend the definitions in ARM 17.30.1304 in order to provide clarity with respect to technical terms that are used in the application requirements also being proposed for adoption in this rulemaking. In addition, the board proposes to amend current definitions in ARM 17.30.1304 to correct errors, ensure consistency with statutory definitions, and provide consistency among the definitions appearing in ARM 17.30.1102, 17.30.1202, and 17.30.1304. Because the proposed definitional additions and amendments are consistent with and not more stringent than EPA's requirements, no written findings are required under §§ 75-5-203 and 75-5-309, MCA.

Amendments to ARM 17.30.1304.

The board is proposing to amend ARM 17.30.1310(4) to correct the citations to the various definitions referenced in that provision. The board is further proposing to eliminate the incorporation of federal rules in ARM 17.30.1310(7) (renumbered (g)), since the department does not implement these federal rules under the Montana Pollutant Discharge Elimination

System (MPDES) permit program. Finally, the board is amending ARM 17.30.1310(7) to exempt a discharge from MPDES permit requirements. The proposed amendment specifies that a discharge from a water transfer that conveys or connects waters of the state does not need an MPDES permit. The proposed amendment further specifies that the exclusion does not apply if pollutants are added to the transferred water or if the transferred water is used for other purposes prior to being discharged. The board is proposing this amendment to be consistent with the U.S. Environmental Protection Agency's (EPA's) recent promulgation of a rule clarifying that water transfers, as defined in the board's proposed amendment, are not subject to NPDES permits. This amendment is necessary in order to maintain consistency between the state and federal permit program and to avoid being more stringent than applicable federal regulations. The Board's proposed revisions are consistent with and not more stringent than EPA's requirements. Therefore, no written findings are required under §§ 75-5-203 and 75-5-309, MCA.

Amendments to Application Requirements in ARM 17.30.1322

The board is proposing to amend the application requirements in ARM 17.30.1322 in order to make them consistent with the equivalent federal requirements set forth in 40 CFR 122.21 and 122.26(c). In general, the proposed amendments add informational requirements for certain discharges, delete requirements that no longer apply, clarify which application forms and information must be submitted by various categories of discharges, add portions of the text of 40 CFR 122.21 and 122.26 into the existing text of ARM 17.30.1322, and update incorporations by reference of applicable federal rules. The board is proposing to adopt these federal application requirements because they are required elements of a delegated state's permit program. *See,* 40 CFR 123.25. The proposed amendments also make minor changes to wording and punctuation to conform to standard practices for rule formatting. Except as set forth below, the proposed changes do not render the requirements of ARM 17.30.1322 more stringent than EPA's requirements. Therefore, no written findings are required under §§ 75-5-203 and 75-5-309, MCA.

Amendments to Information Requirements in ARM 17.30.1322

The Board is proposing to amend the application requirements contained in ARM 17.30.1322(8)(d)(i)(L) and (10)(e)(i)(L). Depending on the circumstances, these new provisions may require permit applicants to provide more information regarding the nature of pollutants the applicant intends to discharge than is required by the corresponding federal rule, and therefore, may be considered more stringent than the federal requirement. The proposed requirement is designed to provide the department with complete information regarding the pollutants proposed to be discharged by an applicant, and therefore, will assist the department in protecting public health and mitigating potential harm to public health and the environment. Fulfillment of the information requirements does not require specialized technology. Further, the proposed information requirements are not amenable to peer-reviewed scientific studies, and indeed, no

such studies exist. Finally, the additional cost to the applicant of providing the information will be minimal.

Repeal of ARM 17.30.1303

The Board is proposing the repeal of ARM 17.30.1303, which incorporates by reference 46 different federal rules or statutes that are included in the MPDES rules. Many of these rules and statutes are not implemented by the department under the MPDES program because they are not a required element of a delegated state's permit program. The incorporations by reference in ARM 17.30.1303 that are a necessary component of a delegated state's permit program are already incorporated by reference into the specific MPDES rule that relies upon the federal rule. The proposed repeal of ARM 17.30.1303 does not render the requirements of Montana law more stringent than EPA's requirements. Therefore, no written findings are required under §§ 75-5-203 and 75-5-309, MCA.

TAKINGS REVIEW

The Private Property Assessment Act, codified as § 2-10-101, MCA, requires that, prior to adopting a proposed rule that has taking or damaging implications for private real property, an agency must prepare a taking or damaging impact statement. "Action with taking or damaging implications" means:

> [A] proposed state agency administrative rule, policy, or permit condition or denial pertaining to land or water management or to some other environmental matter that if adopted and enforced would constitute a deprivation of private property in violation of the United States or Montana Constitution.

§ 2-10-103, MCA.

Section 2-10-104, MCA, requires the Montana Attorney General to develop guidelines, including a checklist, to assist agencies in determining whether an agency action has taking or damaging implications. I have completed an Attorney General's "Private Property Assessment Act Checklist" pertaining to the Board's adoption of proposed revisions in MAR Notice No. 17-338, which is attached to this memo. Based upon completion of the checklist, the proposed revisions do not have taking or damaging implications. Therefore, no further HB 311 assessment is required.

PRIVATE PROPERTY ASSESSMENT ACT CHECKLIST FOR AMENDMENTS PROPOSED IN MAR NOTICE 17-338

YES	NO	
X		1. Does the action pertain to land or water management or environmental regulation affecting private real property or water rights or some other environmental matter?
	X	2. Does the action result in either a permanent or indefinite physical occupation of private property?
	X	3. Does the action deny a fundamental attribute of ownership? (ex.: right to exclude others, disposal of property)
	X	4. Does the action deprive the owner of all economically viable uses of the property?
	X	5. Does the action require a property owner to dedicate a portion of property or to grant an easement? [If no, go to (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? (consider economic impact, investment-backed expectations, character of government action)
	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?
	X	7a. Is the impact of government action direct, peculiar, and significant?
	X	7b. Has government action resulted in the property becoming practically inaccessible, waterlogged or flooded?
	X	7c. Has government action lowered 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?
	X	Takings or damaging implications? (Taking or damaging implications 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; the shaded areas)

Signature of Reviewer

9/5/2012
Date

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the Matter of the amendment of ARM 17.30.1304, 17.30.1310, and 17.30.1322 pertaining to Montana pollutant discharge elimination system permits, permit exclusions and application requirements and repeal of ARM 17.30.1303 pertaining to incorporations by reference	)	Presiding Officer Report

1. On September 5, 2012, at 1 p.m., the undersigned Presiding Officer presided over and conducted the public hearing held in Room 111 of the Metcalf Building, 1520 East Sixth Avenue, Helena, Montana, to take public comment on the above-captioned proposed amendments and repeal. The rule revisions are proposed in order to maintain compliance with the federal regulations promulgated under the federal Clean Water Act's National Pollutant Discharge Elimination System (NPDES) program and to eliminate unnecessary and duplicative rules.

2. Notice of the hearing was contained in the Montana Administrative Register (MAR), Notice No. 17-338, published on August 9, 2012, in Issue No. 15 at pages 1556 through 1586. A copy of the notice is attached to this report. (Attachments are provided in the same order as they are referenced in this report.)

3. The hearing began at 1 p.m. The Court Reporter, Ms. Joan Agamenoni of Great Falls, Montana, recorded the hearing.

4. There were no members of the public at the hearing who provided testimony. At the hearing, the Presiding Officer identified and summarized the MAR

notice and read the Notice of Function of Administrative Rule Review Committee as required by Mont. Code Ann. § 2-4-302(7)(a).

SUMMARY OF HEARING

5. Ms. Jenny Chambers, Bureau Chief of the Water Protection Bureau of the Department of Environmental Quality (Department) submitted a written statement and gave an oral summary of the changes at the hearing. (The written statement is attached.)

6. No written comments were submitted at or after the hearing. There was one question about which state agency has authority over underground injection permits in the oil and gas production process.

7. A written memorandum was submitted from Department staff attorney, Mr. David Dennis containing HB 521 and HB 311 reviews of the proposed amendments and a Private Property Assessment Act Checklist. (Mr. Dennis' memorandum is attached to this report.)

8. Mr. Dennis concluded that because the proposed definitional additions and amendments are consistent with and not more stringent than the Environmental Protection Agency's (EPA's) requirements, no written findings are required under Mont. Code Ann. §§ 75-5-203 and 75-5-309. Also, he concluded that since the proposed repeal of ARM 17.30.1301 does not render the requirements of Montana law more stringent than EPA's requirements, no written findings are required under Mont. Code Ann. §§ 75-5-203 and 75-5-309.

9. With respect to HB 311 (the Private Property Assessment Act, Mont. Code Ann. §§ 2-10-101 through 105), the Board of Environmental Review (Board) is required

to assess the taking or damaging implications of a proposed rule or amendments affecting the use of private real property. This rulemaking affects the use of private real property. A Private Property Assessment Act Checklist was prepared, which shows that the proposed amendments do not have taking or damaging implications. Therefore, no further assessment is required.

10. The period to submit comments ended at 5 p.m. on September 12, 2012.

PRESIDING OFFICER COMMENTS

11. The Board has jurisdiction to make the proposed amendments. See Mont. Code Ann. §§ 75-5-201 and 75-5-401.

12. The procedures required by the Montana Administrative Procedure Act, including public notice, hearing, and comment, have been followed.

13. The Board may adopt the proposed rule amendments and repeal, reject them, or make revisions not exceeding the scope of the public notice.

15. Under Mont. Code Ann. § 2-4-305(7), for the rulemaking process to be valid, the Board must publish a notice of adoption within six months of the date the Board published the notice of proposed rulemaking in the Montana Administrative Register, or by February 9, 2013.

Dated this 27th day of November, 2012.

KATHERINE J. ORR
Presiding Officer

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.30.1304, 17.30.1310, and 17.30.1322 pertaining to Montana pollutant discharge elimination system permits, permit exclusions, and application requirements and repeal of ARM 17.30.1303 pertaining to incorporations by reference	NOTICE OF AMENDMENT AND REPEAL (WATER QUALITY)

TO: All Concerned Persons

1. On August 9, 2012, the Board of Environmental Review published MAR Notice No. 17-338 regarding a notice of public hearing on the proposed amendment and repeal of the above-stated rules at page 1556, 2012 Montana Administrative Register, issue number 15.

2. The board has amended and repealed the rules exactly as proposed.

3. No public comments or testimony were received.

Reviewed by: BOARD OF ENVIRONMENTAL REVIEW

_____ By: _____

JAMES M. MADDEN
Rule Reviewer

JOSEPH W. RUSSELL, M.P.H.
Chairman

Certified to the Secretary of State, _____, 2012.

BOARD OF ENVIRONMENTAL REVIEW
AGENDA ITEM
EXECUTIVE SUMMARY FOR
WATER QUALITY STANDARDS AMENDMENTS

AGENDA ITEM NO. III.B.4.

AGENDA ITEM SUMMARY: The proposed rulemaking would amend rules to designate a portion of the Gallatin River as an Outstanding Resource Water (ORW).

LIST OF AFFECTED RULES: ARM 17.30.617 and 17.30.638.

AFFECTED PARTIES SUMMARY: The proposed designation of the Gallatin River from the Yellowstone National Park boundary to Spanish Creek as an ORW would prohibit new or increased point source discharges that would cause a permanent change of water quality. This includes individual and community wastewater treatment systems or industrial sources that desire to discharge to the proposed ORW section of the Gallatin River or are determined to have a direct hydrologic connection to the Gallatin River.

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

At the March, 2002 meeting, the Board received comment, accepted the petition, and directed the Department to prepare an environmental impact statement (EIS) addressing the petition. The draft EIS was released for public comment in September, 2006. The comment period on the draft EIS closed on October 27, 2006. The final EIS was issued on January 9, 2007.

Notice of proposed rulemaking appeared in the October 5, 2006, Montana Administrative Register. The comment period on the proposed rulemaking closed on November 2, 2006. The Board received a number of comments objecting to the ORW designation on grounds that it would render a number of properties in the Big Sky area undevelopable. In response, the petitioners and several members of the development community commenced discussions regarding local and other actions that could provide equivalent protection of the Gallatin River without rendering the properties undevelopable. They requested the Board to delay action on the rulemaking while they explored the feasibility of these options. The Board granted this request and, in response to similar requests, extended the comment period at approximately six-month intervals since then. The last extension of the comment period ended on November 2, 2012. The Board received no comments during that period.

HEARING INFORMATION: The Board held a hearing on October 25, 2006.

BOARD OPTIONS:

The Board may:

1. Grant the petition by adopting the rule amendments as proposed or with modifications;
2. Deny the petition for rulemaking;
3. Publish a supplemental notice extending the comment period; or
4. Take no action.

DEQ RECOMMENDATION: Comments received during the initial comment period indicated that extension of the Big Sky Water and Sewer District service area along the Gallatin would provide more effective water quality protection than the ORW designation. However, the Big Sky wastewater treatment plant cannot treat more wastewater until a means of disposing of the additional treated wastewater is found. Various interested parties in the Big Sky area formed a collaborative called the "Wastewater Solutions Forum." The Forum hired an engineering firm and that firm completed a feasibility study for an engineering option that would

increase treatment plant capacity by disposing of treated wastewater from the Big Sky and Yellowstone Mountain Club wastewater treatment facilities using snowmaking. That study is now complete and the data indicate that snowmaking is a feasible option for wastewater disposal. It therefore appears that the District could provide treatment for development of areas along the Gallatin. However, District service to the Gallatin corridor would likely take two-to-three years to implement. The Department recommends that, rather than extending the comment period for this time, the Board take no action in this matter. Should efforts to expand the District prove unsuccessful, the Board at that time can reinitiate rulemaking for ORW designation.

Steven T. Wade
Browning, Kaleczyc, Berry & Hoven, P.C.
800 N. Last Chance Gulch, Suite 101
P.O. Box 1697
Helena, MT 59624-1697
(406) 443-6820
stevew@bkbh.com
Attorney for Appellant

Dana David
Department of Environmental Quality
P.O. Box 200901
1520 E. Sixth Avenue
Helena, MT 59620-0901
(406) 444-2626
ddavid@mt.gov
Attorney for the Department

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW

OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE MONTANA STRIP AND UNDERGROUND MINE RECLAMATION ACT BY SIGNAL PEAK ENERGY, LLC AT BULL MOUNTAIN MINE #1, ROUNDUP, MUSSELSHELL COUNTY, MONTANA [FID #2162; DOCKET NO. SM-12-03]	**CASE NO. BER 2012-08 SM** **STIPULATION FOR DISMISSAL WITH PREJUDICE**

Signal Peak Energy, LLC, ("Signal Peak") and the Department of Environmental Quality ("the Department"), through their respective counsel, hereby stipulate to the dismissal of this appeal with prejudice pursuant to Mont. R. Civ. P. Rule 41(a). Signal Peak and the Department have resolved the matters at issue in this appeal as follows: Signal Peak stipulates and agrees on its part to waive its right to an appeal of the Notice of Violation and Administrative Penalty Order in DEQ Docket No. SM-12-03, and the Department stipulates and agrees on its part to accept payment of the administrative penalty in the amount of $26,537.50. Both parties further

stipulate and agree to bear their own costs and attorney fees. Accordingly, the parties request that the Board issue an order dismissing this matter.

SO STIPULATED.

SIGNAL PEAK ENERGY, LLC	STATE OF MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
Steven T. Wade	Dana David
Attorney for Appellant	Attorney for the Department
Date: 11/14/12	Date: Nov. 19, 2012

CERTIFICATE OF SERVICE

The undersigned certifies that on this 19th day of November 2012, he caused a copy of the foregoing Response Brief to be mailed to the following:

Katherine Orr, Hearing Examiner (interagency mail)
DOJ Agency Legal Services Bureau
1712 Ninth Avenue
P.O. Box 201440
Helena, MT 59620-1440

By: _____

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW

OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE MONTANA STRIP AND UNDERGROUND MINE RECLAMATION ACT BY SIGNAL PEAK ENERGY, LLC AT BULL MOUNTAIN MINE #1, ROUNDUP, MUSSELSHELL COUNTY, MONTANA [FID #2162; DOCKET NO. SM-12-03]	)	**CASE NO. BER 2012-08 SM** **ORDER TO DISMISS**

Pursuant to Mont. R. Civ. P. Rule 41(a), Signal Peak Energy, LLC, and the State of Montana, Department of Environmental Quality having filed a Stipulation for Dismissal with Prejudice, and on the basis thereof:

IT IS HEREBY ORDERED that this matter be dismissed with prejudice. Each party shall bear its costs and attorney fees.

DATED this _____ day of _____ 2012.

_____

Joseph W. Russell, MPH
Chairman
Montana Board of Environmental Review

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE MONTANA UNDERGROUND STORAGE TANK ACT BY JEANNY HLAVKA, INDIVIDUALLY AND D/B/A J.R. ENTERPRISE, LLC, AT THE FORT PECK STATION, 301 MISSOURI AVENUE, FORT PECK, VALLEY COUNTY, MONTANA. [FACILITY ID 53-04496; FID 1896, DOCKET NO. UST-10-01]	**CASE NO. BER 2010-08 UST**

RECOMMENDED ORDER ON SECOND MOTION FOR SUMMARY JUDGMENT

On July 9, 2012, the Department of Environmental Quality (Department) filed a "Second Motion for Summary Judgment" together with an Affidavit to which was attached an Administrative Order on Consent signed by a Department representative, the Administrator of the Enforcement Division, and the Mayor of the Town of Fort Peck (joined as a party as of May 24, 2012). Counsel for Ms. Jeanny Hlavka, individually and d/b/a J. R. Enterprise, LLC at the Fort Peck Station in the Town of Fort Peck, (Ms. Hlavka) filed a "Response to Second Summary Judgment Motion" on July 19, 2012, and the Department filed a "Reply Brief in Support of Department's Second Summary Judgment Motion" on July 25, 2012. For the reasons stated below, it is recommended that the Second Motion for Summary Judgment be granted.

BACKGROUND

The Department issued a Notice of Violation and Administrative Compliance Order (Order) dated January 7, 2010, to Ms. Hlavka directing her to remove four non-compliant underground storage tank systems located on property she owns in the Town of Fort Peck, which property is known as Fort Peck Station. Ms. Hlavka appealed the Order to the Board of Environmental Review (Board) on April 29,

2010. A Motion for Summary Judgment was filed by the Department on January 2, 2011, which motion was granted by the Board and appealed by Ms. Hlavka to district court on a Petition for Judicial Review dated October 25, 2011. The Honorable John C. McKeon of the Seventeenth Judicial District issued an "Order Granting Petition for Judicial Review and Remanding Cause for Further Proceedings" on March 9, 2012.

In his Order dated March 9, 2012, the Honorable John C. McKeon ordered that the summary judgment awarded by the Board be vacated because there was a fact question of whether portions of the underground storage tanks belong to the Town of Fort Peck. The Court remanded the proceedings *consistent with its Opinion*, to determine whether any portions of the underground storage tank systems were owned by the Town of Fort Peck and it ordered the Town of Fort Peck to be joined as a party. The Court ruled, specifically rejecting Ms. Hlavka's argument construing Mont. Code Ann. § 75-11-504, that a correct reading of Montana Underground Storage Tank Act (The Act), Mont. Code Ann. §§ 75-11-501 through 75-11, 526, is that it allows the Department to permanently close an underground storage tank. The Court ruled that when the Department follows the process required by Mont. Code Ann. § 75-11-512, it is acting within its delegated authority. Reading the Act as a whole, it allows the Department to close Ms. Hlavka's underground storage tanks. See Opinion of the Court, pages 15-18.

A Second Prehearing Order and Order Joining the Town of Fork Peck pursuant to the Court's order was issued on May 24, 2012.

STANDARD OF REVIEW

Summary Judgment is appropriate when there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law. Mont. R. Civ. P. 56 (c). A party seeking summary judgment has the burden of showing an absence of genuine issue as to all facts considered material in light of the substantive

principles that entitle the moving party to judgment as a matter of law. Once the moving party has met its burden, the opposing party must present material and substantial evidence, rather than mere conclusory or speculative statements to raise a genuine issue of material fact. Sherrod v. Prewett, 2001 MT 228, 36 P.3d 378. Summary judgment motions may be entertained in the administrative context. See In the Matter of Peila, 249 Mont. 272, 815 P.2d 139 (1991). The rationale for motions for summary judgment is that the parties are afforded the opportunity to present evidence and arguments in the summary judgment stage without the necessity for a full hearing through briefing and presentation of sworn evidence. If there are no genuine issues of material fact, there is no need for an evidentiary hearing and the case may be resolved as a matter of law.

In determining whether there are any material factual issues, the party moving for summary judgment bears the initial burden of informing the decision-maker of the basis of its motion and identifying those portions of the record, depositions, answers to interrogatories, and admissions on file, together with sworn affidavits, if any, that it believes demonstrate the absence of any genuine issue of material fact. Where the moving party has met its initial burden with a properly supported motion, the burden shifts to the opposing party to prove, by more than mere denial and speculation, that a genuine issue does exist. State v. Stewart, 2003 MT 003 ¶ 7, 315 Mont. 335, ¶ 7, 68 32d 712, ¶ 7 (2003); Mont. R. Civ. P. 56(e). The non-moving party may do this by use of affidavits (including her own), depositions, answers to interrogatories, and admissions.

DISCUSSION

The Department argues that there are no more issues to be resolved in this case because the Court determined that the Department has the authority to require the removal of underground storage tank systems. Further, the Department argues that the only remaining issue of whether any portion of the underground storage

tank systems sit on property owned by the Town of Fort Peck and the associated responsibility of the Town of Fort Peck to assist in removal of underground storage tank systems, if any, on its property, has been resolved through the signing of an Administrative Order on Consent (Agreement) by the Department and the Mayor of Fort Peck in which the parties agreed that at any time in which Ms. Hlavka removes the underground storage tank systems located at the Fort Peck Station, the Town of Fort Peck will promptly remove all portions of those underground storage tank systems that are found to extend onto property owned by it will be responsible for repairing or replacing any features such as sidewalks, utilities located on its property that are damaged or destroyed as a result of the removal of any portions of the underground storage tank systems extending onto the Town's property. Permitting for removal work is addressed in the Agreement if it becomes necessary for the Town of Fort Peck in removing the tanks. Under the Agreement, the Town of Fort Peck will determine the boundary it shares with Fort Peck Station.

Ms. Hlavka in her response brief, without disputing the resolution of the issues of ownership and tank removal responsibilities of the Town of Fort Peck, re-asserts the argument she has raised before in her response to the First Motion for summary judgment, that Mont. Code Ann. § 75-11-504 only allows the Department to enter and permanently close an underground tank that was in use after November 22, 1989. Ms. Hlavka is silent as to whether the Department met its burden of showing that there is an absence of genuine issues of fact nor does Ms. Hlavka assert that there are any remaining issues of fact.

The Department argues in its Reply Brief that the District Court's ruling that the Department does have the authority to order Ms. Hlavka to remove the non-compliant underground storage tanks on her property, that this ruling is the law of the case under Weiss v. Weiss, 2011 MT 240, 261 P.3d 1034, and the ruling may not be challenged or relitigated.

The Hearing Officer finds that the District Court's decision to remand subject to its ruling that the Department does have authority to order the removal of non-compliant underground storage tanks, subjects all subsequent proceedings, including this proceeding on remand, to the Court's ruling that the Department may order Ms. Hlavka to remove tanks not in use after November 22, 1989. Further, under Weiss, the District Court's ruling may not be relitigated. The issue of compliance by the Department with tank removal requirements if the four non-complying tanks are on property of the Town of Fort Peck has been resolved in the Agreement.

It is therefore recommended that the Department's Second Motion for Summary Judgment be granted in view of the Department's showing of the absence of any remaining genuine material issues of fact and because as a matter of law, the Department may order Ms. Hlavka to remove her tanks as discussed herein.

RECOMMENDED ORDER

It is recommended that the Board issue an order granting the Department's Second Motion for Summary Judgment awarding the Department the relief that it orders in the Notice of Violation and Administrative Compliance Order dated January 7, 2010, in paragraphs 13-17. Specifically, within 30 days of execution of the Board's Order, Ms. Hlavka shall proceed pursuant to paragraphs 13, 14, 15, 16 and the Administrative Order on Consent with the Town of Fort Peck, to initiate action to remove Tanks Nos. 1, 2, 3 and 4 and any associated underground piping.

PROCEDURE FOR FILING EXCEPTIONS

Because the Board will be issuing a final decision on this recommended disposition, the parties pursuant to Mont. Code Ann. § 2-4-621 may file written exceptions and present briefs and oral argument to the Board on their exceptions prior to the time the board members make their final decision. The Appellant, Ms. Hlavka is given until October 23, 2012, to file exceptions or to file a request to postpone consideration by the Board of this proposed order at the December 7,

2012, Board meeting. The Department may file a written response to the exceptions by November 7, 2012. Any party seeking to file exceptions and present oral argument before the Board on December 7, 2012, must by November 13, 2012, file a notice of intent with the Hearing Examiner that they will be filing exceptions. Any oral argument may be presented to the Board at its regularly scheduled December 7, 2012, meeting. The filing of exceptions may be a necessary step if judicial review is sought.

DATED this 10th day of October, 2012.

KATHERINE J. ORR
Hearing Examiner
Agency Legal Services Bureau
1712 Ninth Avenue
P.O. Box 201440
Helena, MT 59620-1440

CERTIFICATE OF SERVICE

I hereby certify that I caused a true and accurate copy of the foregoing Recommended Order on Second Motion for Summary Judgment to be mailed to:

Ms. Joyce Wittenberg
Secretary, Board of Environmental Review
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901
(original)

Ms. Jane Amdahl
Legal Counsel
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Mr. John Arrigo, Administrator
Enforcement Division
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Ms. Katie S. Knierim
Christoffersen &Knierim, P.C.
321 Klein Avenue
P.O. Box 29
Glasgow, MT 59230

Mr. Dave Gorton
Fort Peck City Attorney
P.O. Box 215
Glasgow, MT 59230

DATED: October 10, 2012

Katie S. Knierim
CHRISTOFFERSEN & KNIERIM, P.C.
630 Second Avenue South, Suite E
P. O. Box 29
Glasgow, Montana 59230
Telephone: (406) 228-2487
ATTORNEY FOR RESPONDENT

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW OF THE STATE OF MONTANA

- -

IN THE MATTER OF:	
VIOLATIONS OF THE MONTANA UNDERGROUND STORAGE TANK ACT BY JEANNY HLAVKA, INDIVIDUALLY AND D/B/A J.R. ENTERPRISE, LLC AT THE FORT PECK STATION, 301 MISSOURI AVENUE, FORT PECK VALLEY COUNTY, MONTANA.	Cause No. BER 2010-08 UST EXCEPTIONS FOR RECOMMENDED ORDER ON SECOND MOTION FOR SUMMARY JUDGMENT

- -

COMES NOW, the Respondent, Jeanny Hlavka, and hereby provides the following exceptions to the Recommendation Order on Second Motion for Summary Judgment by the Board of Environmental Review of the State of Montana (hereafter "the Board").

The Respondent once again asks the Board to review the applicable statutes which clearly does not grant the Department of Environmental Quality ("Department") the authority to enter the Respondent's property and permanently close the underground

storage tanks that were NOT in use after November 22, 1989. The above cited statute specifically restricts the Department to entering property and permanently closing only those tanks that were in use after November 22, 1989. There has been no evidence that the tanks were in use after November 22, 1989.

The Department is not entitled to summary judgment as a matter of law as the applicable statute (MCA § 75-11-504) specifically denies the DEQ the remedy its seeks, namely to enter and permanently close an underground storage tank that was not in use after November 22, 1989.

DATED this 22 day of October, 2012.

CHRISTOFFERSEN & KNIERIM, P.C.

By: _____
Attorneys for Respondent

CERTIFICATE OF SERVICE

The undersigned does hereby certify that on the 22 day of October, 2012, a true and correct copy of the foregoing document was duly mailed by first class postage prepaid to all attorneys of record as follows:

Ms. Katherine J. Orr
Hearing Examiner
Agency Legal Services Bureau
1712 Ninth Avenue
PO Box 201440
Helena, MT 59620-1440

C. David Gorton
P.O. Box 215
Glasgow, MT 59230

Ms. Jane Amdahl
Legal Counsel
Department of Environmental Quality
PO Box 200901
Helena, MT 59620-0901

Ms. Jeanny Hlavka
J.R. Enterprise, LLC
HCR 271, Box 1636
Glasgow, MT 59230

CHRISTOFFERSEN & KNIERIM, P.C.

By: _____

Jane B. Amdahl
Department of Environmental Quality
P.O. Box 200901
1520 E. Sixth Avenue
Helena, MT 59620-0901
(406) 444-5690

Attorney for the Department

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE MONTANA UNDERGROUND STORAGE TANK ACT BY JEANNY HLAVKA, INDIVIDUALLY AND D/B/A J.R. ENTERPRISE, LLC, AT THE FORT PECK STATION, 301 MISSOURI AVENUE, FORT PECK, VALLEY COUNTY, MONTANA [FACILITY ID 53-04496; FID #1896; DOCKET NO. UST-10-01]	**CASE NO. BER 2010-08 UST**

DEPARTMENT'S RESPONSE TO HLAVKA'S EXCEPTIONS FOR RECOMMENDED ORDER ON SECOND MOTION FOR SUMMARY JUDGMENT

The Department of Environmental Quality ("Department"), by counsel, hereby responds to the Exceptions for Recommended Order on Second Motion for Summary Judgment ("Exceptions") filed by Petitioner[1], Jeanny Hlavka ("Hlavka").

In her Exceptions, Hlavka once again argues that the Board of Environmental Review ("Board") should deny the Department's Motion for Summary Judgment because she claims § 75-11-504, MCA prohibits the Department from requiring Hlavka to permanently close the

[1] Although Hlavka refers to herself as Respondent in her Exceptions, she is the Petitioner in this contested case as she is the one who petitioned the Board of Environmental Review for a hearing.

underground storage tanks on her property, since the tanks have not been in use after November 22, 1989. However, as the Department noted in its Reply Brief in support of its Second Motion for Summary Judgment, both the Board and the District Court on appeal rejected that argument and held that the Department does have authority to order her to remove those non-compliant tanks. Hlavka did not appeal the District Court's ruling to the Supreme Court, but instead allowed it to become final. Accordingly, that decision is now the law of the case and may not be re-litigated before the Board. *See Weiss v. Weiss*, 2011 MT 240, ¶ 11, 362 Mont. 157, 160, 261 P.3d 1034, 1036.

WHEREFORE, the Department requests that the Board again reject the argument Hlavka has repeatedly raised, and adopt in its entirety the Recommended Order on Second Motion for Summary Judgment issued by Hearing Examiner Katherine Orr.

Respectfully submitted this 26th day of October, 2012.

DEPARTMENT OF ENVIRONMENTAL QUALITY

By: Jane B. Amdahl
Jane B. Amdahl
Attorney for the Department

Certificate of Service

I hereby certify that on the 26th day of October, 2012, I mailed a true and correct copy of the foregoing Department's Response to Hlavka's Exceptions for Recommended Order on Second Motion for Summary Judgment, postage prepaid, to:

Katie S. Knierim
P.O. Box 29
Glasgow, MT 59230

C. David Gorton
P.O. Box 215
Glasgow, MT 59230

I further certify that I sent the same document on the same date by Interdepartmental Delivery Service to:

Hearing Examiner Katherine Orr
Agency Legal Services
Ninth Avenue Office

Jane B. Amdahl

Montana Department of
ENVIRONMENTAL QUALITY

MEMO

TO: Katherine Orr, Hearing Examiner
Board of Environmental Review

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

DATE: October 19, 2012

SUBJECT: Board of Environmental Review case, Case No. BER 2012-11 PWS

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW

OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE PUBLIC WATER SUPPLY LAWS BY TRAILER TERRACE MOBILE PARK, LLC, DENNIS DESCHAMPS AND DENNIS RASMUSSEN AT TRAILER TERRACE, PWSID #MT0000025, GREAT FALLS, CASCADE COUNTY, MONTANA. [FID #2149, DOCKET NO. PWS-12-18]	Case No. BER 2012-11 PWS

TITLE

BER has received the attached request for hearing. Also attached is DEQ's administrative document relating to this request (Enforcement Case FID #2149, Docket No. PWS-12-18).

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

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

John Arrigo, Administrator
Enforcement Division
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Attachments

James C. Bartlett
Attorney at Law
322 - 2nd Avenue West
P.O. Box 2819
Kalispell, MT 59903-2819
(406) 756-1266
(406) 756-1270 fax
bartlett@centurytel.net
State Bar I.D. No. 79
Attorney for Dennis Rasmussen

Filed with the
MONTANA BOARD OF
ENVIRONMENTAL REVIEW
This 15th day of October, 2012
at ____ o'clock ____.m.
By: [signature]

BEFORE THE DEPARTMENT OF ENVIRONMENTAL QUALITY OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE PUBLIC WATER SUPPLY LAWS BY TRAILER TERRACE MOBILE PARK, LLC, DENNIS DESCHAMPS AND DENNIS RASMUSSEN, AT TRAILER TERRACE, PWSID #MT0000025, GREAT FALLS, CASCADE COUNTY, MONTANA. (FID#2149)	Docket No. PWS-12-18

REQUEST FOR HEARING AND RESPONSE OF DENNIS RASMUSSEN, COURT-APPOINTED RECEIVER

COMES NOW, Dennis Rasmussen, Court-appointed Receiver for Trailer Terrace Mobile Home Park, Cascade County, Montana, and files this Request for Hearing and Response as follows:

1. Pursuant to 75-6-109(3), MCA, and as directed in Section IV. Notice of Appeal Rights, a request for hearing is made, in writing, and sent to Board Secretary, Board of Environmental Review, P.O. Box 200901, Helena, MT 59620-0901. The contested hearing scheduling

order is requested.

2. The matters pre-dating the court appointment of Dennis Rasmussen cannot support a claim against him in his official capacity.

3. Dennis Rasmussen has no responsibility as an individual.

4. As to Dennis Rasmussen, in his official capacity, any alleged action or non-action subsequent to his court appointment is barred by derived judicial immunity. A court-appointed receiver acts as an arm of the district court and is immune from liability for actions grounded in his conduct as receiver. The receiver, as the agent of the court, is entitled to absolute derived judicial immunity for the performance of the duties imposed upon him. A receiver acts under the direction and supervision of the court; as such, the receiver has only very limited powers. Therefore, a receiver shares the court's immunity from liability. See, 65 Am.Jur. 2d, *Receivers*, §§ 287, 364.

5. Dennis Rasmussen is licensed to take water samples and he has done so, as receiver. Reports by Montana Environmental Laboratory, Kalispell, Montana, are duly filed with the Department of Environmental Quality. Improvements have been made under the receiver's limited budget; and, contrary to the allegations, it appears that Arsenic is no longer a concern. See 8/11/12 reading attached hereto.

6. Dennis Rasmussen is seeking assistance from a licensed person relative to readings from the lagoon, for the water disposal

system. The owner is a hostile party in the civil litigation.

7. The district court has exclusive jurisdiction over the actions or non-actions of the receiver, and Dennis Rasmussen must be dismissed from this administrative hearing.

Wherefore, it is prayed that Dennis Rasmussen be dismissed from this administrative proceeding, that his derived judicial immunity be recognized, and that he be granted such other relief as is just and proper.

DATED this 11th day of October, 2012.

James C. Bartlett
Attorney for Dennis Rasmussen

CERTIFICATE OF SERVICE

I, Marsha A. Barron, secretary to James C. Bartlett, do hereby certify that on the 11th day of October, 2012, I served a true and correct copy of the foregoing document upon the person or persons named below, at the address set out below, either by mailing first class postage prepaid, hand delivery, or Federal Express, in a properly addressed envelope, or by telecopying to such person or persons a true and correct copy of said document.

John L. Arrigo, Administrator
Enforcement Division
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

Jon Dilliard, Chief
Public Water and Subdivisions Bureau
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

Dennis Deschamps
12095 West Acres Loop
Lolo, MT 59847

[✓] U.S. Mail
[ ] Federal Express
[ ] Hand-Delivery
[ ] Facsimile
[ ] Other: _____

Marsha A. Barron

ANALYTICAL REPORT

Montana Environmental Laboratory LLC

1170 N. Meridian Rd., P.O. Box 8900, Kalispell, MT 59904-1900

Phone: 406-755-2131 Fax: 406-257-5359 www.melab.us

Dennis Rasmussen
Trailer Terrace
210 Rhodes Draw
Kalispell, MT

PWS ID: 00025
Project: Arsenic

Client Sample ID: EP503, ST001 **Lab ID:** 1207319-01
Matrix: DRINKING WATER **Collected:** 08/11/2012 10:30 **Received:** 08/13/2012 12:10

Analyses	Result	Units	MDL	MCL	Method	Prepared	Analyzed	Analyst
Arsenic	**0.002**	mg/L	0.001	0.010	E200.9		08/21/201 9:17	BLW

MCL = Maximum Contaminant Limit
RL = Reporting Limit
ND = Not Detected
NR = Not Regulated

MEL REVIEW: JML

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor
Richard H. Opper, Director

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

September 13, 2012

CERTIFIED MAIL #7009 2820 0000 7019 3732
Return Receipt Requested

Dennis Deschamps
Trailer Terrace Mobile Park, LLC
12095 West Acres Loop
Lolo, MT 59847

CERTIFIED MAIL #7009 2820 0000 7019 3749
Return Receipt Requested

Dennis Rasmussen
Trailer Terrace Mobile Park, LLC
1150 East Oregon Street
Kalispell, MT 59901

RE: Notice of Violation and Administrative Compliance and Penalty Order, Docket No. PWS-12-18 (PWSID #MT0000025, FID #2149)

Dear Messrs. Deschamps and Rasmussen:

The Department of Environmental Quality (Department) is issuing the enclosed Notice of Violation and Administrative Compliance and Penalty Order (Order) to Trailer Terrace Mobile Park, LLC, Dennis Deschamps in his individual capacity, and Dennis Rasmussen, Receiver (Respondents). The Order addresses violations of the Montana Public Water Supply Laws and Administrative Rules of Montana that have occurred at Trailer Terrace (System).

The Order requires Respondents to complete corrective actions in order to return the System to compliance. Please refer to Section III of the Order for a description of the required corrective actions and the timeframes for completion.

Pursuant to Section 75-6-109(3), Montana Code Annotated, Respondents are entitled to a hearing before the Board of Environmental Review if a written request is submitted to the Board no later than 30 days after service of the Order. Section IV of the Order explains the request procedure and hearing process.

Should any part of this letter conflict with the terms of the Order, the Order is controlling. If there are any questions, please contact me at the telephone number listed below.

Sincerely,

Rich Jost
Environmental Enforcement Specialist
Enforcement Division
(406) 444-2857; Fax (406) 444-1923
email: rjost@mt.gov

Enclosures

cc w/enc. via email: Jim Madden / Carol Schmidt, DEQ Legal Unit
Jon Dilliard / Shelley Nolan, DEQ PWSSB
Julie DalSoglio, EPA-Montana
Brian Hopkins, Cascade Deputy County Attorney
Cascade County Sanitarian

BEFORE THE DEPARTMENT OF ENVIRONMENTAL QUALITY

OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE PUBLIC WATER SUPPLY LAWS BY TRAILER TERRACE MOBILE PARK, LLC, DENNIS DESCHAMPS AND DENNIS RASMUSSEN AT TRAILER TERRACE, PWSID #MT0000025, GREAT FALLS, CASCADE COUNTY, MONTANA. (FID #2149)	NOTICE OF VIOLATION AND ADMINISTRATIVE COMPLIANCE AND PENALTY ORDER Docket No. PWS-12-18

I. NOTICE OF VIOLATION

Pursuant to the authority of Section 75-6-109(1), Montana Code Annotated (MCA), the Department of Environmental Quality (Department) hereby gives notice to Trailer Terrace Mobile Park, LLC, Dennis Deschamps in his individual capacity, and Dennis Rasmussen, Receiver, (hereinafter referred to as Respondents) of the following Findings of Fact and Conclusions of Law with respect to violations of the Public Water Supply Laws (PWSL) (Title 75, chapter 6, part 1, MCA) and Administrative Rules of Montana (ARM) (Title 17, chapter 38) adopted thereunder.

II. FINDINGS OF FACT AND CONCLUSIONS OF LAW

The Department hereby makes the following Findings of Fact and Conclusions of Law:

1. The Department is an agency of the executive branch of government of the State of Montana, created and existing under the authority of Section 2-15-3501, MCA.

2. The Department administers the PWSL.

3. Respondents are persons as defined in Section 75-6-102(11), MCA.

4. Section 75-6-112(3), MCA, states that a person may not violate any provision of the PWSL or a rule adopted under the PWSL.

5. Respondents own and/or operate the public water supply system that serves Trailer Terrace (System), PWSID #MT0000025, Great Falls, Montana. The System regularly serves water to at least 25 persons daily for any 60 or more days in a calendar year. Respondents are therefore a

"supplier of water" and subject to the requirements of the PWSL and the rules adopted thereunder. *See* ARM 17.38.202 and 40 CFR 141.2 as incorporated therein.

6. The System regularly serves water to at least 25 year-round residents. Therefore, the System is a "community water system" within the meaning of Section 75-6-102(3), MCA.

7. The System is supplied by ground water and is therefore a "ground water system."

Arsenic maximum contaminant level (MCL) violation

8. The MCL for arsenic is 0.010 milligrams per liter (mg/l). *See* ARM 17.38.203(1)(b) and 40 CFR 141.62(b) as incorporated therein.

9. For systems monitoring more than once per year, compliance with the arsenic MCL is determined by a running annual average at any sampling point. *See* ARM 17.38.216(1).

10. Systems that monitor annually or less frequently for arsenic must begin quarterly monitoring following a sample result that exceeds the MCL. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling. *See* ARM 17.38.216(3)(a)(2).

11. The Department sent Respondents a System monitoring schedule on April 22, 2011, that required the collection of one routine arsenic sample every three years at entry point 503 (EP503).

12. Respondents collected a sample from EP503 on May 18, 2011, that contained an arsenic level of 0.022 mg/l.

13. On July 27, 2011, the Department notified Respondents in writing that although the May 18, 2011 arsenic sample did not result in an MCL violation based on the running average, the arsenic level requires that Respondents increase the monitoring frequency at EP503 from once every three years to quarterly.

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14. Subsequent to the May 18, 2011 arsenic sample, the System exceeded the arsenic MCL based on the running annual average during the 1st and 2nd Quarters 2012. The following table provides the arsenic sample results from EP503 that were reported to the Department, along with the corresponding running annual averages:

Sample Date	Collection Point	Arsenic Sample Results	Running Annual Average (MCL = 0.010 mg/l)
1st Quarter 2012	EP503	Failed to sample	0.027 mg/l
6/24/2012 (2nd Quarter 2012)	EP503	0.000 mg/l	0.019 mg/l

15. The Department notified Respondents in writing on April 12 and July 18, 2012, that the System had violated the arsenic MCL based on the running annual averages during the 1st and 2nd Quarters 2012, respectively. The letters advised Respondents that they were required to continue monitoring the System quarterly for arsenic at EP503, post tier 2 public notices, and implement a corrective action to reduce the arsenic level below the MCL.

16. Respondents violated ARM 17.38.203(1)(b) two times by exceeding the arsenic MCL at EP503 during the 1st and 2nd Quarters 2012.

Failure to monitor for arsenic

17. Ground water systems shall take one sample at each sampling point during each compliance period to determine compliance with the arsenic MCL. *See* ARM 17.38.216(3)(a) and 40 CFR 121.23(c) as incorporated therein.

18. Respondents are required to collect one arsenic sample per quarter at EP503 to determine compliance with the arsenic MCL.

19. Department records indicate that Respondents failed to collect an arsenic sample from EP503 during the 1st Quarter 2012.

20. On April 13, 2012, the Department notified Respondents in writing that they had violated ARM 17.38.216 by failing to monitor the System for arsenic during the 1st Quarter

2012. The letter further notified Respondents that they must monitor for arsenic in accordance with its monitoring schedule and report the results to the Department.

21. Respondents violated ARM 17.38.216(3)(a) one time by failing to monitor for arsenic at EP503 during the 1st Quarter 2012.

Ground water rule violation

22. A ground water system that does not provide at least 4-log treatment of viruses and has been notified of a total coliform-positive sample must conduct triggered source water monitoring. *See* ARM 17.38.211 (Ground Water Rule) and 40 CFR 141.402(a)(1) as incorporated therein.

23. A ground water system must collect, within 24 hours of notification of a total coliform-positive sample, at least one ground water source sample from each ground water source that was in use at the time the total coliform-positive sample was collected. A ground water system serving 1,000 people or fewer may use a repeat sample collected from a ground water source to satisfy the repeat monitoring requirements of 40 CFR 141.21(b) and the monitoring requirements of 40 CFR 141.402(a)(2). *See* ARM 17.38.211 and 40 CFR 141.402(a)(2) as incorporated therein.

24. A ground water system that has a total coliform-positive sample must analyze all triggered ground water source samples for the presence of *E. coli*. *See* ARM 17.38.211 and 40 CFR 141.402 as incorporated therein.

25. Respondents collected a total coliform-positive sample on September 13, 2011.

26. Respondents did not collect the required ground water source samples from Well 2 (WL003) and Well 3 (WL004) following laboratory notification of the total coliform-positive sample.

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27. On November 14, 2011, the Department notified Respondents in writing of the failure to monitor for triggered source water samples from Well 2 and Well 3, as required by the Ground Water Rule.

28. Respondents violated ARM 17.38.211 by failing to collect ground water source samples from Well 2 and Well 3 following the collection of the September 13, 2011, total coliform-positive sample.

Failure to retain a certified operator

29. Community water systems must retain a certified operator that is in responsible charge of the system. *See* ARM 17.38.249(1).

30. Records maintained by the Department indicate that the System does not have a certified operator in responsible charge.

31. On May 22, 2012, the Department notified Respondents in writing that the System no longer had a certified operator as required by Montana law. The letter further notified Respondents that in order to return to compliance with ARM 17.38.249, they must either provide the name of the certified operator in responsible charge of the System or submit an application by June 22, 2012, for the Class 4AB water examination and pay the associated fees.

32. On June 29, 2012, the Department sent Respondents a violation letter for the failure to have a certified operator that is in responsible charge of the System, in violation of ARM 17.38.249. The violation letter informed Respondents that they must provide the Department with the name of the System's certified operator or submit an application, with associated fees, for the 4AB water examination.

33. Respondents violated and continue to violate ARM 17.38.249(1) by failing to retain a certified operator that is in responsible charge of the System.

Administrative penalty

34. Pursuant to Section 75-6-109(6)(a)(ii), MCA, the Department may assess an administrative penalty not to exceed $500 for each day of violation pertaining to a public water supply system that serves no more than 10,000 persons per day.

35. The Department has calculated an administrative penalty in the amount of $1,011 for the violations alleged in Paragraphs 20, 27 and 32. *See* Section 75-1-1001, MCA, and ARM 17.4.301 through 17.4.308. The enclosed Penalty Calculation Worksheet is incorporated by reference herein.

III. ADMINISTRATIVE ORDER

This Notice of Violation and Administrative Compliance and Penalty Order (Order) is issued to Respondents pursuant to the authority vested in the State of Montana, acting by and through the Department under the PWSL, Section 75-6-101, *et seq.*, MCA, and administrative rules adopted thereunder, ARM Title 17, chapter 38. Based on the foregoing Findings of Fact and Conclusions of Law and the authority cited above, the Department hereby ORDERS Respondents to take the following actions to comply with the PWSL within the timeframes specified in this Order:

36. Respondents must continue to monitor EP503 quarterly for arsenic until otherwise notified in writing by the Department.

37. Within 30 days from receipt of this Order, Respondents must collect ground water source samples from Well 2 and Well 3, and have the samples analyzed for the presence of *E. coli*. The ground water source samples must be analyzed by a laboratory certified by the State of Montana. Respondents shall send a copy of the analytical results to the Department within 10 days of receipt of the results.

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38. Within 30 days from receipt of this Order, Respondents must either retain a certified operator for the System or commit to complete the certification process as follows:

a) If Respondents elect to hire a certified operator for the System, Respondents shall submit the name of the certified operator, the required certification application, and the applicable fees to the Department at the address listed in Paragraph 39 below.

b) If Respondents elect to designate an individual to complete the operator certification application process:

1) Respondents must elect a temporary operator, submit a completed application and all applicable fees to the Department, and schedule an appointment for its proposed operator to take the appropriate operator certification examination.

2) No later than 30 days after Respondents receive the results of the examination, Respondents must submit an application to the Department for the proper certificate, pay the applicable fees, and their operator must assume responsible charge of the System.

39. Copies of any monitoring results, operator applications and fees required by this Order must be sent to:

Jon Dilliard, Chief
Public Water and Subdivisions Bureau
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

40. Within 60 days from receipt of this Order, Respondents must submit to the Department a compliance plan and schedule (Plan) that identifies a corrective action that will

return the System to compliance with the arsenic MCL. The Plan must include an implementation schedule for the chosen corrective action and a final compliance date. The Plan shall be sent to:

John L. Arrigo, Administrator
Enforcement Division
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

41. The Department will review the Plan for approval and provide written comments to Respondents. Respondents must respond in writing to any noted deficiencies of the Plan within the timeframe specified in the Department's review letter.

42. Respondents shall not start the construction or installation of any corrective action prior to receiving written approval from the Department.

43. The Department-approved Plan will be incorporated by reference into this Order as an enforceable requirement upon written approval from the Department.

44. Respondents must achieve compliance with the arsenic MCL by the compliance date specified in the Department-approved Plan. If implementation of the Plan fails to achieve compliance with the arsenic MCL by the compliance date, the Department will require Respondents to implement additional corrective action under this Order, and/or the Department may seek penalties in accordance with Section 75-6-109(6)(a)(ii), MCA.

45. Respondents must comply with the requirements of ARM 17.38.101, *et seq.*, including, but not limited to, the submittal of a design report, plans, specifications, as-built drawings, and written certification for any necessary modifications to the System.

46. If any event occurs that may prevent Respondents from meeting a compliance deadline required by this Order, Respondents shall notify the Department in writing within ten

(10) days after Respondents becomes aware of the event. The notice of delay must include: (a) an explanation of the reasons for the delay; (b) the expected duration of the delay; and (c) a description of all action taken or to be taken to prevent or minimize the delay and a schedule for implementation of those actions. The notice must be sent to the address listed in Paragraph 40.

47. The Department will review any notices of delay sent by Respondents under Paragraph 46 and, if appropriate, modify the Department-approved Plan.

48. Respondents are hereby assessed an administrative penalty in the amount of $1,011 for the violations cited in this Order. Based upon the absence of prior violations, the Department will exercise its enforcement discretion and suspend all but $505 of the calculated penalty provided that Respondents fully comply with the requirements of this Order. *See* ARM 17.38.607.

49. Within 60 days from receipt of this Order, Respondents shall pay to the Department the $505 administrative penalty to resolve the violations cited herein. The penalty must be paid by check or money order, made payable to the "Montana Department of Environmental Quality," and shall be sent to the address listed in Paragraph 40.

50. In the event that Respondents fail to comply fully with any requirement of this Order, the Department may require Respondents to pay the suspended portion of the total penalty, in part or in full. The amount demanded shall become due and payable in full within 30 days of the date of the Department's written notice of demand for payment.

51. Failure to take the required corrective actions and pay the penalty by the specified deadlines, as ordered herein, constitutes a violation of Title 75, chapter 6, part 1, MCA, and may result in the Department seeking a court order assessing civil penalties of up to $10,000 per day of violation pursuant to Section 76-6-114, MCA.

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52. None of the requirements in this Order are intended to relieve Respondents from complying with all applicable state, federal, and local statutes, rules, ordinances, orders, and permit conditions.

53. The Department may take any additional enforcement action against Respondents, including the right to seek injunctive relief, civil penalties, and other available relief for any violation of, or failure or refusal to comply with, this Order.

IV. NOTICE OF APPEAL RIGHTS

54. Respondents may appeal this Order under Section 75-6-109(3), MCA, by filing a written request for a hearing before the Montana Board of Environmental Review no later than 30 days after service of this Order. Any request for a hearing must be in writing and sent to:

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

55. Hearings are conducted as provided in the Montana Administrative Procedure Act, Title 2, chapter 4, part 6, MCA. Hearings are normally conducted in a manner similar to court proceedings, with witnesses being sworn and subject to cross-examination. Proceedings prior to the hearing may include formal discovery procedures, including interrogatories, requests for production of documents, and depositions. Because Trailer Terrace Mobile Park, LLC is not an individual, it must be represented by an attorney in any contested case hearing. *See* ARM 1.3.231(2) and Section 37-61-201, MCA. A person acting in his individual capacity has the right to be represented by an attorney in all proceedings. *See* ARM 1.3.231(1).

56. If a hearing is not requested within 30 days after service of this Order, the opportunity for a contested case appeal is waived.

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57. This Order becomes effective on the date of service. Service by mail is complete on the date of mailing.

IT IS SO ORDERED:

DATED this 13th day of September, 2012.

STATE OF MONTANA
DEPARTMENT OF ENVIRONMENTAL QUALITY

JOHN L. ARRIGO, Administrator
Enforcement Division

Department of Environmental Quality - Enforcement Division
Penalty Calculation Worksheet

Responsible Party Name:	Trailer Terrace Mobile Park, LLC, Dennis Deschamps, and Dennis Rasmussen (Respondents) at Trailer Terrace (System)
FID:	2149 PWSID: MT0000025
Statute:	Montana Public Water Supply Laws (PWSL)
Date:	8/10/2012
Name of Employee Calculating Penalty:	Rich Jost
Maximum Penalty Authority:	$500.00

Penalty Calculation #1
Description of Violation:
Respondents violated Administrative Rules of Montana (ARM) 17.38.216(3)(a) by failing to monitor their System for arsenic during the 1st Quarter 2012.

I. BASE PENALTY

Nature

Explanation:	
The failure to monitor for arsenic is an administrative violation because it impairs the Department's ability to determine if the System is in compliance with the PWSL.	
Potential to Harm Human Health or the Environment	
Potential to Impact Administration	X

Gravity and Extent

Gravity Explanation:
ARM 17.4.303(5)(b)(ii) states that the failure to monitor is a violation of moderate gravity because it has an adverse impact on the Department's administration of the statute or rules.
Extent Explanation:
Not applicable.

Harm to Human Health or the Environment

Extent \ Gravity	Major	Moderate	Minor
Major	0.85	0.70	0.55
Moderate	0.70	0.55	0.40
Minor	0.55	0.40	0.25

Gravity and Extent Factor: 0.00

Impact to Administration

Gravity: Major	Moderate	Minor	
.50	.40	.30	Gravity Factor: 0.40

BASE PENALTY (Maximum Penalty Authority x Gravity Factor): **$200.00**

II. ADJUSTED BASE PENALTY

A. Circumstances (up to 30% added to Base Penalty)

Explanation:	
Respondents displayed a moderate degree of culpability by failing to monitor the System for arsenic. As the owners of a public water supply system, Respondents should be familiar with the arsenic requirements of the PWSL, and should have foreseen that failing to comply with the monitoring requirements would result in a violation. Further, the Department notified Respondents in writing of the violation, yet Respondents still failed to comply. Respondents were in control of the circumstances that resulted in the violation and neglected to monitor for arsenic. The Department is increasing the base penalty by 20% to reflect a moderate degree of culpability in circumstances that resulted in the violation.	
Circumstances Percent:	0.20

Circumstances Adjustment (Base Penalty x Circumstances Percent) $40.00

B. Good Faith and Cooperation (up to 10% subtracted from Base Penalty)

Explanation:
Respondents did not notify the Department of the violation or take any action to correct the violation. Therefore, no reduction in the base penalty has been calculated for Good Faith and Cooperation.

Good Faith & Coop. Percent:	0.00
Good Faith & Coop Adjustment (Base Penalty x G F & Coop. Percent)	$0.00

C. Amounts Voluntarily Expended (AVE) (up to 10% subtracted from Base Penalty)

Explanation:
The Department is unaware of any funds spent by Respondents to correct the violation. Therefore, no reduction is being allowed for AVE.

AVE Percent:	0.00
Amounts Voluntarily Expended Adjustment (Base Penalty x AVE Percent)	$0.00

ADJUSTED BASE PENALTY SUMMARY

Base Penalty	$200.00
Circumstances	$40.00
Good Faith & Cooperation	$0.00
Amt. Voluntarily Expended	$0.00
ADJUSTED BASE PENALTY	**$240.00**

III. DAYS OF VIOLATION

Explanation:
Section 75-6-109(6)(a)(ii), MCA, provides that the Department may assess an administrative penalty for each day of violation. For the purposes of calculating this penalty, the Department is considering each failure-to-sample event as one day of violation. Respondents failed to monitor for arsenic during the 1st Quarter 2012. Therefore, the Department is assessing a penalty for one day of violation.

Number of Days:	1

ADJUSTED BASE PENALTY x NUMBER OF DAYS: $240.00

Other Matters as Justice May Require Explanation:
Not applicable.

OTHER MATTERS AS JUSTICE MAY REQUIRE TOTAL:	$0.00

IV. ECONOMIC BENEFIT

Explanation:
The Department estimates that Respondents' failure to sample arsenic in the 1st Quarter 2012 resulted in an economic benefit of $16 (see calculation below). Economic Benefit = Avoided Cost – (Avoided Cost x Combined Marginal Tax Rate) Avoided Cost = $26.00 (estimated cost of one arsenic analyses plus shipping) Combined Marginal Tax Rate = 39.50% (Source: EPA BEN model) Calculation: $26.00 - ($26.00 x 0.3950) = $16.00 (rounded to the nearest dollar)

ECONOMIC BENEFIT REALIZED:	$16.00

Responsible Party Name:	Trailer Terrace Mobile Park, LLC, Dennis Deschamps, and Dennis Rasmussen (Respondents) at Trailer Terrace (System)
FID:	2149 PWSID: MT0000025
Statute:	Montana Public Water Supply Laws (PWSL)
Date:	8/10/2012
Maximum Penalty Authority:	$500.00

Penalty Calculation #2
Description of Violation:
Respondents violated ARM 17.38.211 (Ground Water Rule) by failing to collect ground water source samples from Well 2 and Well 3 following the collection of a total coliform-positive sample.

I. BASE PENALTY

Nature

Explanation:	
The failure to conduct triggered source water monitoring is an administrative violation because it impairs the Department's ability to determine if the source is contaminated.	
Potential to Harm Human Health or the Environment	
Potential to Impact Administration	X

Gravity and Extent

Gravity Explanation:
ARM 17.4.303(5)(b)(ii) states that the failure to monitor is a violation of moderate gravity because it has an adverse impact on the Department's administration of the statute or rules.
Extent Explanation:
Not applicable.

Harm to Human Health or the Environment

Extent \ Gravity	Major	Moderate	Minor		
Major	0.85	0.70	0.55		
Moderate	0.70	0.55	0.40		
Minor	0.55	0.40	0.25	Gravity and Extent Factor:	0.00

Impact to Administration

Gravity				
Major	Moderate	Minor		
.50	.40	.30	Gravity Factor:	0.40

BASE PENALTY (Maximum Penalty Authority x Gravity Factor): **$200.00**

II. ADJUSTED BASE PENALTY

A. Circumstances (up to 30% added to Base Penalty)

Explanation:		
Respondents displayed a moderate degree of culpability by failing to conduct triggered source water monitoring. As the owner of a public water supply system, Respondents should be familiar with the Ground Water Rule requirements of the PWSL, and should have foreseen that failing to comply with the monitoring requirements would result in a violation. Further, the Department notified Respondents in writing of the violation, yet Respondents still failed to comply. Respondents were in control of the circumstances that resulted in the violation and neglected to collect ground water source samples. The Department is increasing the base penalty by 20% to reflect a moderate degree of culpability in circumstances that resulted in the violation.		
	Circumstances Percent:	0.20

Circumstances Adjustment (Base Penalty x Circumstances Percent) $40.00

B. Good Faith and Cooperation (up to 10% subtracted from Base Penalty)

Explanation:
Respondents did not notify the Department of the violation or take any action to correct the violation. Therefore, no reduction in the base penalty has been calculated for Good Faith and Cooperation.

Good Faith & Coop. Percent:	0.00
Good Faith & Coop Adjustment (Base Penalty x G F & Coop. Percent)	$0.00

C. Amounts Voluntarily Expended (AVE) (up to 10% subtracted from Base Penalty)

Explanation:
The Department is unaware of any funds spent by Respondents to correct the violation. Therefore, no reduction is being allowed for AVE.

AVE Percent:	0.00
Amounts Voluntarily Expended Adjustment (Base Penalty x AVE Percent)	$0.00

ADUSTED BASE PENALTY SUMMARY

Base Penalty	$200.00
Circumstances	$40.00
Good Faith & Cooperation	$0.00
Amt. Voluntarily Expended	$0.00
ADJUSTED BASE PENALTY	**$240.00**

III. DAYS OF VIOLATION

Explanation:
Section 75-6-109(6)(a)(ii), MCA, provides that the Department may assess an administrative penalty for each day of violation. For the purposes of calculating this penalty, the Department is considering each failure-to-sample event as one day of violation. Respondents failed to collect ground water source samples following the collection of a total coliform-positive sample in September 2011. Therefore, the Department is assessing a penalty for one day of violation.

Number of Days:	1

ADJUSTED BASE PENALTY x NUMBER OF DAYS: $240.00

Other Matters as Justice May Require Explanation:
Not applicable.

OTHER MATTERS AS JUSTICE MAY REQUIRE TOTAL:	$0.00

IV. ECONOMIC BENEFIT

Explanation:
The Department estimates that Respondents' failure to collect ground water source samples from Wells 2 and 3 following a total coliform-positive sample in September 2011 resulted in an economic benefit of $34 (see calculation below). Economic Benefit = Avoided Cost – (Avoided Cost x Combined Marginal Tax Rate) Avoided Cost = $56.00 (estimated cost of two E. coli analyses plus shipping) Combined Marginal Tax Rate = 39.50% (Source: EPA BEN model) Calculation: $56.00 - ($56.00 x 0.3950) = $34.00 (rounded to the nearest dollar)

ECONOMIC BENEFIT REALIZED:	$34.00

Responsible Party Name:	Trailer Terrace Mobile Park, LLC, Dennis Deschamps, and Dennis Rasmussen (Respondents) at Trailer Terrace (System)
FID:	2149 PWSID: MT0000025
Statute:	Montana Public Water Supply Laws (PWSL)
Date:	8/10/2012
Maximum Penalty Authority:	$500.00

Penalty Calculation #3
Description of Violation:
Respondents violated ARM 17.38.249(1) by failing to retain a certified operator for its System.

I. BASE PENALTY

Nature

Explanation:	
Without a certified operator, there is no assurance that the System will be properly operated and maintained, which creates the potential for harm to human health.	
Potential to Harm Human Health or the Environment	X
Potential to Impact Administration	

Gravity and Extent

Gravity Explanation:
ARM 17.4.303(5)(b) states a violation has moderate gravity if it poses a potential to harm human health or the environment.
Extent Explanation:
The failure to retain a certified operator is a major deviation from the PWSL because the System does not have a qualified individual who maintains the System, responds to system malfunctions, and collects the appropriate samples in accordance with the monitoring schedule. Further, bacteriological samples must be collected by a certified operator or by a person approved by the Department to ensure proper collection. Therefore, the extent of this violation is major.

Harm to Human Health or the Environment

Extent \ Gravity	Major	Moderate	Minor
Major	0.85	0.70	0.55
Moderate	0.70	0.55	0.40
Minor	0.55	0.40	0.25

Gravity and Extent Factor:	0.70

Impact to Administration

Gravity		
Major	Moderate	Minor
.50	.40	.30

Gravity Factor:	

BASE PENALTY (Maximum Penalty Authority x Gravity and Extent Factor): **$350.00**

II. ADJUSTED BASE PENALTY

A. Circumstances (up to 30% added to Base Penalty)

Explanation:
Respondents displayed a moderate degree of culpability by failing to retain a certified operator for its System. As the owner of a public water supply system, Respondents should be familiar with the operator requirement of the PWSL and should have forseen that failing to retain a certified operator would result in a violation. Further, the Department notified Respondents in writing on two occasions, yet Respondens still failed to comply. Respondents were in control of the circumstances that resulted in the violation. The Department is increasing the base penalty by 20% to reflect a moderate degree of culpability in circumstances that resulted in the violation.

Circumstances Percent:	0.20

Circumstances Adjustment (Base Penalty x Circumstances Percent) $70.00

B. Good Faith and Cooperation (up to 10% subtracted from Base Penalty)

Explanation:
Respondents did not notify the Department of the violation or take any action to correct the violation. Therefore, no reduction in the base penalty has been calculated for Good Faith and Cooperation.

Good Faith & Coop. Percent:	0.00
Good Faith & Coop Adjustment (Base Penalty x G F & Coop. Percent)	$0.00

C. Amounts Voluntarily Expended (AVE) (up to 10% subtracted from Base Penalty)

Explanation:
The Department is unaware of any funds spent by Respondents to correct the violation. Therefore, no reduction is being allowed for AVE.

AVE Percent:	0.00
Amounts Voluntarily Expended Adjustment (Base Penalty x AVE Percent)	$0.00

ADUSTED BASE PENALTY SUMMARY

Base Penalty	$350.00
Circumstances	$70.00
Good Faith & Cooperation	$0.00
Amt. Voluntarily Expended	$0.00
ADJUSTED BASE PENALTY	**$420.00**

III. DAYS OF VIOLATION

Explanation:
Section 75-6-109(6)(a)(ii), MCA, provides that the Department may assess an administrative penalty for each day of violation. Bacteriological samples for the System must be collected by a certified operator or by a person approved by the Department. The Department is considering each bacteria sample collected by a non-approved person as one day of violation. The Department issued a violation letter to Respondents on June 29, 2012 for the failure to retain a certified operator. Respondents collected a total coliform bacteria sample in July 2012. Therefore, the Department is assessing a penalty for one day of violation.

Number of Days:	1

ADJUSTED BASE PENALTY x NUMBER OF DAYS: $420.00

Other Matters as Justice May Require Explanation:
Not applicable.

OTHER MATTERS AS JUSTICE MAY REQUIRE TOTAL:	$0.00

IV. ECONOMIC BENEFIT

Explanation:
The Department estimates that Respondents' failure to retain a certified operator has resulted in an economic benefit of $61 (see calculation below). Failure to employ a certified operator: Total Avoided Costs: 1 month salary @ $100 per month $100.00 Economic Benefit = Avoided Cost – (Avoided Cost x Combined Marginal Tax Rate) Avoided Cost = $100.00 Combined Marginal Tax Rate = 39.5% (Source: EPA BEN model) Calculation: $100.00 - ($100.00 x .395) = $61.00 (rounded to the nearest dollar)

ECONOMIC BENEFIT REALIZED:	$61.00

Department of Environmental Quality - Enforcement Division
Penalty Calculation Summary

Responsible Party Name:	Trailer Terrace Mobile Park, LLC, Dennis Deschamps, and Dennis Rasmussen (Respondents) at Trailer Terrace (System)
FID:	2149 PWSID: MT0000025
Statute:	Montana Public Water Supply Laws (PWSL)
Date:	9/12/2012
Signature of Employee Calculating Penalty:	Rich Jost

I. Base Penalty (Maximum Penalty Authority x Matrix Factor)

	Penalty #1	*Penalty #2*	*Penalty #3*
Maximum Penalty Authority:	$500.00	$500.00	$500.00
Percent Harm - Gravity and Extent:	0.00	0.00	0.70
Percent Impact - Gravity:	0.40	0.40	0.00
Base Penalty:	$200.00	$200.00	$350.00

II. Adjusted Base Penalty				*Totals*
Base Penalty:	$200.00	$200.00	$350.00	$750.00
Circumstances:	$40.00	$40.00	$70.00	$150.00
Good Faith and Cooperation:	$0.00	$0.00	$0.00	$0.00
Amount Voluntarily Expended:	$0.00	$0.00	$0.00	$0.00
Adjusted Base Penalty:	$240.00	$240.00	$420.00	$900.00

III. Days of Violation or Number of Occurrences	1	1	1	
Adjusted Base Penalty Total	$240.00	$240.00	$420.00	$900.00
Other Matters as Justice May Require Total	$0.00	$0.00	$0.00	$0.00
IV. Economic Benefit	$16.00	$34.00	$61.00	$111.00
V. History*				$0.00
			TOTAL PENALTY	$1,011.00

*Respondents do not have a prior history of violations of the Public Water Supply Laws documented in either an administrative order, judicial order, or judgment within the last three years.

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE PUBLIC WATER SUPPLY LAWS BY TRAILER TERRACE MOBILE PARK, LLC, DENNIS DESCHAMPS AND DENNIS RASMUSSEN AT TRAILER TERRACE, PWSID #MT0000025, GREAT FALLS, CASCADE COUNTY, MONTANA. [FID #2149, DOCKET NO. PWS-12-18]	**CASE NO. BER 2012-11 PWS**

FIRST PREHEARING ORDER

Mr. Dennis Rasmussen, Court-Appointed Receiver for Trailer Terrace Mobile Home Park (hereafter, Appellant), has filed a Request for Hearing and Response to appeal the Notice of Violation and Administrative Compliance and Penalty Order, Docket No. PWS-12-18, pertaining to violation of legal requirements and imposition of penalties under the Montana Public Water Supply Laws, Montana Code Ann. Title 75, Chapter 6, Part 1, and administrative rules adopted Title 17, Chapter 38, Sub-chapters 1 through 6, Administrative Rules of Montana (ARM). The following guidelines and rules are provided to assist the parties in an orderly resolution of this contested case.

1. REFERENCES: This matter is governed by the Montana Administrative Procedure Act, Mont. Code Ann. tit. 2, Ch. 4, Pt. 6; and ARM 17.4.101, by which the Board of Environmental Review (Board) has adopted the Attorney General's Model Rules for contested cases, ARM 1.3.211 through 1.3.225; and by Mont. Code Ann. Tit. 75, Ch. 6, Pt. 1.

2. FILING: Except for discovery requests and responses (which are not routinely filed), **original** documents shall be sent for filing with the Board, addressed as follows:

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

One **copy** of each document that is filed should be sent to the Hearing Examiner addressed as follows:

KATHERINE J. ORR
Hearing Examiner
Agency Legal Services Bureau
1712 Ninth Avenue
P.O. Box 201440
Helena, MT 59620-1440

Although discovery documents are not normally filed, when a motion or brief is filed making reference to discovery documents, the party filing the motion or brief should also attach the relevant discovery documents.

3. SERVICE: Copies of all documents filed with the Board and provided to the Hearing Examiner, including correspondence, must be served upon the opposing party. A certificate of service should be provided.

4. EX PARTE COMMUNICATIONS: The Montana Administrative Procedure Act in Mont. Code Ann. § 2-4-613, and the Attorney General's Model Rule 18 in ARM 1.3.222, prohibit *ex parte* communications with a hearing examiner concerning any issue of fact or law in a contested case. In addition to observing this rule, please contact the opposing party before you communicate with the Hearing Examiner, even on purely procedural matters such as the need for a continuance.

5. SCHEDULING: The parties are requested to consult with each other and propose a schedule upon which they agree to the Hearing Examiner by **November 13, 2012**. The schedule should include the following dates:

(a) for joinder/intervention of additional parties;

(b) for disclosure by each party to the other parties of: (1) the name and address of each individual likely to have discoverable information that the disclosing party may use to support its claims or defenses, and (2) a copy of, or a description by category and location of, all documents and tangible things that are in the possession, custody, or control of the party and that the disclosing party may use to support its claims or defenses;

(c) for completion of discovery (if any party wishes to conduct discovery);

(d) for exchange of lists of witnesses and copies of documents that each party intends to offer at the hearing;

(e) for submitting any motions and briefs in support;

(f) for a Prehearing Conference to hear argument on any motions and resolve other prehearing matters; and

(g) for the contested case hearing, as well as the place of hearing.

DATED this 24th day of October, 2012.

KATHERINE J. ORR
Hearing Examiner
Agency Legal Services Bureau
1712 Ninth Avenue
P.O. Box 201440
Helena, MT 59620-1440

CERTIFICATE OF SERVICE

I hereby certify that I caused a true and accurate copy of the foregoing First Prehearing Order to be mailed to:

Ms. Joyce Wittenberg
Secretary, Board of Environmental Review
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901
(original)

Mr. James Madden
Legal Counsel
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Mr. John Arrigo
Enforcement Division
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Mr. James C. Bartlett
Attorney at Law
322 2nd Avenue West
P.O. Box 2819
Kalispell, MT 59903-2819

DATED: October 24, 2012

Montana Department of
ENVIRONMENTAL QUALITY

MEMO

TO: Katherine Orr, Hearing Examiner
Board of Environmental Review

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

DATE: November 5, 2012

SUBJECT: Board of Environmental Review Case No. BER 2012-12 WQ

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW

OF THE STATE OF MONTANA

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, MT.	Case No. BER 2012-12 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.

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

Paul Skubinna, Acting Bureau Chief
Water Protection Bureau
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Attachments
c: W. Anderson Forsythe, for Appellant

BER 2012-12 WQ

MOULTONBELLINGHAM PC

W. Anderson Forsythe
Andy.Forsythe@moultonbellingham.com

Suite 1900, Crowne Plaza
27 North 27th Street
P. O. Box 2559
Billings, Montana 59103-2559

Phone (406) 248-7731
Fax (406) 248-7889

October 31, 2012

Original

Board of Environmental Review
Department of Environmental Quality
Metcalf Building,
1520 East Sixth Avenue
PO Box 200901
Helena, MT 59620-0901

Filed with the
MONTANA BOARD OF
ENVIRONMENTAL REVIEW
This 31st day of October 2012
at 4:20 o'clock P.m.
By: [signature]

Re: Western Energy Company
Permit ID: MT-0023965

NOTICE OF APPEAL AND REQUEST FOR HEARING AND REQUEST FOR STAY

Western Energy Company ("WECO"), pursuant to Montana Code Annotated 2011 75-5-403 and all applicable rules and regulations, hereby files its Notice of Appeal to Montana Department of Environmental Quality ("MDEQ") Action on Permit MT-0023965 issued by the MDEQ on September 14, 2012, effective November 1, 2012 ("the Permit"). A copy of the Permit is attached hereto. Western Energy Company further requests the Board of Environmental Review hold a hearing on the appeal, and that a stay of the effectiveness of the Permit be immediately issued pending a final outcome of the requested appeal and hearing.

WECO states that grounds for the appeal include but are not limited to the following:

- The Permit imposes effluent limit levels that are far below background concentrations for the receiving waters in the vicinity of WECO's Rosebud Mine.

- The Permit imposes Water Quality Based Effluent Limitations and Beneficial Use Classification on a classification of stream (ephemeral) for which they are not intended.

- MDEQ has not sufficiently addressed concerns and comments submitted by WECO dated June 13, 2012, during the public comment period (a copy of which is attached hereto).

- The Permit renders WECO's Rosebud Mine a zero discharge facility due to the inappropriate and inapplicable water quality limitations.

DATED and filed this 31st day of October, 2012.

MOULTON BELLINGHAM PC

By _____
W. ANDERSON FORSYTHE

Moulton Bellingham PC
27 North 27th Street, Suite 1900
P O Box 2559
Billings, Montana 59103-2559
Andy.Forsythe@moultonbellingham.com

ATTORNEYS FOR WESTERN
ENERGY COMPANY

Encs.

PERMIT NO.: MT0023965
Major 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.,

WESTERN ENERGY COMPANY (the Permittee)

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

located at **CASTLE ROCK ROAD, COLSTRIP, MT, 59323**

to receiving waters named **EAST FORK ARMELLS CREEK, STOCKER CREEK, LEE COULEE, WEST FORK ARMELLS CREEK, BLACK HANK CREEK, DONLEY CREEK, COW CREEK, SPRING CREEK, AND PONY 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: November 1, 2012

This permit and the authorization to discharge shall expire at midnight, October 31, 2017.

FOR THE MONTANA DEPARTMENT OF
ENVIRONMENTAL QUALITY

Jenny Chambers, Chief
Water Protection Bureau
Permitting & Compliance Division

Issuance Date: September 14, 2012

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TABLE OF FIGURES

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 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	Mine Area	Latitude	Longitude	Receiving Water/ Mixing Zone[1]
08D	A	45°55'07.54"N	106°35'25.86"W	East Fork Armells Creek
009	A	45°52'32.07"N	106°37'43.04"W	East Fork Armells Creek
09A	A	45°52'20.24"N	106°37'54.51"W	East Fork Armells Creek
13A	A	45°52'07.74"N	106°38'18.66"W	East Fork Armells Creek
014	A	45°51'57.46"N	106°38'46.04"W	East Fork Armells Creek
016	A	45°51'51.96"N	106°38'58.45"W	East Fork Armells Creek
16A	A	45°51'41.63"N	106°39'26.47"W	East Fork Armells Creek
023	A	45°51'38.54"N	106°40'22.36"W	East Fork Armells Creek
024	A	45°51'36.25"N	106°40'49.67"W	East Fork Armells Creek
069	A	45°52'52.27"N	106°42'08.78"W	Stocker Creek
070	A	45°53'06.14"N	106°41'57.75"W	Stocker Creek
071	A	45°53'21.63"N	106°41'15.25"W	Stocker Creek
71C	A	45°53'30.68"N	106°40'51.29"W	Stocker Creek
072	A	45°53'44.52"N	106°40'05.27"W	Stocker Creek
073	A	45°53'42.82"N	106°39'47.94"W	Stocker Creek
73A	A	45°53'41.42"N	106°39'44.54"W	Stocker Creek
074	A	45°53'40.81"N	106°39'28.20"W	Stocker Creek
075	A	45°53'32.77"N	106°39'04.81"W	East Fork Armells Creek (via Castle Rock Lake)
10C	B-East	45°52'0.79"N	106°36'33.27"W	East Fork Armells Creek
011	B-East	45°52'05.58"N	106°37'41.89"W	East Fork Armells Creek
012	B-East	45°52'01.49"N	106°38'02.54"W	East Fork Armells Creek
015	B-East	45°51'50.96"N	106°38'35.06"W	East Fork Armells Creek
018	B-East	45°51'35.98"N	106°39'12.49"W	East Fork Armells Creek
019	B-East	45°51'42.01"N	106°39'06.64"W	East Fork Armells Creek

Outfall	Mine Area	Latitude	Longitude	Receiving Water/ Mixing Zone[1]
020	B-East	45°51'29.58"N	106°39'44.17"W	East Fork Armells Creek
021	B-East	45°51'30.22"N	106°39'54.40"W	East Fork Armells Creek
022	B-East	45°51'30.98"N	106°39'56.35"W	East Fork Armells Creek
025	B-East	45°51'15.98"N	106°41'10.74"W	East Fork Armells Creek
026	B-West	45°51'07.26"N	106°41'36.91"W	East Fork Armells Creek
048	B-West	45°51'01.15"N	106°42'20.53"W	East Fork Armells Creek
056	B-West	45°50'42.13"N	106°44'04.97"W	East Fork Armells Creek
061	B-West	45°50'35.05"N	106°45'10.86"W	East Fork Armells Creek
127	B-West	45°50'38.66"N	106°46'49.00"W	East Fork Armells Creek
128	B-West	45°50'31.87"N	106°45'32.31"W	East Fork Armells Creek
128A	B-West	45°50'34.08"N	106°45'38.26"W	East Fork Armells Creek
128B	B-West	45°50'34.81"N	106°45'46.23"W	East Fork Armells Creek
128C	B-West	45°50'38.81"N	106°45'54.30"W	East Fork Armells Creek
128D	B-West	45°50'47.96"N	106°46'22.90"W	East Fork Armells Creek
129	B-West	45°50'38.45"N	106°44'26.24"W	East Fork Armells Creek
133	B-West	45°50'36.76"N	106°43'50.01"W	East Fork Armells Creek
136	B-West	45°50'38.29"N	106°43'31.85"W	East Fork Armells Creek
137	B-West	45°50'52.10"N	106°42'52.53"W	East Fork Armells Creek
139	B-West	45°50'59.84"N	106°42'07.16"W	East Fork Armells Creek
130	B-West	45°49'55.94"N	106°45'06.47"W	Lee Coulee
130A	B-West	45°49'55.93"N	106°44'31.72"W	Lee Coulee
130B	B-West	45°49'55.83"N	106°44'26.12"W	Lee Coulee
131	B-West	45°49'55.88"N	106°44'02.06"W	Lee Coulee
131A	B-West	45°49'55.95"N	106°43'54.32"W	Lee Coulee
132	B-West	45°49'56.11"N	106°43'42.38"W	Lee Coulee
134	B-West	45°49'56.10"N	106°43'05.84"W	Lee Coulee
030	C-East	45°52'36.96"N	106°46'06.14"W	Stocker Creek
032	C-East	45°52'19.00"N	106°45'47.23"W	Stocker Creek
033	C-East	45°52'31.74"N	106°45'14.89"W	Stocker Creek
034	C-East	45°52'31.68"N	106°45'08.32"W	Stocker Creek
035	C-East	45°52'20.96"N	106°44'06.26"W	Stocker Creek
036	C-East	45°52'30.83"N	106°43'26.38"W	Stocker Creek
037	C-East	45°52'32.24"N	106°43'09.49"W	Stocker Creek
038	C-East	45°52'31.49"N	106°42'51.82"W	Stocker Creek
039	C-East	45°52'29.39"N	106°42'20.73"W	Stocker Creek
040	C-East	45°52'25.06"N	106°42'12.23"W	Stocker Creek
041	C-East	45°52'20.67"N	106°42'07.31"W	Stocker Creek
042	C-East	45°51'53.75"N	106°41'30.62"W	East Fork Armells Creek
043	C-East	45°51'24.42"N	106°41'24.81"W	East Fork Armells Creek
044	C-East	45°51'15.98"N	106°41'39.21"W	East Fork Armells Creek
046	C-East	45°51'26.75"N	106°42'11.71"W	East Fork Armells Creek

Outfall	Mine Area	Latitude	Longitude	Receiving Water/ Mixing Zone[1]
049	C-East	45°51'10.96"N	106°42'54.96"W	East Fork Armells Creek
051	C-East	45°51'06.15"N	106°43'17.06"W	East Fork Armells Creek
052	C-East	45°50'57.26"N	106°43'41.63"W	East Fork Armells Creek
054	C-East	45°50'52.05"N	106°43'47.21"W	East Fork Armells Creek
058	C-East	45°50'50.79"N	106°44'24.22"W	East Fork Armells Creek
059	C-East	45°50'48.65"N	106°44'47.60"W	East Fork Armells Creek
59A	C-East	45°50'40.95"N	106°45'16.11"W	East Fork Armells Creek
060	C-East	45°50'39.79"N	106°45'44.60"W	East Fork Armells Creek
063	C-East	45°50'46.26"N	106°46'05.19"W	East Fork Armells Creek
064	C-East	45°50'58.75"N	106°46'33.31"W	East Fork Armells Creek
116	C-North	45°53'35.82"N	106°46'34.19"W	Stocker Creek
116A	C-North	45°53'31.76"N	106°46'19.29"W	Stocker Creek
119	C-North	45°53'08.08"N	106°45'48.84"W	Stocker Creek
121	C-North	45°52'44.18"N	106°46'08.98"W	Stocker Creek
121A	C-North	45°52'53.13"N	106°46'02.02"W	Stocker Creek
109	C-North	45°52'27.56"N	106°48'51.92"W	West Fork Armells Creek
112	C-North	45°53'23.54"N	106°48'15.03"W	West Fork Armells Creek
112A	C-North	45°53'24.12"N	106°47'24.00"W	West Fork Armells Creek
112B	C-North	45°53'30.74"N	106°47'08.03"W	West Fork Armells Creek
113	C-North	45°53'25.58"N	106°47'30.84"W	West Fork Armells Creek
096	C-West	45°53'16.74"N	106°52'30.57"W	Black Hank Creek
098	C-West	45°53'29.64"N	106°51'55.76"W	Donley Creek
095	C-West	45°53'13.99"N	106°51'30.80"W	West Fork Armells Creek
95A	C-West	45°53'20.03"N	106°51'35.24"W	West Fork Armells Creek
100	C-West	45°53'03.80"N	106°51'15.05"W	West Fork Armells Creek
101	C-West	45°52'55.77"N	106°50'57.26"W	West Fork Armells Creek
103	C-West	45°52'49.42"N	106°50'41.34"W	West Fork Armells Creek
104	C-West	45°52'45.78"N	106°50'30.14"W	West Fork Armells Creek
104A	C-West	45°52'41.11"N	106°47'39.94"W	West Fork Armells Creek
105	C-West	45°52'31.32"N	106°49'56.43"W	West Fork Armells Creek
106	C-West	45°52'33.21"N	106°49'42.00"W	West Fork Armells Creek
107	C-West	45°52'30.39"N	106°49'35.37"W	West Fork Armells Creek
108	C-West	45°52'33.16"N	106°49'26.97"W	West Fork Armells Creek
006	D	45°53'48.32"N	106°35'10.13"W	Cow Creek
007	D	45°54'14.87"N	106°36'48.10"W	East Fork Armells Creek
077	D	45°55'06.57"N	106°36'35.71"W	East Fork Armells Creek
079	D	45°55'13.15"N	106°36'08.19"W	East Fork Armells Creek
080	D	45°55'18.56"N	106°35'36.78"W	Spring Creek
082	D	45°55'21.56"N	106°35'07.92"W	Spring Creek
083	D	45°55'17.69"N	106°34'51.79"W	Spring Creek
090	D	45°53'52.24"N	106°34'00.13"W	Cow Creek

Outfall	Mine Area	Latitude	Longitude	Receiving Water/ Mixing Zone[1]
091	D	45°53'50.76"N	106°34'25.62"W	Cow Creek
092	D	45°53'50.38"N	106°34'37.70"W	Cow Creek
093	D	45°53'28.95"N	106°35'05.66"W	Cow Creek
141	D	45°54'53.18"N	106°36'51.03"W	East Fork Armells Creek
142	D	45°54'41.31"N	106°36'42.86"W	East Fork Armells Creek
143	D	45°54'32.92"N	106°36'46.36"W	East Fork Armells Creek
144	D	45°54'02.64"N	106°36'45.56"W	East Fork Armells Creek
151	D	45°52'56.29"N	106°35'31.64"W	Cow Creek
152	D	45°52'56.29"N	106°35'31.64"W	Cow Creek
153	D	45°53'07.09"N	106°35'22.24"W	Cow Creek
154	D	45°53'13.55"N	106°35'13.54"W	Cow Creek
155	D	45°53'23.19"N	106°35'11.24"W	Cow Creek
194	D	45°53'04.86"N	106°36'28.22"W	East Fork Armells Creek
195	D	45°53'04.57"N	106°36'13.69"W	East Fork Armells Creek
173	D-East	45°53'57.75"N	106°32'00.13"W	Cow Creek
175	D-East	45°53'50.23"N	106°32'35.82"W	Cow Creek
176	D-East	45°53'54.21"N	106°33'04.49"W	Cow Creek
177	D-East	45°53'52.02"N	106°35'18.38"W	Cow Creek
178	D-East	45°53'49.59"N	106°33'30.32"W	Cow Creek
179	D-East	45°53'50.86"N	106°33'52.65"W	Cow Creek
165	D-East	45°54'44.68"N	106°32'59.42"W	Pony Creek
166	D-East	45°54'44.69"N	106°33'04.25"W	Pony Creek
167	D-East	45°54'44.90"N	106°33'08.88"W	Pony Creek
168	D-East	45°54'44.71"N	106°33'19.72"W	Pony Creek
169	D-East	45°54'36.85"N	106°33'25.23"W	Pony Creek
169A	D-East	45°54'30.32"N	106°33'24.93"W	Pony Creek
170	D-East	45°54'19.05"N	106°33'06.14"W	Pony Creek
171	D-East	45°54'14.03"N	106°32'58.49"W	Pony Creek
172	D-East	45°54'13.94"N	106°32'39.80"W	Pony Creek
084	D-East	45°54'13.94"N	106°32'39.80"W	Spring Creek
085	D-East	45°55'02.18"N	106°34'11.91"W	Spring Creek
086	D-East	45°55'07.26"N	106°34'00.12"W	Spring Creek
160A	D-East	45°55'07.65"N	106°33'42.39"W	Spring Creek
160B	D-East	45°55'07.50"N	106°33'48.45"W	Spring Creek
161	D-East	45°55'07.08"N	106°33'29.29"W	Spring Creek
161A	D-East	45°55'07.62"N	106°33'34.39"W	Spring Creek
162	D-East	45°55'07.73"N	106°33'25.15"W	Spring Creek
163	D-East	45°55'07.04"N	106°33'01.10"W	Spring Creek
164	D-East	45°55'02.77"N	106°32'56.35"W	Spring Creek
010	E	45°52'12.48"N	106°37'05.52"W	East Fork Armells Creek
10A	E	45°52'30.01"N	106°36'42.14"W	East Fork Armells Creek

Outfall	Mine Area	Latitude	Longitude	Receiving Water/ Mixing Zone[1]
003	E	45°51'20.85"N	106°34'00.17"W	Cow Creek
004	E	45°52'10.22"N	106°34'54.76"W	Cow Creek
005	E	45°52'35.11"N	106°35'24.77"W	Cow Creek
027	E	45°51'56.32"N	106°34'28.47"W	Cow 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 8, 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 8. Samples must achieve the listed required reporting value (RRV) or minimum level (ML).

Table 2. Final Numeric Effluent Limitations and Monitoring Requirements – Discharges to East Fork Armells Creek

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS[2]						
Total suspended solids (TSS)	mg/L	35	70	1/Day	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Day	Grab	0.1
Aluminum, dissolved	µg/L	63	127	1/Month	Grab	0.03
Copper, total	µg/L	4.4	8.8	1/Month	Grab	1
Iron, total	mg/L	0.50	1.61	1/Week	Grab	0.05
Selenium, total	µg/L	3.6	7.3	1/Month	Grab	1
Oil and grease	mg/L	--	10	1/Week	Grab	1
Total dissolved solids (TDS)	mg/L	3000	4500	1/Week	Grab	10
Sulfate	mg/L	2050	3075	1/Month	Grab	10
Boron	mg/L	0.70	1.1	1/Month	Grab	0.01
EXISTING OUTFALLS[3]						
TSS	mg/L	35	70	1/Day	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Day	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Month	Grab	0.03
Iron, total	mg/L	3.5	7.0	1/Week	Grab	0.05
Selenium, total	µg/L	Report only		1/Month	Grab	1
Oil and grease	mg/L	--	10	1/Week	Grab	1
TDS	mg/L	3000	4500	1/Week	Grab	10
Sulfate	mg/L	2050	3075	1/Month	Grab	10

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
Boron	mg/L	0.70	1.1	1/Month	Grab	0.01
ALL OUTFALLS						
Flow	gpd	Report only		1/Day	Continuous	--
Chloride	µg/L	Report only		1/Month	Grab	--
Electrical conductivity (EC)	µS/cm	Report only		1/Month	Grab	10
Sodium adsorption ratio (SAR)	Unitless	Report only		1/Month	Calculated	0.1
Nitrate + nitrite (as N)	mg/L	Report only		1/Month	Grab	0.01
Metals, total recoverable[4]	µg/L	Report only		1/Year	Grab	[4]
Whole effluent toxicity, acute[5]	% 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 August 2010 edition.
2. Outfalls 10C, 127, 128, 128A, 128B, 128C, 128D, 129, 136, 137 and 139 were not previously permitted and are considered new outfalls.
3. Existing outfalls include all outfalls not listed in footnote 2, above.
4. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
5. 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 (see permit Section I.C.3 for details).

Table 3. Final Numeric Effluent Limitations and Monitoring Requirements – Discharges to West Fork Armells, Black Hank, and Donley Creeks

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS						
There are no new outfalls discharging to these receiving waters.						
EXISTING OUTFALLS						
TSS	mg/L	35	70	1/Day	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Day	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Month	Grab	0.03
Iron, total	mg/L	3.5	7.0	1/Week	Grab	0.05
Selenium, total	µg/L	Report only		1/Month	Grab	1
Oil and grease	mg/L	--	10	1/Week	Grab	1
TDS	mg/L	2600	3900	1/Week	Grab	10
Sulfate	mg/L	1500	2250	1/Month	Grab	10
Boron	mg/L	0.40	0.60	1/Month	Grab	0.01
Flow	gpd	Report only		1/Day	Continuous	--
Chloride	µg/L	Report only		1/Month	Grab	--
EC	µS/cm	Report only		1/Month	Grab	10

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
SAR	Unitless	Report only		1/Month	Calculated	0.1
Nitrate + nitrite (as N)	mg/L	Report only		1/Month	Grab	0.01
Metals, total recoverable[2]	µg/L	Report only		1/Year	Grab	[2]
Whole effluent toxicity, acute[3]	% 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 August 2010 edition.
2. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
3. 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 (see permit Section I.C.3 for details).

Table 4. Final Numeric Effluent Limitations and Monitoring Requirements – Discharges to Stocker Creek

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS[2]						
TSS	mg/L	35	70	1/Day	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Day	Grab	0.1
Aluminum, dissolved	µg/L	63	127	1/Month	Grab	0.03
Copper, total	µg/L	4.4	8.8	1/Month	Grab	1
Iron, total	mg/L	0.50	1.61	1/Week	Grab	0.05
Selenium, total	µg/L	3.6	7.3	1/Month	Grab	1
Oil and grease	mg/L	--	10	1/Week	Grab	1
TDS	mg/L	3950	5925	1/Week	Grab	10
Sulfate	mg/L	2400	3600	1/Month	Grab	10
Boron	mg/L	1.0	1.5	1/Month	Grab	0.01
EXISTING OUTFALLS[3]						
TSS	mg/L	35	70	1/Day	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Day	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Month	Grab	0.03
Iron, total	mg/L	3.5	7.0	1/Week	Grab	0.05
Selenium, total	µg/L	Report only		1/Month	Grab	1
Oil and grease	mg/L	--	10	1/Week	Grab	1
TDS	mg/L	3950	5925	1/Week	Grab	10
Sulfate	mg/L	2400	3600	1/Month	Grab	10
Boron	mg/L	1.0	1.5	1/Month	Grab	0.01
ALL OUTFALLS						
Flow	gpd	Report only		1/Day	Continuous	--
Chloride	µg/L	Report only		1/Month	Grab	--

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
EC	µS/cm	Report only		1/Month	Grab	10
SAR	Unitless	Report only		1/Month	Calculated	0.1
Nitrate + nitrite (as N)	mg/L	Report only		1/Month	Grab	0.01
Metals, total recoverable[4]	µg/L	Report only		1/Year	Grab	[4]
Whole effluent toxicity, acute[5]	% 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 August 2010 edition.
2. Outfall 030 was not previously permitted and is considered a new outfall.
3. Existing outfalls include all outfalls not listed in footnote 2, above.
4. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
5. 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 (see permit Section I.C.3 for details).

Table 5. Final Numeric Effluent Limitations and Monitoring Requirements – Discharges to Lee Coulee

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS						
There are no new outfalls discharging to these receiving waters.						
EXISTING OUTFALLS						
TSS	mg/L	35	70	1/Day	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Day	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Month	Grab	0.03
Iron, total	mg/L	3.5	7.0	1/Week	Grab	0.05
Selenium, total	µg/L	Report only		1/Month	Grab	1
Oil and grease	mg/L	--	10	1/Week	Grab	1
EC	µS/cm	500	500	1/Month	Grab	10
SAR	Unitless	Report only		1/Month	Calculated	0.1
Sulfate	mg/L	1500	2250	1/Month	Grab	10
Boron	mg/L	0.40	0.60	1/Month	Grab	0.01
Flow	gpd	Report only		1/Day	Continuous	--
Chloride	µg/L	Report only		1/Month	Grab	--
Nitrate + nitrite (as N)	mg/L	Report only		1/Month	Grab	0.01
Metals, total recoverable[2]	µg/L	Report only		1/Year	Grab	[2]
Whole effluent toxicity, acute[3]	% 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 August 2010 edition.

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
2. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter. 3. 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 (see permit Section I.C.3 for details).						

Table 6. Final Numeric Effluent Limitations and Monitoring Requirements – Discharges to Pony Creek

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS						
There are no new outfalls discharging to these receiving waters.						
EXISTING OUTFALLS						
TSS	mg/L	35	70	1/Day	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Day	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Month	Grab	0.03
Iron, total	mg/L	3.5	7.0	1/Week	Grab	0.05
Selenium, total	µg/L	Report only		1/Month	Grab	1
Oil and grease	mg/L	--	10	1/Week	Grab	1
EC	µS/cm	500	500	1/Month	Grab	10
SAR	Unitless	Report only		1/Month	Calculated	0.1
Sulfate	mg/L	1550	2325	1/Month	Grab	10
Boron	mg/L	1.2	1.8	1/Month	Grab	0.01
Flow	gpd	Report only		1/Day	Continuous	--
Chloride	µg/L	Report only		1/Month	Grab	--
Nitrate + nitrite (as N)	mg/L	Report only		1/Month	Grab	0.01
Metals, total recoverable[2]	µg/L	Report only		1/Year	Grab	[2]
Whole effluent toxicity, acute[3]	% 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 August 2010 edition.
2. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
3. 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 (see permit Section I.C.3 for details).

Table 7. Final Numeric Effluent Limitations and Monitoring Requirements – Discharges to Cow Creek

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS						
There are no new outfalls discharging to these receiving waters.						
EXISTING OUTFALLS						
TSS	mg/L	35	70	1/Day	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Day	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Month	Grab	0.03
Iron, total	mg/L	3.5	7.0	1/Week	Grab	0.05
Selenium, total	µg/L	Report only		1/Month	Grab	1
Oil and grease	mg/L	--	10	1/Week	Grab	1
EC	µS/cm	500	500	1/Month	Grab	10
SAR	Unitless	Report only		1/Month	Calculated	0.1
Sulfate	mg/L	2300	3450	1/Month	Grab	10
Boron	mg/L	1.6	2.4	1/Month	Grab	0.01
Flow	gpd	Report only		1/Day	Continuous	--
Chloride	µg/L	Report only		1/Month	Grab	--
Nitrate + nitrite (as N)	mg/L	Report only		1/Month	Grab	0.01
Metals, total recoverable[2]	µg/L	Report only		1/Year	Grab	[2]
Whole effluent toxicity, acute[3]	% 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 August 2010 edition.
2. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
3. 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 (see permit Section I.C.3 for details).

Table 8. Final Numeric Effluent Limitations and Monitoring Requirements – Discharges to Spring Creek

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS						
There are no new outfalls discharging to these receiving waters.						
EXISTING OUTFALLS						
TSS	mg/L	35	70	1/Day	Grab	10
pH	s.u.	Between 6.0 and 9.0		1/Day	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Month	Grab	0.03
Iron, total	mg/L	3.5	7.0	1/Week	Grab	0.05
Selenium, 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]
Oil and Grease	mg/L	--	10	1/Week	Grab	1
EC	µS/cm	500	500	1/Month	Grab	10
SAR	Unitless	Report only		1/Month	Calculated	0.1
Sulfate	mg/L	1300	1950	1/Month	Grab	10
Boron	mg/L	1.1	1.7	1/Month	Grab	0.01
Flow	gpd	Report only		1/Day	Continuous	--
Chloride	µg/L	Report only		1/Month	Grab	--
Nitrate + nitrite (as N)	mg/L	Report only		1/Month	Grab	0.01
Metals, total recoverable[2]	µg/L	Report only		1/Year	Grab	[2]
Whole effluent toxicity, acute[3]	% 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 August 2010 edition.
2. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
3. 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 (see permit Section I.C.3 for details).

a. 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.

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 9 through 15 will be applied alternately to the otherwise applicable effluent limitations and monitoring requirements presented in Tables 2 through 8.

Table 9. Alternate Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events – Discharges to East Fork Armells Creek

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS[2]						
Settleable solids[4]	ml/L	--	0.5	1/Discharge	Grab	0.5
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Aluminum, dissolved	µg/L	--	127	1/Discharge	Grab	0.03
Copper, total	µg/L	--	8.8	1/Discharge	Grab	1
Iron, total	mg/L	--	1.61	1/Discharge	Grab	0.05
Selenium, total	µg/L	--	7.3	1/Discharge	Grab	1
Oil and grease	mg/L	--	10	1/Discharge	Grab	1
TDS	mg/L	--	4500	1/Discharge	Grab	10
Sulfate	mg/L	--	3075	1/Discharge	Grab	10
Boron	mg/L	--	1.1	1/Discharge	Grab	0.01
EXISTING OUTFALLS[3]						
Settleable Solids[4]	ml/L	--	0.5	1/Discharge	Grab	0.5
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Discharge	Grab	0.03
Iron, total	mg/L	Report only		1/Discharge	Grab	0.05
Selenium, total	µg/L	Report only		1/Discharge	Grab	1
Oil and Grease	mg/L	--	10	1/Discharge	Grab	1
TDS	mg/L	--	4500	1/Discharge	Grab	10
Sulfate	mg/L	--	3075	1/Discharge	Grab	10
Boron	mg/L	--	1.1	1/Discharge	Grab	0.01
ALL OUTFALLS						
Flow	gpd	Report only		1/Discharge	Continuous	--
Chloride	µg/L	Report only		1/Discharge	Grab	--
EC	µS/cm	Report only		1/Discharge	Grab	10
SAR	Unitless	Report only		1/Discharge	Calculated	0.1
Nitrate + nitrite (as N)	mg/L	Report only		1/Discharge	Grab	0.01
Metals, total recoverable[5]	µg/L	Report only		1/Discharge	Grab	[5]
Whole effluent toxicity, acute[6]	% Effluent	Report only		1/Discharge	Grab	--

Footnotes:

1. Required reporting values (RRV) for parameters listed in *Circular DEQ-7 Montana Numeric Water Quality Standards* are current as of the August 2010 edition.
2. Outfalls 10C, 127, 128, 128A, 128B, 128C, 128D, 129, 136, 137 and 139 were not previously permitted and are considered new outfalls.
3. Existing outfalls include all outfalls not listed in footnote 2, above.
4. Applicable 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).
5. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7*

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
Montana Numeric Water Quality Standards: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.						
6. 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 (see permit Section I.C.3 for details).						

Table 10. Alternate Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events – Discharges to West Fork Armells, Black Hank, and Donley Creeks

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS						
There are no new outfalls discharging to these receiving waters.						
EXISTING OUTFALLS						
Settleable Solids[2]	ml/L	--	0.5	1/Discharge	Grab	0.5
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Aluminum, Dissolved	µg/L	Report only		1/Discharge	Grab	0.03
Iron	mg/L	Report only		1/Discharge	Grab	0.05
Selenium, Total Recoverable	µg/L	Report only		1/Discharge	Grab	1
Oil and Grease	mg/L	--	10	1/Discharge	Grab	1
Total Dissolved Solids (TDS)	mg/L	--	3900	1/Discharge	Grab	10
Sulfate	mg/L	--	2250	1/Discharge	Grab	10
Boron	mg/L	--	0.60	1/Discharge	Grab	0.01
Flow	gpd	Report only		1/Discharge	Continuous	--
Chloride	µg/L	Report only		1/Discharge	Grab	--
Electrical Conductivity	µS/cm	Report only		1/Discharge	Grab	10
Sodium Adsorption Ratio	Unitless	Report only		1/Discharge	Calculated	0.1
Nitrate + Nitrite (as N)	mg/L	Report only		1/Discharge	Grab	0.01
Metals, Total Recoverable[3]	µg/L	Report only		1/Year	Grab	5
Whole Effluent Toxicity, Acute[4]	% 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 August 2010 edition.
2. Applicable 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).
3. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
4. 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 (see permit Section I.C.3 for details).

Table 11. Alternate Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events – Discharges to Stocker Creek

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS[2]						
Settleable solids[4]	ml/L	--	0.5	1/Discharge	Grab	0.5
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Aluminum, dissolved	µg/L	--	126	1/Discharge	Grab	0.03
Copper, total	µg/L	--	8.8	1/Discharge	Grab	1
Iron, total	mg/L	--	1.61	1/Discharge	Grab	0.05
Selenium, total	µg/L	--	7.3	1/Discharge	Grab	1
Oil and grease	mg/L	--	10	1/Discharge	Grab	1
TDS	mg/L	--	5925	1/Discharge	Grab	10
Sulfate	mg/L	--	3600	1/Discharge	Grab	10
Boron	mg/L	--	1.5	1/Discharge	Grab	0.01
EXISTING OUTFALLS[3]						
Settleable Solids[4]	ml/L	--	0.5	1/Discharge	Grab	0.5
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Discharge	Grab	0.03
Iron, total	mg/L	Report only		1/Discharge	Grab	0.05
Selenium, total	µg/L	Report only		1/Discharge	Grab	1
Oil and grease	mg/L	--	10	1/Discharge	Grab	1
TDS	mg/L	--	5925	1/Discharge	Grab	10
Sulfate	mg/L	--	3600	1/Discharge	Grab	10
Boron	mg/L	--	1.5	1/Discharge	Grab	0.01
ALL OUTFALLS						
Flow	gpd	Report only		1/Discharge	Continuous	--
Chloride	µg/L	Report only		1/Discharge	Grab	--
EC	µS/cm	Report only		1/Discharge	Grab	10
SAR	Unitless	Report only		1/Discharge	Calculated	0.1
Nitrate + nitrite (as N)	mg/L	Report only		1/Discharge	Grab	0.01
Metals, total recoverable[5]	µg/L	Report only		1/Year	Grab	[5]
Whole effluent toxicity, acute[6]	% 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 August 2010 edition.
2. Outfall 030 was not previously permitted and is considered a new outfall.
3. Existing outfalls include all outfalls not listed in footnote 2, above.
4. Applicable 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).
5. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
6. 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 (see permit Section I.C.3 for details).

Table 12. Alternate Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events – Discharges to Lee Coulee

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS						
There are no new outfalls discharging to these receiving waters.						
EXISTING OUTFALLS						
Settleable solids[2]	ml/L	--	0.5	1/Discharge	Grab	0.5
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Discharge	Grab	0.03
Iron, total	mg/L	Report only		1/Discharge	Grab	0.05
Selenium, total	µg/L	Report only		1/Discharge	Grab	1
Oil and grease	mg/L	--	10	1/Discharge	Grab	1
EC	µS/cm	--	500	1/Discharge	Grab	10
SAR	Unitless	Report only		1/Discharge	Calculated	0.1
Sulfate	mg/L	--	2250	1/Discharge	Grab	10
Boron	mg/L	--	0.60	1/Discharge	Grab	0.01
Flow	gpd	Report only		1/Discharge	Continuous	--
Chloride	µg/L	Report only		1/Discharge	Grab	--
Nitrate + nitrite (as N)	mg/L	Report only		1/Discharge	Grab	0.01
Metals, total recoverable[3]	µg/L	Report only		1/Year	Grab	[3]
Whole effluent toxicity, acute[4]	% 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 August 2010 edition.
2. Applicable 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).
3. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
4. 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 (see permit Section I.C.3 for details).

Table 13. Alternate Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events – Discharges to Pony Creek

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS						
There are no new outfalls discharging to these receiving waters.						
EXISTING OUTFALLS						
Settleable Solids[2]	ml/L	--	0.5	1/Discharge	Grab	0.5
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Discharge	Grab	0.03
Iron, total	mg/L	Report only		1/Discharge	Grab	0.05

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
Selenium, total	µg/L	Report only		1/Discharge	Grab	1
Oil and grease	mg/L	--	10	1/Discharge	Grab	1
EC	µS/cm	--	500	1/Discharge	Grab	10
SAR	Unitless	Report only		1/Discharge	Calculated	0.1
Sulfate	mg/L	--	2325	1/Discharge	Grab	10
Boron	mg/L	--	1.8	1/Discharge	Grab	0.01
Flow	gpd	Report only		1/Discharge	Continuous	--
Chloride	µg/L	Report only		1/Discharge	Grab	--
Nitrate + nitrite (as N)	mg/L	Report only		1/Discharge	Grab	0.01
Metals, total recoverable[3]	µg/L	Report only		1/Year	Grab	[3]
Whole effluent toxicity, acute[4]	% 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 August 2010 edition.
2. Applicable 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).
3. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
4. 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 (see permit Section I.C.3 for details).

Table 14. Alternate Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events – Discharges to Cow Creek

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS						
There are no new outfalls discharging to these receiving waters.						
EXISTING OUTFALLS						
Settleable solids[2]	ml/L	--	0.5	1/Discharge	Grab	0.5
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Discharge	Grab	0.03
Iron, total	mg/L	Report only		1/Discharge	Grab	0.05
Selenium, total	µg/L	Report only		1/Discharge	Grab	1
Oil and grease	mg/L	--	10	1/Discharge	Grab	1
EC	µS/cm	--	500	1/Discharge	Grab	10
SAR	Unitless	Report only		1/Discharge	Calculated	0.1
Sulfate	mg/L	--	3450	1/Discharge	Grab	10
Boron	mg/L	--	2.4	1/Discharge	Grab	0.01
Flow	gpd	Report only		1/Discharge	Continuous	--
Chloride	µg/L	Report only		1/Discharge	Grab	--

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
Nitrate + nitrite (as N)	mg/L	Report only		1/Discharge	Grab	0.01
Metals, total recoverable[3]	µg/L	Report only		1/Year	Grab	[3]
Whole effluent toxicity, acute[4]	% 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 August 2010 edition.
2. Applicable 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).
3. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
4. 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 (see permit Section I.C.3 for details).

Table 15. Alternate Numeric Effluent Limitations and Monitoring Requirements – Precipitation Events – Discharges to Spring Creek

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]
NEW OUTFALLS						
There are no new outfalls discharging to these receiving waters.						
EXISTING OUTFALLS						
Settleable solids[2]	ml/L	--	0.5	1/Discharge	Grab	0.5
pH	s.u.	Between 6.0 and 9.0		1/Discharge	Grab	0.1
Aluminum, dissolved	µg/L	Report only		1/Discharge	Grab	0.03
Iron, total	mg/L	Report only		1/Discharge	Grab	0.05
Selenium, total recoverable	µg/L	Report only		1/Discharge	Grab	1
Oil and grease	mg/L	--	10	1/Discharge	Grab	1
EC	µS/cm	--	500	1/Discharge	Grab	10
SAR	Unitless	Report only		1/Discharge	Calculated	0.1
Sulfate	mg/L	--	1950	1/Discharge	Grab	10
Boron	mg/L	--	1.7	1/Discharge	Grab	0.01
Flow	gpd	Report only		1/Discharge	Continuous	--
Chloride	µg/L	Report only		1/Discharge	Grab	--
Nitrate + nitrite (as N)	mg/L	Report only		1/Discharge	Grab	0.01
Metals, total recoverable[3]	µg/L	Report only		1/Year	Grab	[3]
Whole effluent toxicity, acute[4]	% Effluent	Report only		1/Year	Grab	--

Parameter	Units	Average Monthly Limitation	Maximum Daily Limitation	Minimum Monitoring Frequency	Sample Type	RRV or ML[1]

Footnotes:
1. Required reporting values (RRV) for parameters listed in *Circular DEQ-7 Montana Numeric Water Quality Standards* are current as of the August 2010 edition.
2. Applicable 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).
3. Metals include those metals with aquatic life numeric standards contained in the Montana *Circular DEQ-7 Montana Numeric Water Quality Standards*: arsenic, cadmium (0.08), chromium (1), copper (1), lead (0.05), mercury (0.01), nickel (10), silver (0.5), and zinc (10) as total recoverable. Corresponding RRVs (µg/L) are in parentheses behind each parameter.
4. 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 (see permit Section I.C.3 for details).

a. Monitoring Locations:

Due to the number of outfalls at the facility and inaccessibility of remote outfalls, representative monitoring will be allowed only for discharges resulting from precipitation events. Discharges consisting of stormwater runoff from areas classified as "Alkaline Mine Drainage" and "Coal Preparation Plants and Coal Preparation Plant Associated Areas" (40 CFR 434 Subparts B and D) may be sampled at the representative outfalls listed in Table 16, corresponding to 20% of total outfalls.

Sampling equipment must be installed at representative monitoring locations to ensure flow measurement and automatic sample collection regardless of weather and/or site conditions.

Table 16. Summary of Representative Monitoring Outfalls – Precipitation-Driven Discharges

Outfall	40 CFR 434 Subpart	Mine Area	Receiving Water
009	B	A	E. Fork Armells Creek
09A	B	A	E. Fork Armells Creek
16A	B	A	E. Fork Armells Creek
075	D	A	Stocker Creek
10C	D	B-East	E. Fork Armells Creek
011	D	B-East	E. Fork Armells Creek
021	B	B-East	E. Fork Armells Creek
128	D	B-West	E. Fork Armells Creek
133	D	B-West	E. Fork Armells Creek
139	D	B-West	E. Fork Armells Creek
035	D	C-East	Stocker Creek
043	B	C-East	E. Fork Armells Creek
046	D	C-East	E. Fork Armells Creek
058	D	C-East	E. Fork Armells Creek
095	D	C-West	W. Fork Armells Creek
096	D	C-West	Black Hank Creek

Outfall	40 CFR 434 Subpart	Mine Area	Receiving Water
105	D	C-West	W. Fork Armells Creek
109	D	C-Central	W. Fork Armells Creek
083	D	D	Spring Creek
151	D	D	Cow Creek
194	B	D	E. Fork Armells Creek
143	D	D	E. Fork Armells Creek
144	D	D	E. Fork Armells Creek

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 17 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 17. 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 17. Outfalls Subject to Western Alkaline Coal Mining Standards

Outfall	Mine Area	Receiving Water
073	A	Stocker Creek
073A	A	Stocker Creek
074	A	Stocker Creek
036	C-East	Stocker Creek
037	C-East	Stocker Creek
038	C-East	Stocker Creek
039	C-East	East Fork Armells Creek

Outfall	Mine Area	Receiving Water
040	C-East	East Fork Armells Creek
041	C-East	East Fork Armells Creek
042	C-East	East Fork Armells Creek
116	C-North	Stocker Creek
116A	C-North	Stocker Creek
119	C-North	Stocker Creek
121	C-North	Stocker Creek
121A	C-North	Stocker Creek
079	D	East Fork Armells Creek
090	D	Cow Creek
091	D	Cow Creek
092	D	Cow Creek
141	D	East Fork Armells Creek
142	D	East Fork Armells Creek
152	D	Cow Creek
153	D	Cow Creek
154	D	Cow Creek
155	D	Cow Creek
085	D-East	Spring Creek
086	D-East	Spring Creek
160A	D-East	Spring Creek
160B	D-East	Spring Creek
161A	D-East	Spring Creek
161	D-East	Spring Creek
162	D-East	Spring Creek
163	D-East	Spring Creek
164	D-East	Spring Creek
165	D-East	Pony Creek
166	D-East	Pony Creek
167	D-East	Pony Creek
168	D-East	Pony Creek
169	D-East	Pony Creek
169A	D-East	Pony Creek
173	D-East	Cow Creek
175	D-East	Cow Creek

Outfall	Mine Area	Receiving Water
176	D-East	Cow Creek
177	D-East	Cow Creek
178	D-East	Cow Creek
179	D-East	Cow Creek
170	D-East	Pony Creek
171	D-East	Pony Creek
172	D-East	Pony Creek
010	E	East Fork Armells Creek
003	E	Cow Creek
004	E	Cow Creek
005	E	Cow Creek
027	E	Cow 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 17, 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. Managerial Best Management Practices

Managerial sediment control BMPs include project design and planning methods used to protect water quality and minimize erosion and sedimentation (US EPA, 2001). Managerial BMPs are employed prior to, during, and following reclamation of a site.

i. Proposed Design of Area

The Permittee will minimize to the greatest extent possible the areas necessary to accomplish mining and conduct concurrent reclamation on disturbed areas. Erosion control will be accomplished as close as practicable to the source and must receive approval from state SMCRA permitting agencies. Post-mine topography, erosion control, and sediment control practices will be implemented to control overland flow, trap sediment in runoff or protect the disturbed land surface from erosion. Designs will be developed to meet the intent of the Western Alkaline Coal Mining subcategory to prevent increases in sediment transport above pre-mining levels. The Permittee commits to reclaim all mining-related land disturbances to a use equal to or better than what existed prior to mining.

The Western Energy Reclamation Plan within the Surface Mining Permit 86003A (WECO, 2007) addresses procedures that will be used at Rosebud Mine during reclamation activities. The following discussions from the Reclamation Plan are incorporated into the SCP.

ii. Erosion Control

Reclamation Planning. The relationship between topography, substrate and vegetation will be incorporated into reclamation design to promote successful vegetation re-establishment. Revegetation is divided into reclamation types; each type represents a particular plant or community type. Revegetation will be based on existing communities present prior to mining disturbances.

Re-contouring. After mining, overburden spoil piles will be re-graded to a topography meeting the SMCRA requirement of approximate original contour to facilitate erosion control, revegetation and the post-mining land use. Post-mining topography must be approved by the state regulatory agency and must meet the final land use requirements. Re-contouring of reclaimed areas will consider the following:

- planning post-mining topography using modeling to mimic approximate original contour or pre-mining natural, background erosion and sedimentation yields;
- designing and implementing a BMP plan that will approximate natural drainage as closely as possible;
- choosing sediment control structures according to review of existing topography, flow direction and volume, outlet location, and feasibility of construction;
- backfilling and grading to approximate original topography or other acceptable slope gradients and configurations;
- blending disturbed areas into the surrounding terrain;
- eliminating unstable areas to the greatest extent possible;
- with the exception of agricultural areas, re-graded landscapes are left in a roughened condition to minimize compaction; and
- 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 Redistribution. Soil salvaged prior to mining disturbance is redistributed on appropriate regraded areas to meet a specific reclamation type. Soil laydown depths; specific to the type of reclamation will be of a thickness consistent with the soil resource and will promote its successful end use. The soil type, depth and redistribution must be approved by the Industrial Energy and Minerals Bureau (IEMB) to promote revegetation establishment, similar to the pre-mining conditions.

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. After soil lay down, soils are deep ripped to reduce subsurface compaction. The site will then be chisel plowed to breakup surface compaction and prepare an appropriate seedbed. Surface conditions will remain rough to aid in infiltration and mulch adherence (if applied).

Establishment of Vegetation. The Permittee has prepared an extensive revegetation plan for re-establishing vegetative communities on reclaimed areas. Approved vegetation plans require not only specific acreages but, specific vegetative communities to be reintroduced. Vegetation communities include lowland grasslands, shrub and complex shrub grasslands, and deciduous tree/shrub reclamation types. Upland communities include: grasslands, shrub/sagebrush/skunkbush sumac and complex shrub grasslands, deciduous tree/shrub, and conifer/shrub vegetation complexes.

Seedbed preparation techniques are specific to the vegetative communities and include: re-contouring and conditioning of spoils, topsoil type and depth, and seedbed preparation. Seed mixes for each community have been approved by the state SMCRA authority and require specific application rates and subsequent live plantings if required by the vegetation type.

Normal seeding periods include September through November (fall) and March through May (spring). Sufficient soil moisture and temperatures conditions may extend these periods. The Permittee has the option to mulch reclaimed areas should erosion potential exist; however, they are required to mulch areas with slopes greater than 3:1. The Permittee may use hydro-mulching instead of straw on slopes greater than 3:1 at a rate of 500 lbs/acre.

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.

iii. Sediment Control

At points of concentrated runoff flows, sediment control BMPs will be proposed to slow down runoff or capture sediment contained in the runoff. Site-specific BMPs include silt fence, straw waddles, straw or hay bales, matting/mulch, rip-rap etc. Exhibits 7 through 10 of the SCP contain Standard Notes for the construction of typical BMPs used on site. The Standard Notes contain information pertaining to design guidelines and

maintenance/inspection criteria. Additional sediment control structures are described below.

Roadways Transecting Reclamation. Permanent or semi-permanent roadways crossing applicable reclaimed areas shall be constructed with conveyance structures (borrow ditches) capable of passing the runoff from a 10-year, 24-hour storm event. Energy dissipation (site-specific BMPs) structures will be used to reduce velocities of runoff to prevent sediment mobilization. Ditch transitions and intersections will be constructed to minimize erosion and sedimentation transport.

Road Crossings. Where drainage conveyance or watercourses are diverted beneath a roadway, culverts will be sized to convey a 10-year, 24-hour storm event. Inlet and outlet protection (rip-rap or matting) will be considered at high-risk locations to prevent sediment mobilization.

Small Depressions. During reclamation, sediment traps and ponds will 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;
- maximum slopes will be 5:1 on the uphill (inflow) side and 3:1 on the lateral and downhill (outflow) sides; and
- site-specific sediment control (silt fence, straw waddles, etc.) may be used at the outlet to further the effectiveness of the structure.

Sediment Traps. In smaller watersheds, which range from less than 10 to approximately 160 acres, ditching to convey and sediment traps to contain at a minimum the 2-year, 24-hour storm event plus appropriate sediment storage will be established prior to clearing, grubbing and soil salvage. Sediment traps or other appropriate BMPs will be used where drainage flows from disturbed to undisturbed or reclaimed areas. Other site-specific BMPs may be used to increase effectiveness of the trap.

Sediment Ponds. Sediment ponds or traps located at final discharge points are designed to detain runoff from a 10-year 24-hour storm 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.

iv. Planning

The Permittee will evaluate erosion and sedimentation control capabilities, site-specific environmental conditions, and sedimentation predictions to fulfill the intent of the Western Alkaline subcategory. After coal extraction is complete, disturbed areas are reclaimed as rapidly as is practicable and rehabilitated for the designated post-mining land use. The facility has an approved reclamation schedule (Section 17.24.313(1)(b), Reclamation Plan) which lays out the timetable for reclaiming disturbed lands within the permitted site.

v. Construction

The Permittee will backfill, re-contour, replace soils and re-vegetate areas as timely as practicable based on the reclamation timetable and current mining plan needs. The IEMB must approve all reclamation plans prior to construction.

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." Exhibits 7 through 10 of the SCP contain Standard Notes for BMPs currently used to control erosion and sediment transport on the mine site. The Standard Notes contain the design and installation specifications, inspection and maintenance criteria as required by the above-mentioned rule. Additional maintenance activities specific to Rosebud Mine are described below.

Maintenance of Conveyance Structures. Ditches and culverts are inspected periodically for blockages and erosion. Erosion and/or sedimentation that compromises 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.

Maintenance of Sediment Traps. 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.

Maintenance of Sediment Control BMP's. Sediment traps and site-specific BMPs (e.g., ponds, traps, and erosion control products) are maintained in effective operating condition during the active mining phase. Control measures for site-

specific sediment control (e.g., straw dikes, rip rap) are removed during reclamation.

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, or disrupt post-mine land use (ARM 17.24.721).

Maintenance of Vegetation. Revegetated areas are inspected periodically and maintained throughout the post-mine phase. Maintenance of revegetated areas utilizes DEQ approved husbandry practices for use on coal mines (see Appendix A of the SCP). Interseeding, supplemental plantings or mulching may be used to enhance revegetation on a site-specific basis. Mechanical practices (e.g., cutting, mowing and raking, etc.), pest control, grazing and prescribed burns may be used to control weeds, undesirable litter buildup, or stimulate growth. A comprehensive noxious weed control plan will be submitted to the Rosebud County Weed Board for approval prior to pest and weed control.

Maintenance of Water Resources. Water resources developed for approved post-mining land uses are maintained (cleaned, repaired, upgraded, stabilized, and revegetated) and protected (fencing/animal exclusion) according to approved husbandry practices (see Appendix A of the SCP).

The approved SCP contains the criteria and reporting requirements for inspections conducted on site. Comprehensive inspections are required annually for all areas covered under the SCP. Visual inspections will be conducted annually or after significant storm events (>0.5 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. Appendix B of the SCP contains the Visual Inspection Form for Sediment Control BMPs.

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. The Visual Inspection Form for Sediment Control BMPs provides a method of tracking maintenance activities following visual inspections (See SCP Appendix B).

d. Transfer of Additional Outfalls
Transfer of additional areas to be covered under this ELG is acceptable, by additional documentation and submittal of a revised plan to the Department semiannually. Requests are due the 28th of the month following the close of the semi-annual period (June and December). Revisions to the SCP must meet all requirements contained at 40 CFR Part 434.82; a permit modification will be required to facilitate the transfer.

3. Toxicity Limitations

a. Acute Whole Effluent Toxicity Limitations – Not Applicable

b. Chronic Whole Effluent Toxicity Limitations – Not Applicable

4. Interim Effluent Limitations – Not Applicable

5. Other Monitoring Requirements

a. Precipitation Monitoring. Precipitation shall be monitored and recorded in each of the drainage basins where regulated outfalls are located (East Fork Armells, Stocker Creek, West Fork Armells, Black Hank Creek, Donley Creek, Cow Creek, Lee Coulee, Spring Creek, and Pony 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 below.

Precipitation Gauge Performance Standard			
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" 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

b. Flow Monitoring and Sampling Units. The Permit requires the Permittee to install and use flow monitoring and sampling equipment at each representative outfall listed in Table 16, above. 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.

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. Mass Loading Calculations

Where Section I.B.1 above includes effluent limitations expressed in terms of mass or requires reporting mass loading for a particular parameter, the Permittee shall calculate the mass loading must be calculated using the following equations:

Daily Mass Load (lb/day)	=	Daily Discharge Concentration (mg/L)	x	Daily Effluent Flow Rate (MGD)	x	8.34

The permittee shall calculate the Average Monthly Mass Load (lb/day) for a calendar month by determining the arithmetic mean of all daily mass loads calculated for that calendar month.

3. 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 Outfalls 009, 09A, 16A, 021, 043, and 194.

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 6 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. If a discharge does not occur for a specified monitoring location during the calendar year, this fact shall be reported in the annual report.

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.

v. **Reduced Monitoring Frequency – Not Applicable**

4. Monitoring Periods and Reporting Schedule

Monitoring periods and reporting for all required monitoring shall be completed according to the schedule in Table 17, below.

When the minimum monitoring frequency is 1/Week or less (e.g, 1/Month), monitoring must take place on a weekday (Monday through Friday).

Table 17. Monitoring Periods and Reporting Schedule

Required Monitoring Frequency	Monitoring Period Begins On...	Monitoring Period	Reporting Due Date
1/Day	NOVEMBER 1, 2012	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	NOVEMBER 1, 2012	1st day of calendar month through last day of calendar month	Due date for next DMR submittal
Annually	JANUARY 1, 2013	January 1 through December 31	28 days from the end of the monitoring period
1 / Discharge	NOVEMBER 1, 2012	Duration of discharge event	Due date for next DMR submittal

5. Discharge Monitoring Reports

All monitoring results obtained during the previous month(s) shall be summarized and reported on a monthly Discharge Monitoring Report Form (EPA No. 3320-1) postmarked no later than the 28th day of the month following the completed reporting 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 the Department and to the USEPA at the following addresses:

Montana Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, Montana 59620-0901
Phone: (406) 444-3080

U.S. Environmental Protection Agency
301 South Park Avenue
Drawer 10096
Helena, Montana 59626
Phone: (406) 441-1123

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. **Ambient Monitoring - Not Applicable.**

2. **Supplemental Monitoring and Studies - Not Applicable.**

3. **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. Best Management Practices and Pollution Prevention – Not Applicable

C. Compliance Schedules

The Permittee will be granted a one-year compliance schedule from the date of permit issuance to facilitate procurement, installation, and commissioning of flow monitoring and effluent sampling devices at representative monitoring outfalls. Until such equipment is installed, the Permittee must continue to monitor and sample effluent using non-automated methods.

D. 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.

6. **Toxicity Limitations – Not Applicable**

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. **General Requirements**

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. Notification Levels

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.

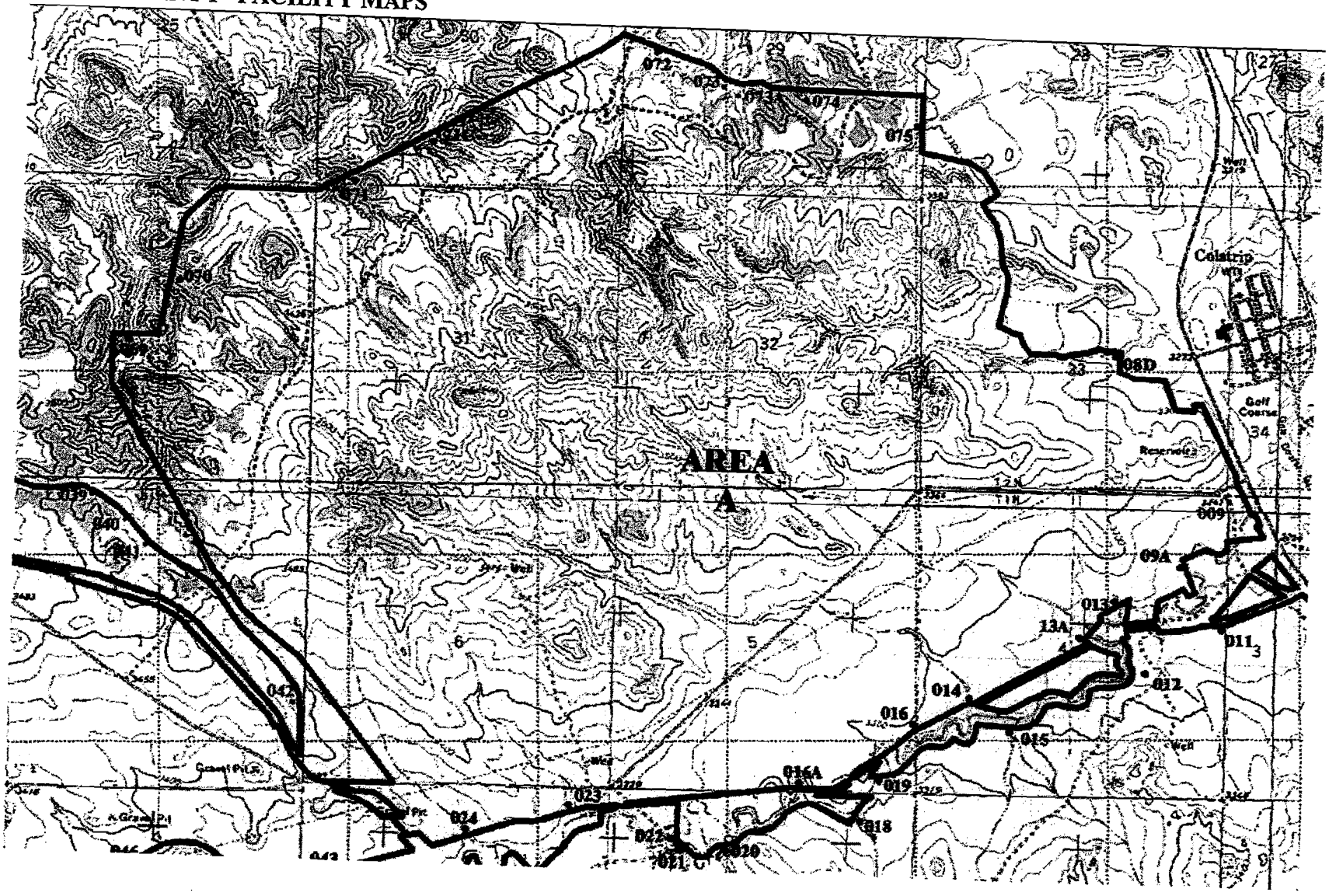
"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

ATTACHMENT I – MAP

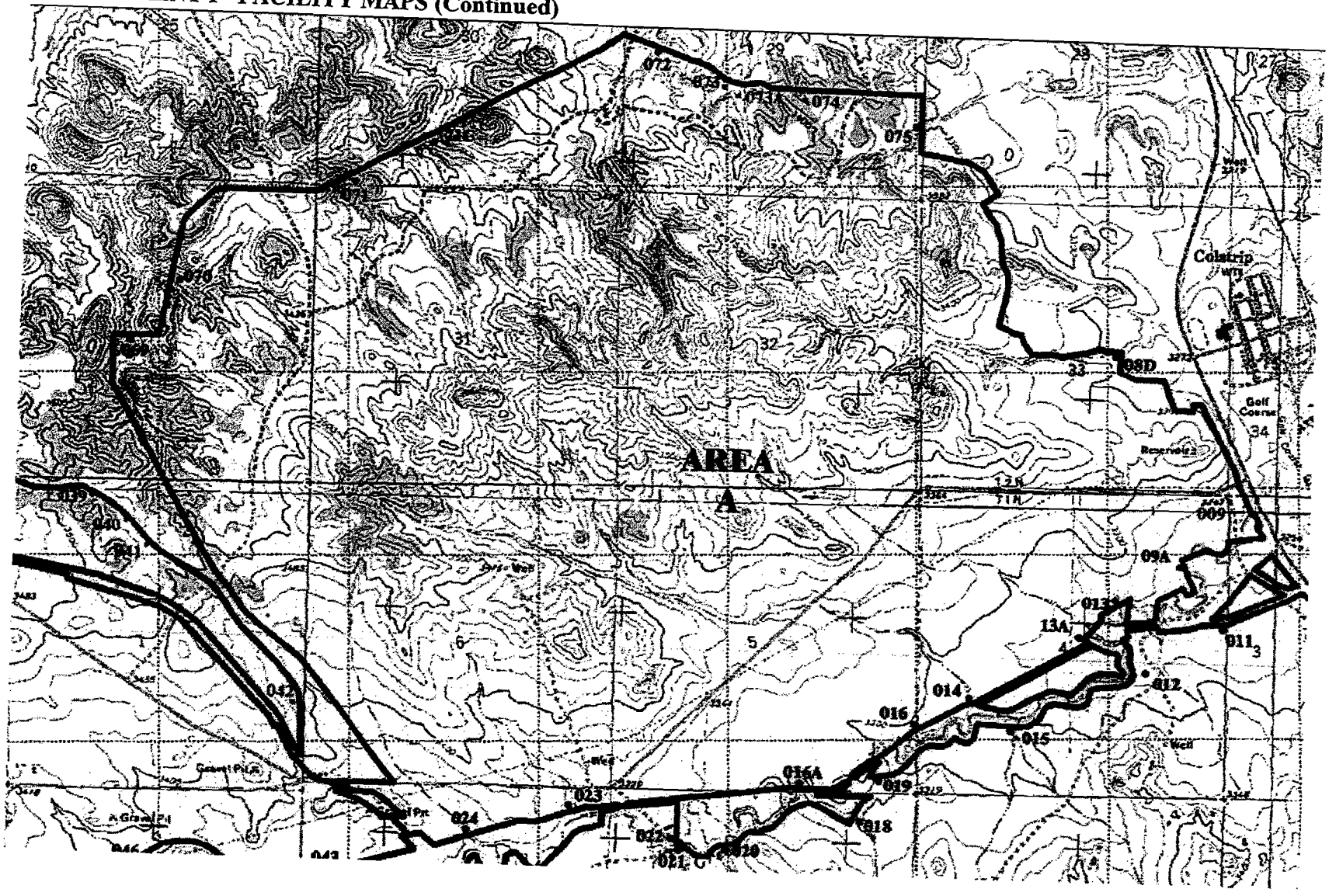
ATTACHMENT II – FLOW SCHEMATIC

ATTACHMENT III – STATEMENT OF BASIS

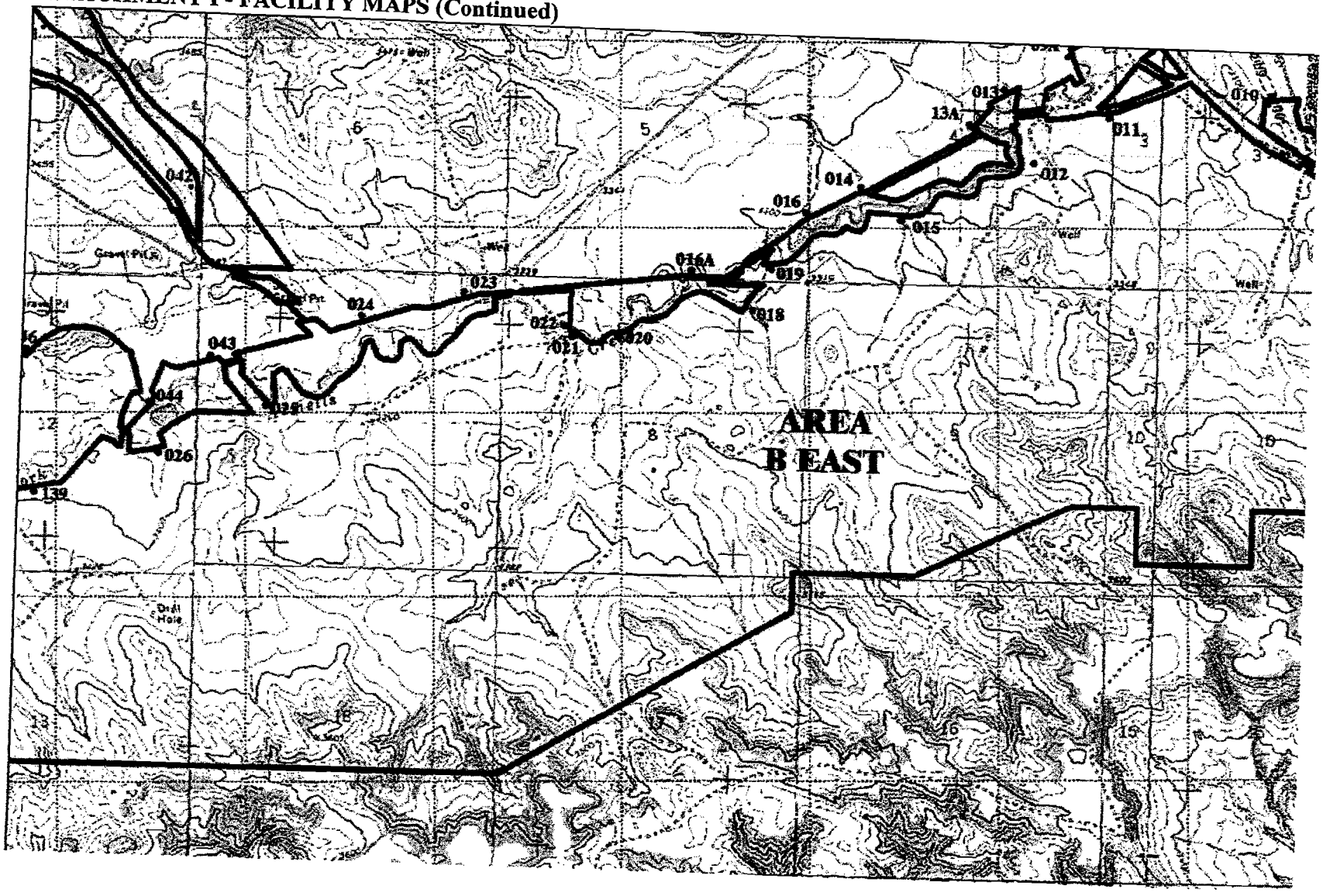
ATTACHMENT I - FACILITY MAPS



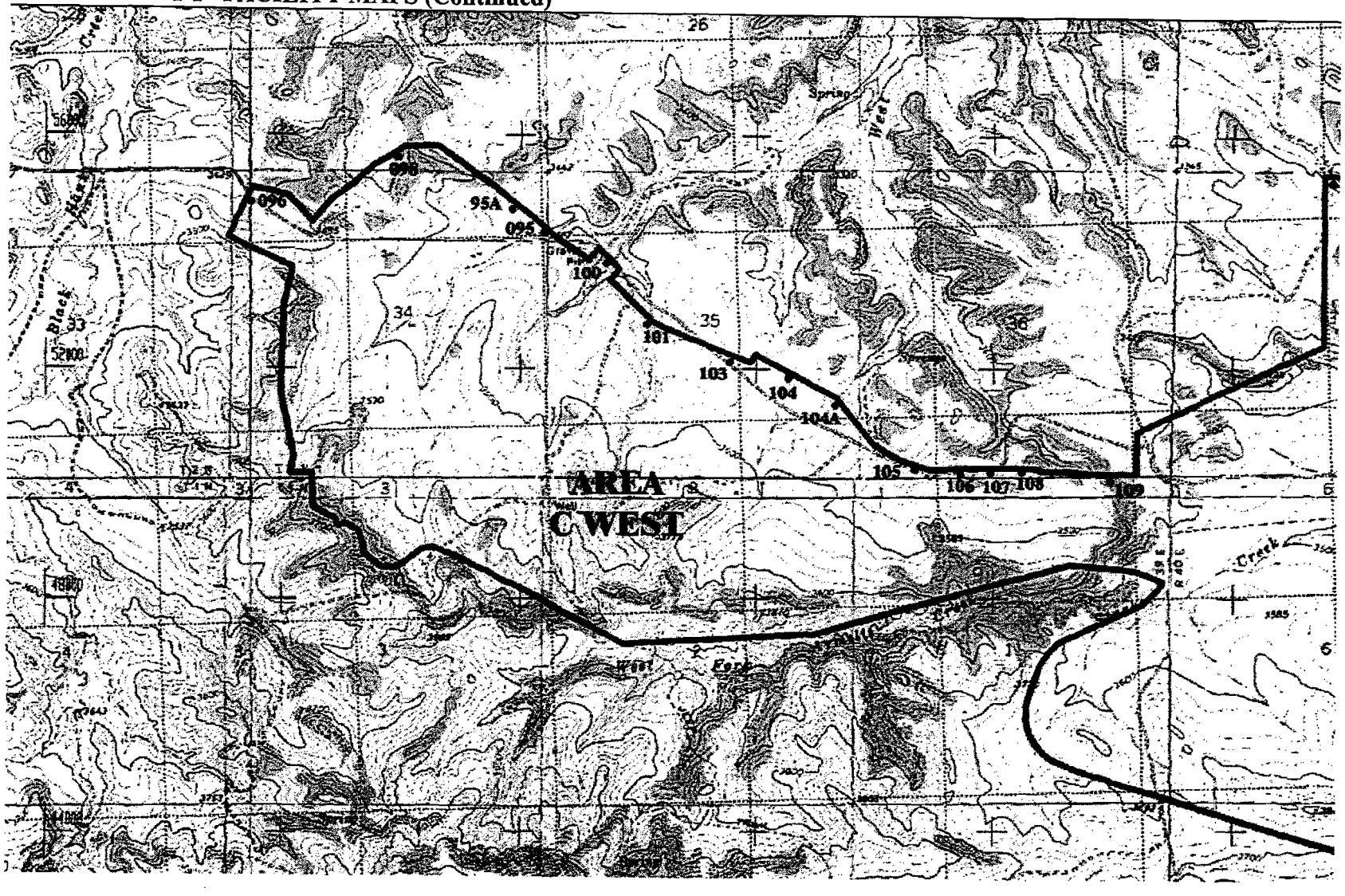
ATTACHMENT I - FACILITY MAPS (Continued)



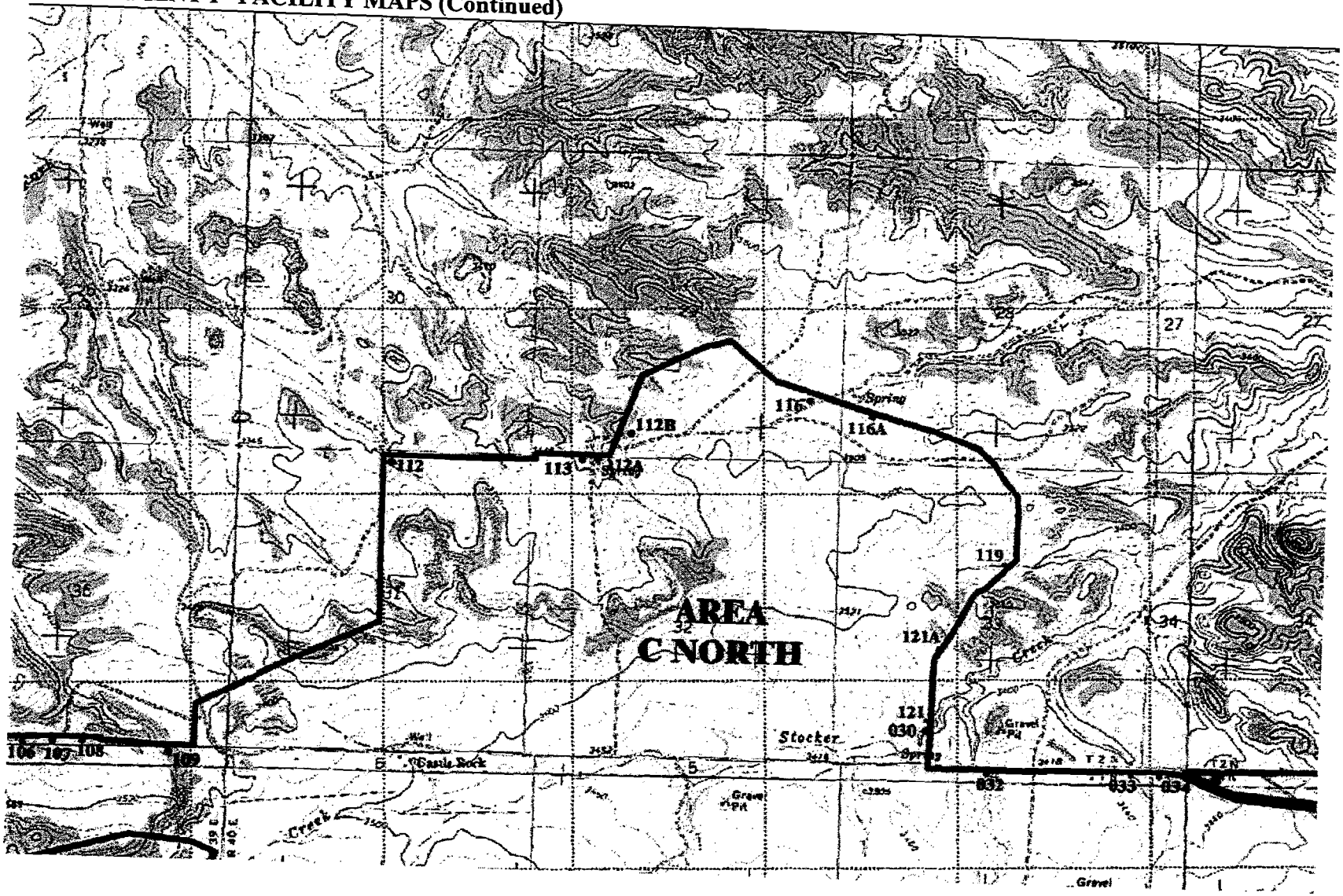
ATTACHMENT I - FACILITY MAPS (Continued)



ATTACHMENT I - FACILITY MAPS (Continued)



ATTACHMENT I - FACILITY MAPS (Continued)



ATTACHMENT I - FACILITY MAPS (Continued)

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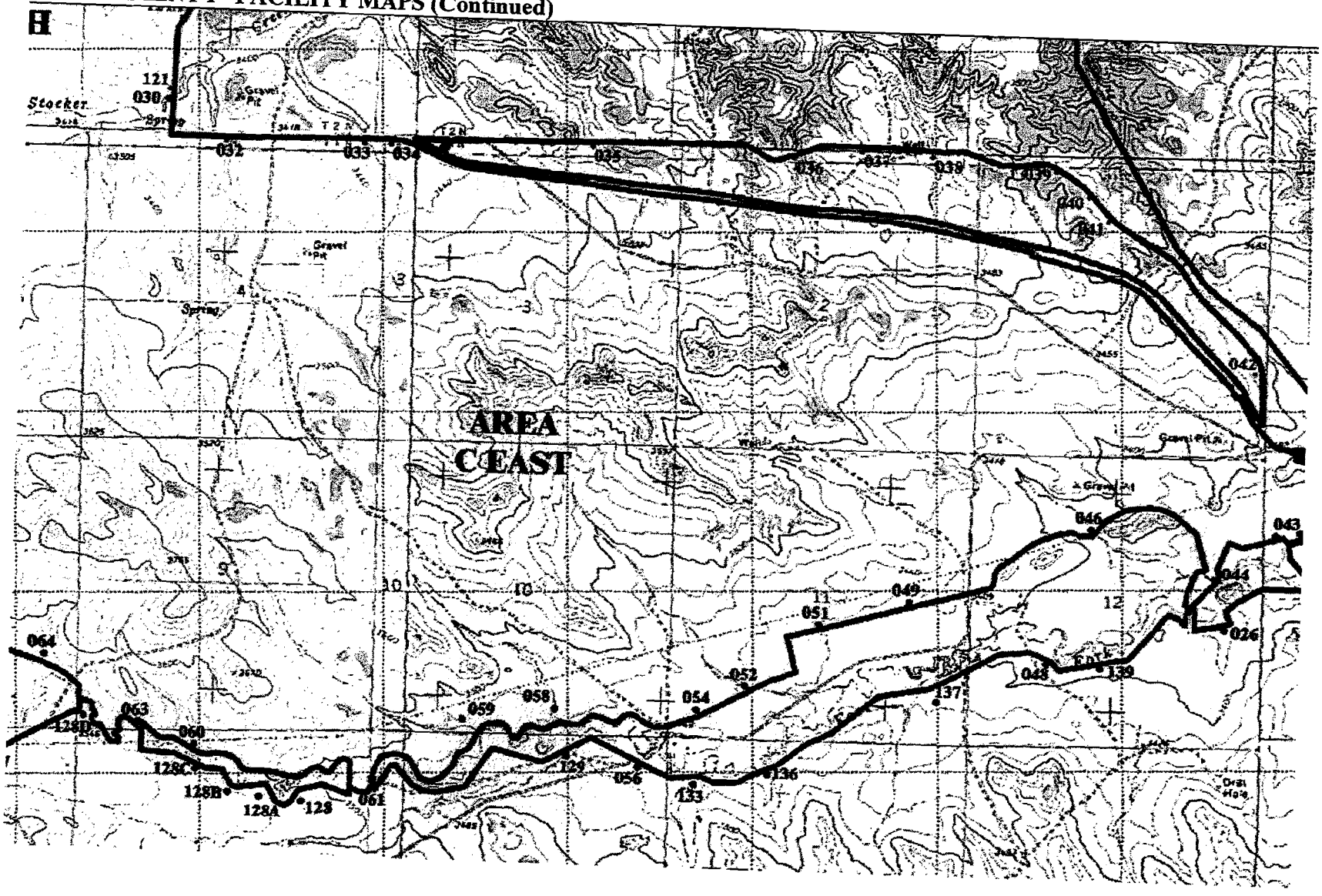
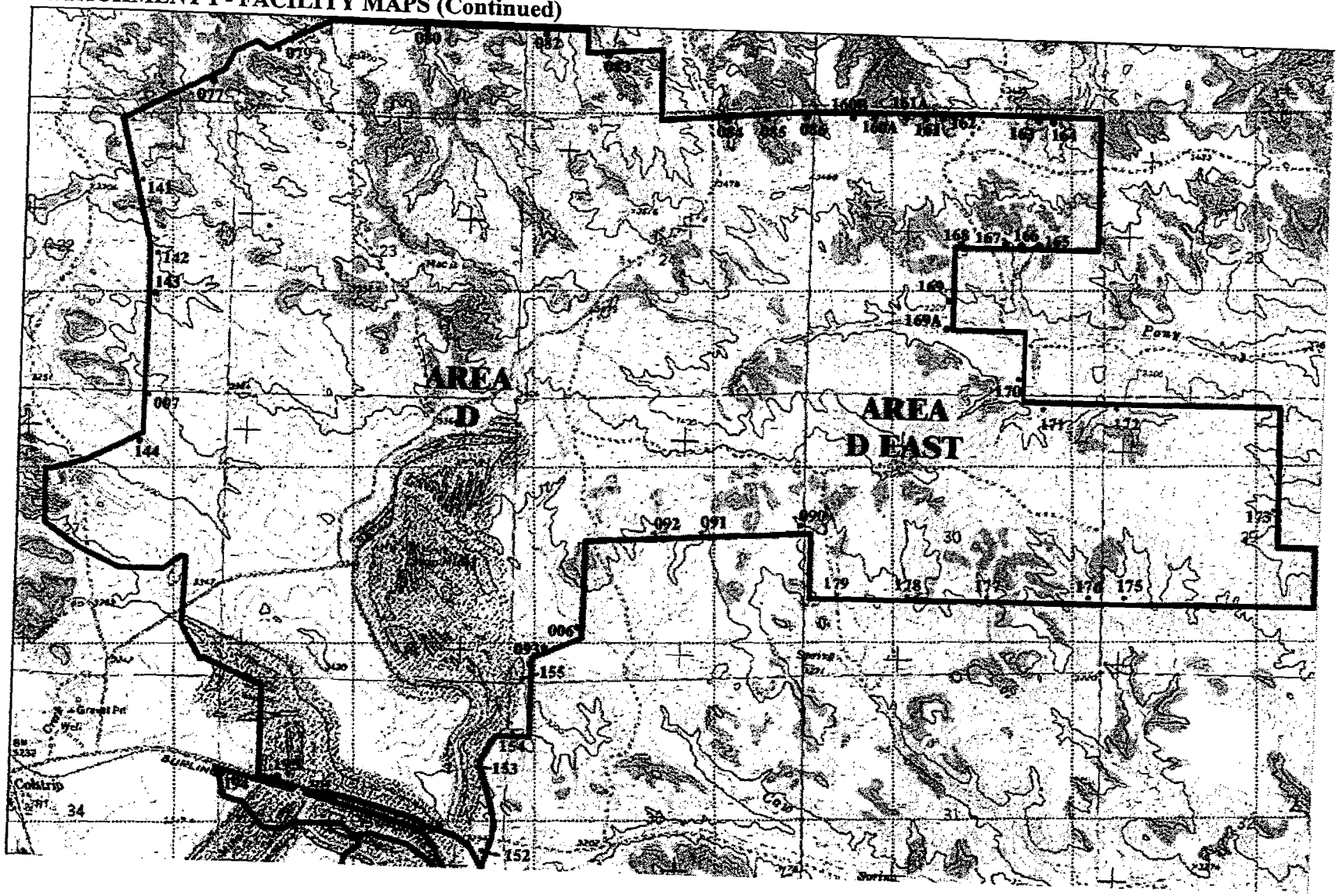
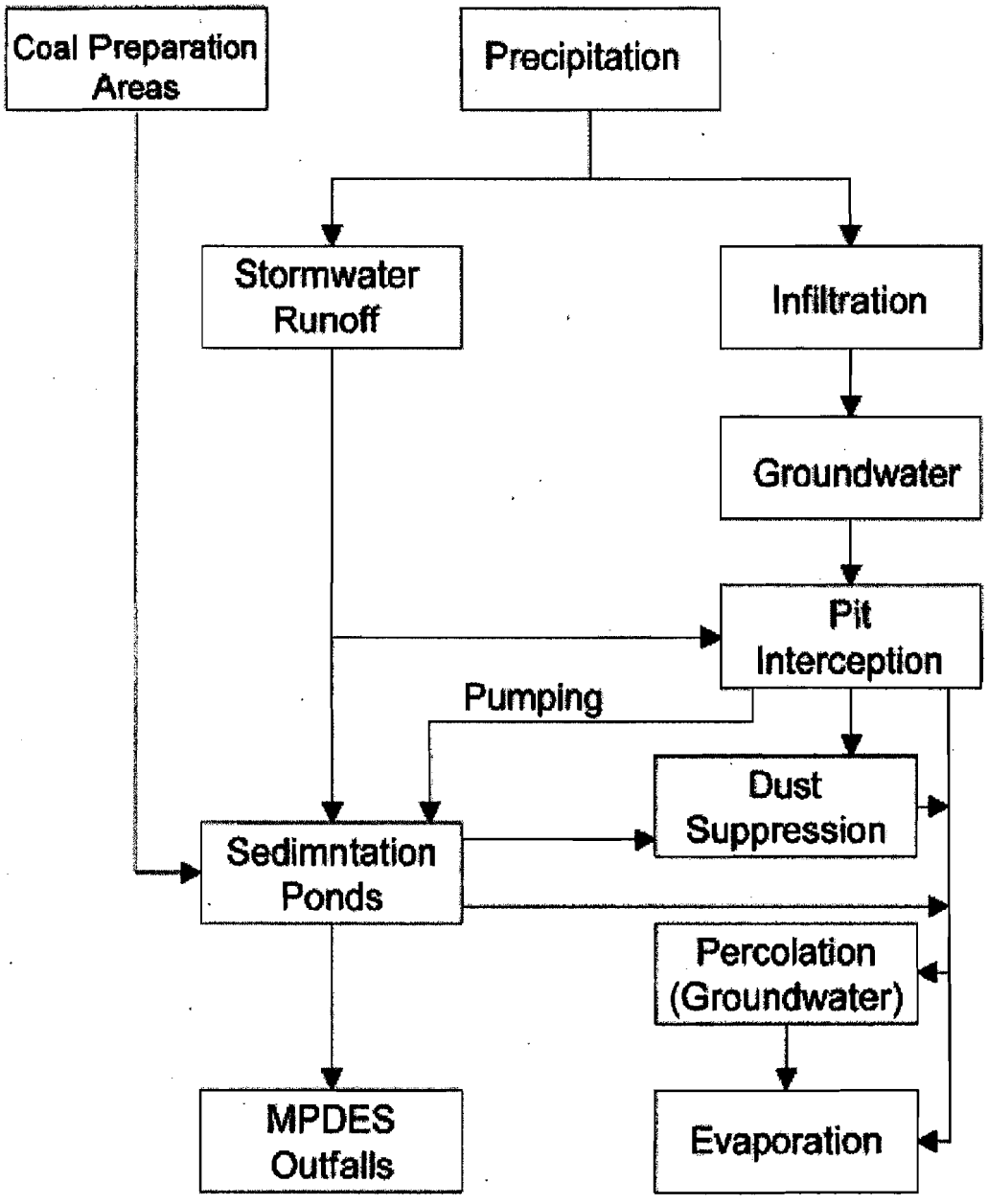


ATTACHMENT I - FACILITY MAPS (Continued)



ATTACHMENT II – FLOW SCHEMATIC



NOTES:
(1) The Rosebud Mine does not intercept any perennial streamflows and as such inflows are a result of precipitation.
(2) Water balance can not be determined due to the variability in precipitation events (intensities, duration, etc.)
(3) A Listing of individual outfalls can be found in Table (2).
(4) This water process is representative of all outfalls under MPDES Permit #MT-0023965.

ATTACHMENT III – STATEMENT OF BASIS

WESTERN ENERGY COMPANY

A Westmoreland Mining LLC Company
138 ROSEBUD LANE • P.O. BOX 99 • COLSTRIP, MT 59323
(406) 748-5100

June 13, 2012

Ms. Jenny Chambers
Water Protection Bureau
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Permit ID: MPDES Permit MT0023965
Revision Type:
Permitting Action:
Subject: MPDES Proposed Permit – Public Comments

Dear Ms. Chambers:

Nicklin Earth & Water, Inc. (NE&W) and KC Harvey Environmental, LLC (KCH) have been recently retained by Western Energy Company (WECo) to assist with the review of the draft proposed permit MT0023965 prepared by the Montana Department of Environmental Quality (DEQ) Permitting and Compliance Division Montana Pollutant Discharge Elimination System (MPDES) Permit Fact Sheet for Permit No. MT0023965. WECo have also retained the services of Dr. William Hartsog, a specialist in surface water hydraulics and sediment transport to assist in this review.

WET Testing for Planned Discharge

WECo's Rosebud Mine has 151 outfalls that drain into the following receiving waters: East Fork Armells, West Fork Armells, Stocker, Black Hank, Cow, Pony, Lee, and Spring Creeks and Lee Coulee. These are classified as ephemeral streams.

The Whole Effluent Toxicity test that is proposed in the draft MPDES Permit # MT0023965 has been proven effective by the EPA in the variability study entitled "Final Report: Interlaboratory Variability Study of EPA Short-term Chronic and Acute Whole Effluent Toxicity Test Methods, Vol. 1[WECo1]" using the following sample preparation (Section 2.2.4):

"For each test method, four test sample types were prepared in bulk by the referee laboratory, divided, and distributed to participant laboratories for testing. The four sample types included: 1) blank sample, 2) reference toxicant sample, 3) effluent sample, and 4) receiving water sample. Blank and reference toxicant samples were distributed to participant laboratories as liquid ampule samples (to mix and dilute to the required volume at the participant laboratory), while effluent and receiving water samples were distributed as whole-volume samples (consisting of the full volume necessary to conduct the test). The blank sample was a non-toxic sample prepared as the typical synthetic control dilution water for each test method. Testing of the blank sample provided a means of determining the false positive rate for each test method. Interlaboratory precision was evaluated through testing of the reference toxicant, effluent, and receiving water sample types."

As is evident the test requires a sample of the receiving water to determine degradation of the natural chemistry. As was afore mentioned, the receiving waters of WECo's mine are ephemeral and do not facilitate a sample unless ample runoff has caused the stream to flow. Therefore a sample from any planned discharge from the mine would not include a sample of receiving water. C.3.a.i of the draft permit states "If a sample of the receiving water is unavailable, because of its ephemeral nature, standard synthetic water may be used." This is of concern due to the introduction of uncertainty in the accuracy of the test. Cindy Rohrer, a representative from Energy Labs in Billings stated "It's difficult to speculate on the uncertainty of using laboratory prepared receiving water versus the actual stream receiving water. However, the test would give a good indication of the effect of the effluent on aquatic life prior to being discharged into the receiving water." FS-10 and FS-11 (pg 19 and 20) of the Permit Fact Sheet show that East Fork Armells and its Tributaries and Rosebud Creek Tributaries sustain no salmonid fish or fish in early life stages. This means that the water that WECo discharges will be in contact with no fish life until it reaches either Rosebud Creek (approximately 15 miles away) or the Yellowstone River (approximately 30 miles away). Due to the uncertainty of accuracy and the remoteness of the mine to aquatic life WECo proposes that WET testing not be required for planned discharges to ephemeral streams.

WET Testing for Unplanned Discharge

Unplanned discharges from the mine are usually a result of runoff overtopping sediment control structures. Per MCA 17.24.639(2) WECo's sedimentation ponds are designed to contain the runoff from a 10-year 24-hour precipitation event for the worst case drainage scenario. Therefore most overtopping is due to a precipitation event greater than a 10-year 24-hour event. As one might expect, this cannot be predicted or planned for. Cindy Rohrer, a representative from Energy Labs in Billings, stated "Energy Labs needs 1 week prior notice to perform the Acute WET test in order to ensure sufficient incubator space for the test, sufficient organisms, and staff to perform the test. Additionally, the time the sample spends in the process of shipping tends to eat up a lot of the 36 hour hold time. Scheduling the tests ahead of time allows us to get as much of it set up as possible in order to meet the hold time." This also brings to light the fact that the lab is not available on weekends and holidays. This issue is compounded by the approximate 2-hour drive to Billings to submit a competent sample and the issues discussed in the previous section. It is not feasible to perform the WET test during an unplanned discharge due to the holding time and inaccessibility of the laboratory. Due to theses issues WECo proposes that WET testing not be required for unplanned discharges.

Effluent Requirements for Unplanned Discharges Resulting from >10-Year 24-Hour Precipitation Events

Tables 9-15 of the draft permit indicate that the limitation for Settleable Solids is the only effluent limitation that is not required for discharges resulting from a precipitation event greater than or equal to the 10-year 24-hour event. MCA 17.24.639(2) only requires the containment of runoff from the 10-year 24-hour precipitation event. These seem to contradict each other in basis. How is WECo to be held accountable for the quality of runoff if the precipitation event exceeds that which we are required to contain? WECo proposes that effluent limitations be required for discharges resulting from precipitation events less than or equal to the 10-year 24-hour event.

Mislabeled Outfalls

Table 1 of the draft permit shows the incorrect receiving waters for the following outfalls:

- 039 – Receiving water is Stocker Creek
- 040 – Receiving water is Stocker Creek
- 041 – Receiving water is Stocker Creek
- 075 – Receiving water is Castle Rock Lake

Nondegredation of Receiving Waters

ARM 17.30.629(2)(k) states "it is not necessary that wastes be treated to a purer condition than the natural condition of the receiving water...". Due to the ephemeral nature of the receiving

waters, how can this rule be enforced? What type of data does WECo need to present in order to satisfy a discharge of this nature?

Representative Outfalls

Representative outfalls are vaguely defined in the permit and leave considerable room for personal interpretation. The following questions need to be addressed before the permit becomes a legal document:

- Does a representative outfall represent a defined number of non-representative outfalls? If so, which representative outfall represents which non-representative outfall?
- What is the relationship between representative and non-representative outfalls?
- If a representative outfall discharges during a precipitation event is it assumed that all the outfalls that it represents discharged as well?
- Will non-representative outfalls need to be inspected during/after a precipitation event?
- Will the non-representative outfalls be held to the sample taken at the representative outfall?
- If a non-representative outfall, which is inaccessible during a precipitation event, is accessed after the precipitation event and is found to be discharging does a sample need to be taken? Or does the representative outfalls sample over-rule?
- If a non-representative outfall discharges and its representative outfall does not discharge during the same precipitation event, is it considered a discharge or not?
- What if a sample cannot be taken due to inaccessibility? (Ex. Outfall 083 is very inaccessible during precipitation events)
- If a representative outfall and at least one of the non-representative outfalls that it represents discharges during a precipitation event and a violation occurs because of the sample at a representative outfall, what are our options of contesting the violation for the non-representative outfall?
- What is the relationship between representative outfalls and "New Outfalls"?
- As "New Outfalls" have more stringent standards are they to be considered individually and not included in any representative outfall discussion?
- If both a representative outfall and a "New Outfall" discharge during a precipitation event and a sample is taken at a representative outfall and not at a "New Outfall" then the intent of the New Source Performance Standards would not be met because the sample was not taken at the new source. How is this justified?

Cost-Effectiveness of Continuous Flow Measurement and Automatic Sampling

There are 23 outfalls classified as representative outfalls. I.B.1.a states "Sampling equipment must be installed at representative monitoring locations to ensure flow measurement and automatic sample collection regardless of weather and/or site conditions" due to a precipitation event. During the past 20 years (June 1992 to June 2012) the 23 outfalls had 43 unplanned

discharges (including precipitation events less than and greater than the 10-year 24-hour event) reported on the monthly Discharge Monitoring Report (DMR) at the representative outfall locations. If the extent of each discharge was conservatively assumed at 7 days then there were 301 discharge days. To put this number in perspective, if all 23 outfalls would have discharged each day of the last 20 years there would have been 168,015 discharge days. This means that, conservatively, these automatic samplers and continuous flow measuring devices are only going to operate less than 0.2% of the time they are installed. Also, 33 out of the 43 discharges were sampled and results are contained in the respective DMR reports. WECo retains that the small increase of data from that which is already being reported is not worth the upfront cost (which is in the tens of thousands per outfall) plus the resources for regular calibration and maintenance/replacement costs.

Prevention of discharge is one of WECo's main goals. WECo proposes that a more frequent monitoring plan for the ponds and sediment traps be implemented in place of installation of automatic samplers and continuous flow measuring devices. Current monitoring for the ponds and sediment traps is as follows: quarterly for ponds and annually for the sediment traps. WECo proposes monitoring frequency be increased to monthly for all sediment control devices to ensure that their capacity will adequately contain the 10-year 24-hour event or be dewatered in a timely manner to achieve such capacity. As a preventative measure it would implement the best practicable method to remain compliant. Sampling of unplanned discharges would remain the same as it has for the previous permit.

Representative Monitoring Outfalls

The following is a summary of the travel time to each representative outfall from the engineering office:

Representative Outfall	Travel Time (min:sec)
009	13:35
09A	11:30
10C	12:08
011	10:48
16A	9:00
021	9:33
035	2:27
043	6:22
046	7:20
058	9:15
075	25:31
095	7:07
096	9:48
105	5:41
109	5:26
128	12:00
133	8:45
139	7:00
143	18:51
144	17:58
151	17:50
083	26:02
194	16:48

WECo proposes that the representative outfalls be re-examined to determine accessibility and that the "grab samples should be taken during the first 30 minutes of discharge" be replaced by "representative outfalls should be inspected during or immediately following a precipitation event that may produce runoff and grab samples shall be taken at that time, if discharging." This would be feasible because there is, at minimum, a supervisor on the mine site 24 hours a day 7 days a week 365 days a year.

References

WECo1 – Final Report: Interlaboratory Variability Study of EPA Short-term Chronic and Acute Whole Effluent Toxicity Test Methods, Vol. 1,
http://water.epa.gov/scitech/methods/cwa/wet/upload/2007_08_06_methods_wet_finalwetv1.pdf
September 2001

Representative Monitoring Outfalls

Table 16 includes 23 locations designated as representative monitoring outfalls, (Section I.B.1.a). Per I.B.1.b grab samples should be taken during the first 30 minutes of discharge. This would be

feasible if the discharge was controlled during discharge from the outfall, but sampling at the 23 locations (during the first 30 minutes) identified in Table 16 would be problematic during a site wide precipitation event. Due to the accessibility of the various outfalls, time required for sampling and timing of the discharge at each location, it would be logistically impossible to sample all 23 locations within the first 30 minutes of discharge during significant rainfall or snowmelt events. WECO proposes that fewer outfalls be selected as representative outfalls. Many of the outfalls could be considered "substantially identical outfalls" based on the similarities of the general mining and reclamation activities, control measures, and runoff coefficients of their drainage areas. WECO requests a reduction in the number of outfalls sampled, considering that substantially identical outfalls exists for the active mine areas, reclaimed mine areas, and coal preparation plants and associated areas. The draft permit should be revised to identify representative outfalls that fall within either 40 CFR 434 subparts B, D and H. The permit should emphasize the use of representative outfalls for Subpart H where reclamation activities have been completed and past monitoring indicates compliance.

The draft permit includes 14 different tables that outline effluent limits and monitoring frequency and Table 16 describes representative monitoring outfalls for precipitation driven events. The detail provided in the tables is vague and confusing, and does not provide a concise description of the required monitoring. WECO requests that the final permit be specific in defining the monitoring requirements, number of outfalls and frequency of sampling required.

TBELs

Technology Based Effluent Limits (TBELs) are included in fourteen separate tables and are applicable to the seven different site areas associated with the different drainage basins. TBELs have been defined by the USEPA and are found in 40 CFR Part 434. Subpart B, addresses coal preparation plants and coal preparation plant associated areas. Subpart D addresses alkaline mine drainage from an active mining area resulting from the mining of coal. Subpart H addresses western alkaline coal mining and applies to alkaline mine drainage at western coal mining operations from reclamation areas, brushing and grubbing areas, topsoil stockpiling areas, and regraded areas. Subpart F addresses miscellaneous provisions including effluent limitations for precipitation events. The following TBELs are applicable to each 40 CFR 434 subpart:

Subpart	TBELs	Reference
B	Iron (total), TSS, pH	§ 434.22.b **Coal Preparation Plants and Coal Preparation Plant Associated Areas**, from such point sources normally exhibit a pH equal to or greater than 6.0 prior to treatment
D	Iron (total), TSS, pH	§ 434.42 **Alkaline Mine Drainage** applicable to alkaline mine drainage from an active mining area resulting from the mining of coal of any rank including, but not limited to, bituminous, lignite, and anthracite.
H	Sediment control plan with BMPs	§ 434.81 **Western Alkaline Coal Mining.** This subpart applies to alkaline mine drainage at western coal mining operations from reclamation areas, brushing and grubbing areas, topsoil stockpiling areas, and regraded areas. (a) The operator must submit a site-specific Sediment Control Plan to the permitting authority that is designed to prevent an increase in the average annual sediment yield from pre-mined, undisturbed conditions. The Sediment Control Plan must be approved by the permitting authority and be incorporated into the permit as an effluent limitation. The Sediment Control Plan must identify best management practices (BMPs) and also must describe design specifications, construction specifications, maintenance schedules, criteria for inspection, as well as expected performance and longevity of the best management practices. (b) Using watershed models, the operator must demonstrate that implementation of the Sediment Control Plan 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 SMCRA permit. (c) The operator must design, implement, and maintain BMPs in the manner specified in the Sediment Control Plan.

F	Alternate Limitations	**§ 434.63 Effluent limitations for precipitation events.** The provisions of this subpart F apply to subparts **B**, C, **D**, E and G.
	pH, SS	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)
	pH	Discharge caused by precipitation within any 24 hour period greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume)

Application of TBELs provided in the draft permit is not consistent with the requirements of 40 CFR 434. The draft permit provides effluent limits and monitoring requirements for seven different areas consisting of different drainage basins in the mine area. The area within each of these basins may include areas where requirements for Subparts B, D and H are applicable. By organizing the effluent limits and monitoring requirements in this fashion the most rigorous requirements are applied to all of the outfalls in the drainage basin. This approach increases the required monitoring in cases where outfalls regulated under Subpart H (reclaimed areas) are located in the same drainage as outfalls regulated under Subparts B and D. WECO believes that the permit should be reorganized to eliminate the excessive effluent limits and monitoring requirements resulting from this factor. The effluent limits and monitoring requirements in tables 3-15 need to be consolidated with respect to the applicable 40 CFR 434 subparts. WECO believes that the increased level of monitoring required by the draft permit is not justified for reclaimed mine areas where successful reclamation has occurred and continued use of BMPs in accordance with subpart H is occurring.

Alternative TBELs are provided in Tables 9 through 15. The alternative limits are applicable to precipitation and snowmelt driven runoff events. I.B indicates that the final limits in Tables 2 through 8 are applicable were effluent "discharges as overflow". Given this factor it is not clear if the intent is to use the alternative limits for all runoff events or runoff events that result in overflow. Footnotes 2 and 3 of Table FS-36 indicate variable effluent limits for discharges less or greater than the 10-year 24-hour precipitation event (although the footnotes are not cited in the table). This approach would be consistent with the requirements in 40 CFR 434.63 as summarized in the table above. This would also be consistent with the previous permit (November 8, 1999) where:

- Less than the 10-year, 24-hour storm: monitor for settleable solids instead of TSS.
- Greater than the 10-year, 24-hour storm: monitor for TDS

This issue requires more attention and clarification in the permit. The alternative numeric effluent limits and monitoring requirements tables also should be organized with respect to the applicable 40 CFR 434 subparts. The tables need to clarify TBELs required for different runoff events to be consistent with 40 CFR 434. The alternative TBELs included in Tables 9 through 15 have included outfalls consisting of reclaimed areas regulated under 40 CFR 434 subpart H. The requirements in subpart F are not applicable to subpart H and WECO requests that the draft permit be revised to remove the requirement for alternative limits for reclaimed areas.

WQBELs

The draft permit includes Water Quality Based Effluent Limits (WQBELs) for Aluminum (dissolved), Copper (total recoverable), and Selenium (total recoverable). Monitoring of these parameters was not included in the previous permit and limited data was available (only two samples) that were used to complete the Reasonable Potential Analysis (RPA). WECO is concerned that this data set may not be adequate for completing the RPA. The following table provides a summary of monitoring data for the parameter used in the RPA and development of WQBELs:

Parameter (WQBEL)	Min. Value	Max Value	Number Samples	Average Value	Min. Value	Max Value	Number Samples	Average Value
	Effluent Data µg/L				Receiving Water[1] µg/L			
Aluminum, dissolved (63/127)	<30	600	2	300	<30	12,000	24	2,000
Copper, total (4.4/8.8)	<1	4	2	3	4	300	24	60
Selenium, total Rec. (3.6/7.3)	<2	15	2	9	<1	5	23	2

[1] Data for W. Fork Armells, Stocker, Donley and Blank Hank Creeks.

As illustrated in the above table, the receiving water quality exhibits average aluminum and copper concentrations in excess of the maximum daily limit provided in the draft permit. The maximum effluent concentration for selenium (one sample) exceeded the maximum selenium WQBEL. In accordance with 75-5-306 (1) , MCA, it is not necessary that wastes be treated to a purer condition than the natural condition of the receiving water as long as the minimum treatment requirements, adopted pursuant to 75-5-305 , MCA, are met. As illustrated by the

effluent and receiving water quality data this may be the case for aluminum, copper and selenium. WECO request that the DEQ delay the inclusion of WQBELs for these parameters until additional monitoring is completed to determine if the effluent loading exceeds the naturally occurring levels, and if necessary to support a rigorous RPA.

The receiving waters are classified as C-3 streams. ARM 17.30.629 defines the water quality standards for streams classified as C-3. Since the discharges will be to ephemeral streams they are not subject to the specific water quality standards of ARM 17.30.629 in accordance with ARM 17.30.637.6. Industrial waste must receive, as a minimum, treatment equivalent to the Best Practicable Control Technology Currently Available (BPCTCA) as defined in 40 CFR Chapter I, Subchapter N.

WECO did not anticipate that WQBELs would be needed for aluminum, copper and selenium and therefore did not request a mixing zone for these parameters. Given the outcome that WQBELs are required, WECO requests an opportunity to reconsider a request for mixing zones for these parameters. It must be noted however, in accordance with 75-5-306 , MCA, it is not necessary that industrial wastes, sewage, or other wastes, as defined in 75-5-103 , MCA, be treated to a purer condition than the natural condition of the receiving water as long as the minimum treatment requirements are met and provided all reasonable land, soil, and water conservation practices have been applied. This factor further negates the requirement for the WQBELs included in the draft permit.

Effluent Limitations for EC

The draft permit includes an effluent limitation for Electrical Conductivity (EC). EC means the ability of water to conduct an electrical current at 25 ^{0}C. The electrical conductivity of water represents the amount of total dissolved solids (TDS) in the water and is expressed as microSiemens/centimeter (µS/cm) or micromhos/centimeter (µmhos/cm) or equivalent units and is corrected to 25^{0}C. Since EC and TDS are closely related, correlations are commonly used between the two parameters. One such correlation EC = 1000*TDS/640 (Hanson et.al., 1999). In order to evaluate the reasonableness of the TDS and EC limits in the draft permit, EC can be calculated from the TDS limits as presented below:

Draft Permit Table No.	Drainage Basin	Permit Limit Average TDS	Permit Limit Maximum TDS	Calculated Average EC	Calculated Maximum EC	Permit Limit EC
		mg/L	mg/L	µS/cm	µS/cm	µS/cm
Final Numeric Effluent Limits						
2	E. Fork Armells Ck.	3000	4500	4688	7031	Report
3	W. Fork Armells,Black Hank, and Donley Cks.	2600	3900	4063	6094	Report
4	Stocker Ck.	3950	5925	6172	9258	Report
5	Lee Coulee	2600	3900	4063	6094	500
6	Pony Ck.	2550	3825	3984	5977	500
7	Cow Crk.	3650	5475	5703	8555	500
8	Spring Ck.	2200	3300	3438	5156	500
Alternate Numeric Effluent Limitations (runoff events)						
9	E. Fork Armells Ck.	-	4500	-	7031	Report
10	W. Fork Armells,Black Hank, and Donley Cks.	-	3900	-	6094	Report
11	Stocker Ck.	-	5925	-	9258	Report
12	Lee Coulee	-	3900	-	6094	500
13	Pony Ck.	-	3825	-	5977	500
14	Cow Crk.	-	5475	-	8555	500
15	Spring Ck.	-	3300	-	5156	500

This comparison indicates that the corresponding EC calculated from the final TDS effluent limit would be in the range of approximately 5,200 to 9,200 µS/cm given the maximum daily limits provided in the draft permit. The EC limit provided in the draft permit is 500 µS/cm (less than 10 percent of the maximum calculated values above). This factor demonstrates that the proposed EC limit is not compatible with the existing limits for TDS. The permit fact sheet indicated that the basis for the EC limit is ARM 17.30.670. This rule was developed to provide an instream water quality standard for the mainstems of Rosebud Creek, the Tongue, Powder, and Little Powder rivers and related tributaries. These standards were adopted to address the potential impacts from coal bed natural gas produced water discharge on crop irrigation. DEQ has incorrectly applied these rules as effluent limits in the draft permit. WECO request that the proposed EC limits be removed from the draft permit since the basis for applying the instream criteria as an effluent limit is flawed. The current TDS limits are adequate for managing EC within the receiving water. This is demonstrated by the TDS measurements in the receiving water where an average (1289) and maximum (5340) TDS mg/L were observed in E. Fork Armells, W. Fork Armells, Stocker, Donley, and Black Hank Creeks. Likewise, monitoring in Spring, Pony and Cow Creeks, and Lee Coulee indicate an average (703) and maximum (4810) TDS mg/L. This factor indicates that the current TSD limits are more in line with the naturally occurring levels in the receiving waters. An average EC value (900 µS/cm) was observed for the two samples of effluent previously tested. The proposed EC limits would not be attainable given the observed effluent concentrations that appear to be below naturally occurring levels. Given these factors, it would not be likely that WECO could comply with the proposed limits using the proposed BPCTCA. In accordance with 75-5-306 (1) , MCA, it is not necessary that wastes be treated to a

purer condition than the natural condition of the receiving water as would be required by inclusion of the proposed EC limit.

Effluent Limitations for SAR

The draft permit includes effluent limits for Sodium Adsorption Ratio (SAR). As was the case for EC, the basis for this limit is ARM 17.30.670. Two limits are provided for different periods during the year. This rule was developed to provide an instream water quality standard for the mainstems of Rosebud Creek, the Tongue, Powder, and Little Powder rivers and related tributaries. DEQ has incorrectly applied these rules as effluent limits. WECO request that the proposed SAR limits be removed from the draft permit since the basis for applying the instream criteria as an effluent limit is flawed. The existing permit did not include a requirement to monitor SAR, although test data from two samples indicate an average value of 0.3 and a maximum value of 0.36. These values are well below the proposed limit and do not indicate a reasonable potential to exceed the standards in ARM 17.30.670, or justify the need for an SAR permit limit.

Whole Effluent Toxicity (WET) Testing

WET testing is specified on Tables 2 through 8. The location of the proposed WET testing is at outfalls regulated under 40 CFR 434 subpart B. Appendix I of the Fact Sheet indicates that subpart B applies to outfalls 009, 09A, 16A, 021, 043, and 094. These outfalls are all located within the East Fork of Armells Creek (Table 2). WET test requirements are also listed on Tables 3 through 8. These drainage areas do not include any currently regulated subpart B facilities. It is not clear where the proposed WET testing is required given the current organization of the draft permit. This issue would be eliminated if the effluent limits and monitoring requirements were organized by the categories under 40 CFR 434 as opposed to drainage basins.

Wet testing is also indicated in Tables 9 through 15 as part of the alternative effluent limits that are used for discharges related to precipitation and snowmelt events. Sampling for WET testing during storm/runoff events may not be practical given the number of outfalls where sampling is required using the alternative limits.

The previous permit (November 8, 1999) did not include WET testing nor did it include WQBELs for Aluminum, Copper, or Selenium. Additional monitoring of these parameters was also not included in the permit. These factors do not support the determination by the DEQ to include such an extensive WET testing program in the permit. WECO proposes that the WET testing requirement be removed from the draft permit since observational monitoring will be completed for any potentially toxic parameters associated with facilities regulated under subpart B. The observational monitoring will support future RPA for these parameters to determine the need for WQBELs and WET testing. The RPA for aluminum, copper and selenium presented in the fact sheet was based on two test results. Variability in these data and the small sample size has resulted in a large factor of safety in the reasonable potential analysis (RPA).

Additional observational monitoring is required to develop a better dataset to support the RPA and determining the need for WET testing.

Miscellaneous Comments

Tables 2, 4, 10 – Under existing outfalls, (typo) Iron should be Iron, total. The minimum monitoring frequencies indicated in Table 9 are not consistent with the values indicated in Table FS-36 and requires clarification. The maximum daily limitation for dissolved aluminum in Table 4 is not consistent with Table 11 or Table FS-30 and requires clarification.

References:

Hanson B., Gratten S., and Fulton A. 1999. Agricultural Salinity and Drainage. Division of Agricultural and Natural Resource Publication 3375, University of California Irrigation Program, University of California, Davis.

Discussion on DEQ Rationale/Methodology used for Calculation of Effluent Limits and Whole Effluent Toxicity Testing.

- Table FS-12 (permit fact sheet) contains an error. The Projected Receiving Water Concentration for aluminum (dissolved) should be 2,300 ug/L (as opposed to 2.3 ug/L).

- Appendix II: Summary of discharge for flow data should be reevaluated by DEQ for accuracy. For instance, it is unclear how an average annual flow rate can be the same as the maximum daily flow rate for what is likely an episodic/short duration event as DEQ shows for year 2004. There appear to be other similar issues/problems shown by DEQ on the Appendix II table as well.

- In the Permit Fact Sheet the need for water quality based effluent limitations (WQBELs) is evaluated by comparing a projected receiving water concentration (Cr) to "the lowest applicable" numeric standard (C). In some instances the aquatic life standard is used for C. This does not appear to be an applicable standard since, in effect, all the streams receiving discharge are ephemeral in nature. Furthermore, the outfalls rarely exhibit discharge, except in the instances of major, low frequency, precipitation events. One primary reason for the low frequency of outfall events is that the sediment control ponds are designed to receive/store the 10-year 24-hour event flows. For instance, Table C-1 attached hereto provides an example as to how infrequent such outfall flows are in the instance of what DEQ defines as either "coal preparation plant" or "coal plant circuit" outfalls. Even flows in East Fork Armells Creek are fairly infrequent as shown in Figure C-1. In summary, the approach used by DEQ seems counterintuitive when considering the nature of streams and the lack of flow for these streams in the vicinity near the Rosebud Mine.

- The lack of outfall discharge events, and the lack of "receiving" water flow, demonstrates that the assumption that DEQ uses, leads to results which are not

realistic. Tables FS-12 and FS-13 show that in some instances, the lowest applicable numeric standards used are "chronic" aquatic life standards from circular DEQ-7. In effect, "How can application of a chronic standard be considered a realistic "applicable standard" when there is no chronic exposure to begin with?" This lack of chronic exposure also seems to be acknowledged by DEQ when it states "Monitoring for chronic toxicity is not required because the discharges are intermittent, not continuous, and therefore chronic effects from the discharges are not anticipated." (underlined for emphasis).

In summary, if aquatic life standards are used for this evaluation, the lowest applicable numeric standard in this evaluation should be the Acute Aquatic Life Standard (as opposed to the chronic standard). It can be argued that if there is no water in the stream channel (at outfalls) there can be no aquatic life affected by an outfall event. In this case the lowest applicable numeric standards could then be inferred to be the human health standards from circular DEQ-7.

- The Permit Fact Sheet shows that once the need for WQBEL was established, then WQBELs were calculated. WQBELs are calculated using the same dilution factor (zero=no receiving water) and three water quality standards. The Average Monthly Limitations (AML) and Maximum Daily Limitations (MDL) are calculated using the Chronic Aquatic Life Standards and Acute Aquatic Life Standards. Again, the use of a dilution factor of zero (no receiving water) contradicts the applicability of the use of chronic aquatic life standards for the calculation of Limitations.

- Appendix VI shows AML and MDL level calculations which provide results that are not intuitive, or, lack common sense. For instance, in some cases, AML values are less than 50% of the most stringent chronic aquatic life standards given in the DEQ-7 circular. The effluent MDL concentrations calculated are as low as about 1/700 times the maximum concentration actually measured in the receiving water. Table C-2 shows a comparison of the MDLs from Tables FS-21 and FS-23 with Receiving Water Characteristics reported in Appendix IV of the permit. For example the MDL level calculated for total iron is 1.61 mg/L. The maximum total iron concentration reported for receiving water is 326 mg/L. In this case, if effluent limitations are met, the iron concentration would be less than 1/200 of the maximum iron concentration measured in receiving water. It is obvious that such an effluent limitation is not realistic.

- The permit specifies that a WET test with 6 specific different effluent concentrations is needed (draft permit) as opposed to the general EPA recommendation of "a minimum of 5 effluent concentrations" (Source: Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth Edition, October 2002.).

- EPA draft guidance for WET implementation under the NPDES Program (November 2004) was written with receiving waters in mind. Some statements to this effect are:

- Based on existing regulations, NPDES authorities must determine whether a discharge causes, has the reasonable potential to cause, or contributes to an ***in-stream*** excursion above a numeric criterion or a narrative criterion within an applicable State water quality standard and, where appropriate, establish permit limits on WET, for lethal and sub-lethal effects.

- Another advantage to using WET testing is that it enables prediction and avoidance of a toxic impact before the detrimental impact might occur (i.e., after the ***aquatic population in the receiving water*** has experienced ***prolonged exposure*** to such toxicity).

The site conditions clearly do not comport with the inferences of "in-stream incursion," "receiving water," and "prolonged exposure" that are made in this EPA guidance document.

In summary, DEQ should reassess, and then, recalculate or update the Final Numeric Limitations to values that are more directly in conformance with the conditions of the discharge and "receiving" streams in the vicinity of the Rosebud Mine.

- It is not practical to require the mine to submit water samples for WET analysis for precipitation driven flow events:

  - The laboratory requires the start of testing be within 36 hours from the time the effluent sample was taken.

  - "Energy Labs needs 1 week prior notice to perform the Acute WET test in order to ensure sufficient incubator space for the test, sufficient organisms, and staff to perform the test. Additionally, the time the sample spends in the process of shipping tends to eat up a lot of the 36 hour hold time. Scheduling the tests ahead of time allows us to get as much of it set up as possible in order to meet the hold time." (statement by Energy Labs to Western Energy).

  - Hence, it is an unrealistic expectation to require a WET test for precipitation driven flow events associated with the "coal preparation plant" or "coal plant circuit" outfalls.

- The non-exceedance EC standard for Lee Coulee, Pony Creek, Cow Creek, and Spring Creek is set at 500 uS/cm. The basis DEQ cites for this standard is ARM 17.30.670. It is noteworthy that actual/background EC values greatly exceed this standard. In effect, this non-exceedance standard is unrealistic.

Comments on DEQ Rationale/Requirements for Flow/Sampling Instrumentation.

- The language employed by DEQ in the draft MPDES permit is vague in terms of what the specific monitoring requirements are for measuring flow and collecting water quality samples. It could be interpreted by some that DEQ is requiring automatic and

continuous flow measurement and parameter sampling. If that is the case, then such a measurement program may not be that appropriate for the Rosebud Mine for the limited flow events that occur from the large number of outfalls at the mine. See example shown in Table C-1 provided hereto.

- As an illustration of practical issues, the following is a typical setup that would be required be employed to continually measure flows and also to collect the samples:
    - Flume structure
    - Pressure transducer
    - pH and conductivity probes
    - Pumping sampler; and
    - Programmable data recorder.

The capital/construction cost for this setup would be approximately $ 20,000 per location. This does not include the operation and maintenance cost at each location. Assuming this was applied to all outfalls, the capital/ construction cost would be approximately $ 3 million. If it were applied solely to the "representative" outfalls, the cost would be about $ 480,000. Again, these costs do not reflect the associated operation and maintenance, data collection and evaluation costs, which would be significant.

- There are other feasibility issues that would need to be overcome including, but are not necessarily limited to, the following specific conditions:
    - Outfalls with no pond structure. Automatic and continuous monitoring is not feasible at outfalls (with no detention pond) producing overland flow from areas of active mining and areas in various stages of reclamation and inactivity. Sediment transport and deposition cause the configuration of the drainage channels to change considerably during runoff events. Braided channels are an example of a channel resulting from excess sediment transport and deposition. This leads to uncertainty as to what the channel location and configuration will be over time as it changes during each runoff event. This factor, coupled with the sediment load issues, results in a very low probability/feasibility of proper measurements being collected using automated equipment.

Weir blades with crest gages have been suggested by some as a method of monitoring flow but these tend to be choked with sediment during the initial runoff. Weirs are more commonly than not choked by sediment which leads to flow measurement inaccuracies. In fact, the basic fundamental principle used to develop the weir equation is violated with this sediment choking. Finally, the channel cross section will change during a runoff event leading to additional flow measurement inaccuracies.

- Outfalls with pond structure. Automatic and continuous monitoring may be more feasible at outfalls with a detention pond discharging flow from areas of active mining and areas in various stages of reclamation and inactivity. It is feasible to collect samples at outfalls resulting from overland flows produced from areas of active mining and areas in various stages of reclamation if flow is from a detention pond with a discharge pipe.

    - The expense of automated sampling equipment is not justified for pond discharge pipes because there is a functional relationship between water level above the pipe and discharge flows. Collection of manual staff gage readings in the pond, coupled with details on exit piping physical parameters, can be used to calculate representative/accurate flow discharges. Pygmy flow meters could also be used at the pipe discharge. Effluent samples for various parameters can be collected via grab samples or other sampling methods.

    - One reason that automated sampling equipment is not justified is that many of the runoff events will not produce flow from the ponds because of the storage capacity of the pond or series of ponds. This greatly reduces the number of discharge events from these pond outfalls because the ponds are designed to retain a 10-year 24-hour runoff event. Another issue is that samples do not necessarily coincide with peak, or initial flows, because the pond levels, and hence storage (e.g., from prior events), will vary from empty to a full pond. This degree of storage will have a significant effect on the peak discharge exiting the pond. The existing storage will also affect the water quality of the effluent leaving the pond. It should also be noted that the frequency of runoff events is very low. Hence, the utility of such information, even if it were collected via automatic measurements, would likely be questionable.

    - For these reasons the returns on investment for the data produced from an automated data collection system is not justified.

- On average, about 6 flow events occur per year for the approximately 150 outfalls (based upon Appendix II of draft document). Hence, it seems that it would be more reasonable to collect samples at outfalls as flow occurs, and to focus on those locations where a flow event is more likely to be observed. The existing methods applied by the mine are to: 1) Collect grab samples (or use staged sample collection bottles set at outfall discharge points); and 2) Use pygmy flow meters to measure flow. This procedure is deemed to be a practical method for the environmental conditions that exist at the mine.

- One possible improvement to environmental monitoring at the mine is to include the existing four automated flow measurement sites, and the associated water quality sampling

locations, to track the overall long term flow discharge and water quality. Such information would provide an accurate overall indication of progress of the surface water hydrology and water quality for the mine over time. The flumes can be used to accurately monitor large areas of the mine and assure that the outfall data collection is reflective of the overall mine conditions. These same locations could provide for realistic baseline information for both flow conditions and for the water quality of the ephemeral streams in the area.

Please contact Wade Steere, Environmental Engineer, if you have any questions at (406) 748-5199.

Sincerely,

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Enclosure

cc:	Wade Steere	William Hartsog
	Rich Spang	Michael Nicklin
	Dicki Peterson	Kevin Harvey
	IEMB	David Cameron

Table C-1
Observed Flow Events DEQ's "Coal Plant Circuit"/"Coal Preparation" Outfalls
Drainage - East Fork Armells Creek

Date	Outfall	Volume Discharged (ac-ft)	Remark
Jun-92	009A	0.009	Unplanned <10 year 24 hour event (No exceedences of effluent limitations)
Jan-93	009A	0.007	Unplanned <10 year 24 hour event (No exceedences of effluent limitations)
Jun-93	009A	0.17	Unplanned >10 year 24 hour event (No exceedences of effluent limitations)
Jul-93	194	0.27	Unplanned >10 year 24 hour event (No exceedences of effluent limitations)
Mar-94	009	6.53	Unplanned >10 year 24 hour event (No exceedences of effluent limitations)
Jul-97	194	2.01	Unplanned >10 year 24 hour event (2 exceedences of effluent limitations)
Jan-99	009	0.95	Planned (No exceedences of effluent limitations)
Sep-99	021	9.8	Planned (No exceedences of effluent limitations)
Oct-99	021	115	Planned (No exceedences of effluent limitations)
Nov-99	021	61	Planned (No exceedences of effluent limitations)
Dec-99	021	8.8	Planned (No exceedences of effluent limitations)
Jun-07	194	2.21	Unplanned >10 year 24 hour event (1 exceedence of effluent limitations)
Feb-10	021	0.27	Unplanned <10 year 24 hour Event (1 exceedence of effluent limitations)
May-11	009A	unknown	Unplanned >10 year 24 hour event

Date source: Rosebud Mine

Frequency of flow:
009A (4 times in 20 years)
009 (2 times in 20 years)
021 (1 time in 20 years - unplanned)
021 (4 times in 20 years - planned)
194 (3 times in 20 years)

Table C-2
Comparison of Maximum Daily Effluent Limitations with Receiving Water Characteristics

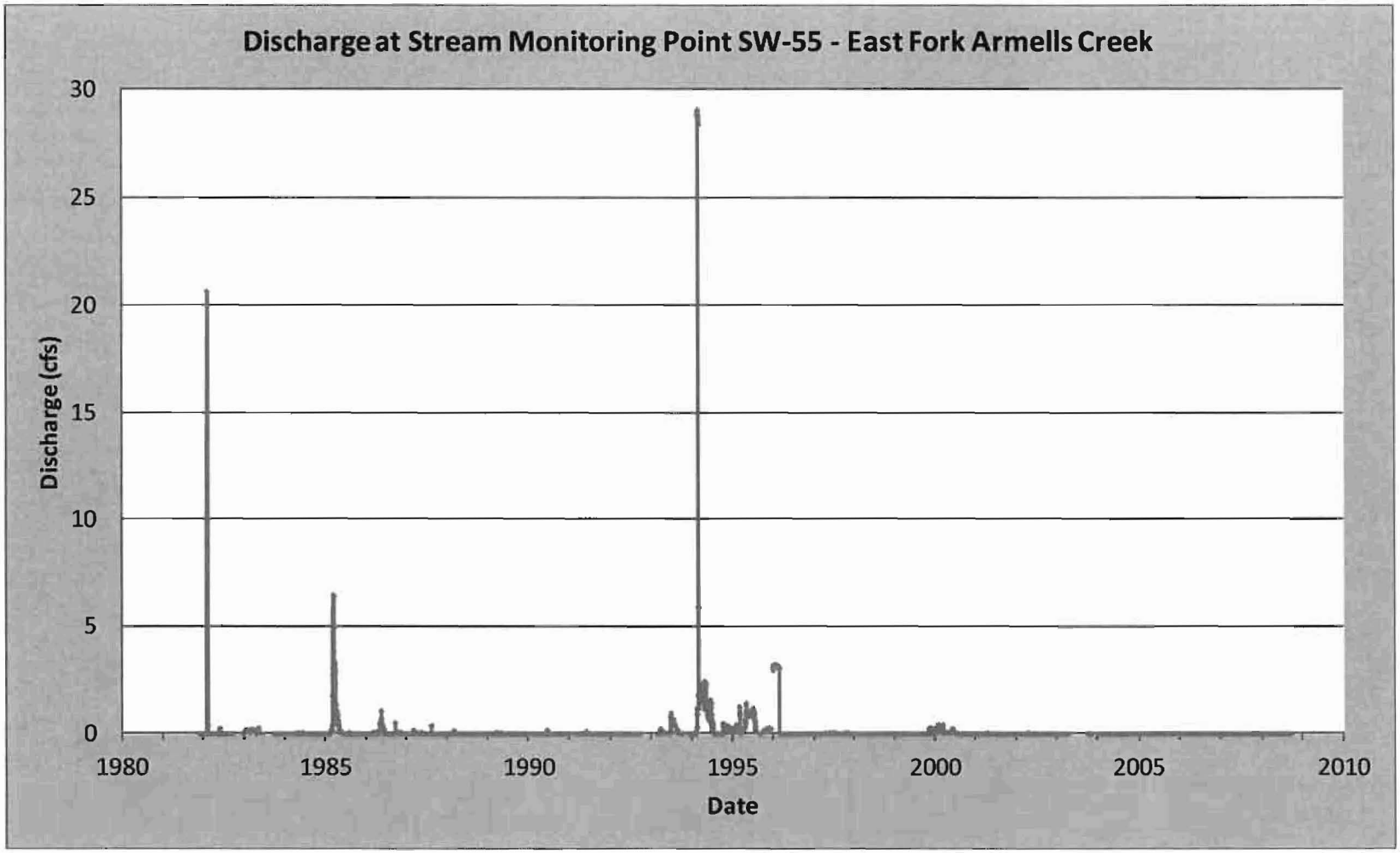
	Receiving Water Characteristics (a) Maximum Value (mg/L)	Effluent Limitations (b) Maximum Daily (mg/L)	
		East Fork Armells Creek	Stocker Creek
TDS	5340	4500	5925
TSS	50350	70	70
SS (mL/L) [c]	66.7	0.5 (a)	0.5 (a)
Boron, Dissolved	0.5		
Boron, Total	0.6	1.1	1.5
Dissolved Aluminum	12	0.127	0.127
Total Copper	0.3	0.0088	0.0088
Total Iron	326	1.61	1.61
Total Selenium	0.005	0.0073	0.0073
Sulfate	2870	3075	3600

Notes

(a) Source: Appendix IV, Receiving Water Characteristiscs: East Fork Armells, West Fork Armells, Stocker, Donley and Black Hank Creeks

(b) Source: Table FS-21 and FS-23, Summary of Final Effluent Limitations

(c) Source: Tables FS-28 and FS-30 Alternate Final Effluent Limitations - Precipitation Events



Stream monitoring point SW-55 is located on East Fork Armells Creek near the southeastern corner of Area A. The points at the bottom of the graph represent no-flow conditions.

Date: 06/12/12 figure C-1.cvx	NICKLIN EARTH & WATER, INC.	**East Fork Armells Creek Discharge** **Western Energy Rosebud Mine**	**Figure C-1**

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW OF THE STATE OF MONTANA

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, MT.	**CASE NO. BER 2012-12 WQ**

FIRST PREHEARING ORDER

Mr. W. Anderson Forsythe, Counsel for Western Energy Company (Appellant), has filed a "Notice of Appeal and Request for Hearing and Request for Stay" regarding the Department of Environmental Quality's (Department) MPDES Permit No. MT-0023965, dated September 14, 2012 (effective November 1, 2012), issued for Appellant's Rosebud Mine in Colstrip, Montana. The following guidelines and rules are provided to assist the parties in an orderly resolution of this contested case.

1. REFERENCES: This matter is governed by the Montana Administrative Procedure Act, Contested Cases, Mont. Code Ann. Tit. 2, ch. 4, pt. 6, and Mont. Admin. R. 17.4.101, by which the Board of Environmental Review (Board) has adopted the Attorney General's Model Rules for contested cases, Mont. Admin. R. 1.3.211 through 1.3.225, and by Mont. Code Ann. Tit. 75, Ch. 5, pts. 6.

2. FILING: Except for discovery requests and responses (which are not routinely filed), **original** documents shall be sent for filing with the Board, addressed as follows:

MS. JOYCE WITTENBERG
Secretary, Board of Environmental Review
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

One **copy** of each document that is filed should be sent to the Hearing Examiner addressed as follows:

KATHERINE J. ORR
Hearing Examiner
Agency Legal Services Bureau
1712 Ninth Avenue
P.O. Box 201440
Helena, MT 59620-1440

Although discovery documents are not normally filed, when a motion or brief is filed making reference to discovery documents, the party filing the motion or brief should also attach the relevant discovery documents.

3. SERVICE: Copies of all documents filed with the Board and provided to the Hearing Examiner, including correspondence, must be served upon the opposing party. A certificate of service should be provided.

4. EX PARTE COMMUNICATIONS: The Montana Administrative Procedure Act in Mont. Code Ann. § 2-4-613, and the Attorney General's Model Rule 18 in Mont. Admin. R. 1.3.222, prohibit *ex parte* communications with a hearing examiner concerning any issue of fact or law in a contested case. In addition to observing this rule, please contact the opposing party before you communicate with the undersigned Hearing Examiner, even on purely procedural matters such as the need for a continuance.

5. SCHEDULING: The parties are requested to consult with each other and propose to the undersigned a schedule upon which they agree by **November 28, 2012**. The schedule should include the following dates:

(a) for joinder/intervention of additional parties;

(b) for disclosure by each party to the other parties of: (1) the name and address of each individual likely to have discoverable information that the disclosing party may use to support its claims or defenses; and, (2) a copy of, or a description by category and location of, all documents and tangible things that are in

the possession, custody, or control of the disclosing party and that the disclosing party may use to support its claims or defenses;

(c) for completion of discovery (if any party wishes to conduct discovery);

(d) for exchange of lists of witnesses and copies of documents that each party intends to offer at the hearing;

(e) for submitting any motions and briefs in support;

(f) for a prehearing conference to hear argument on any motions and resolve other prehearing matters; and,

(g) for the contested case hearing, as well as the place of hearing.

DATED this 8th day of November, 2012.

KATHERINE J. ORR
Hearing Examiner
Agency Legal Services Bureau
1712 Ninth Avenue
P.O. Box 201440
Helena, MT 59620-1440

CERTIFICATE OF SERVICE

I hereby certify that I caused a true and accurate copy of the foregoing First Prehearing Order to be mailed to:

Joyce Wittenberg
Secretary, Board of Environmental Review
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901
(original)

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

Paul Skubinna, Acting Bureau Chief
Water Protection Bureau
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

W. Anderson Forsythe
Moulton Bellingham PC
27 North 27th Street, Suite 1900
P.O. Box 2559
Billings MT 59103-2559

DATED: November 8, 2012

Montana Department of
ENVIRONMENTAL QUALITY

MEMO

TO: Katherine Orr, Hearing Examiner
Board of Environmental Review

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

DATE: November 14, 2012

SUBJECT: Board of Environmental Review case, Case No. BER 2012-13 SW

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW

OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE MONTANA SOLID WASTE MANAGEMENT ACT BY ASPHALT PLUS, LLC, A CORPORATION, AND MICHAEL C. AND MELINDA M. OEDEKOVEN, AS INDIVIDUALS, AT 425 JOHNSON LANE, BILLINGS, YELLOWSTONE COUNTY, MONTANA. [FID #2199, DOCKET NO. SW-12-02]	Case No. BER 2012-13 SW

TITLE

BER has received the attached request for hearing. Also attached is DEQ's administrative document relating to this request (Enforcement Case FID #2199, Docket No. SW-12-02).

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

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

John Arrigo, Administrator
Enforcement Division
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Attachments

BER 2012-13 SW

11-9-12

Filed with the
MONTANA BOARD OF
ENVIRONMENTAL REVIEW
This 13th day of November, 2012
at _____ o'clock ____ .m.
By: Misty Cross

Melinda and Michael Oedekoven
425 Johnson Ln.
Billings, MT 59101

Board Secretary
Board of Environmental Review
PO Box 200901
Helena, MT 59620-0901

RE: Docket No. SW-12-02 (FID 2199)

Dear Board Secretary,

Please consider this letter as a written request to appeal the Notice of Violation and Administrative Compliance Order under Section 75-10-227, MCA and to request a hearing before the Montana Board of Environmental Review.

Thank you,

Melinda Oedekoven

Melinda Oedekoven

BEFORE THE DEPARTMENT OF ENVIRONMENTAL QUALITY

OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE MONTANA SOLID WASTE MANAGEMENT ACT BY ASPHALT PLUS, INC., A CORPORATION, AND MICHAEL C. AND MELINDA M. OEDEKOVEN, AS INDIVIDUALS, AT 425 JOHNSON LANE, BILLINGS, YELLOWSTONE COUNTY, MONTANA. (FID #2199)	NOTICE OF VIOLATION AND ADMINISTRATIVE COMPLIANCE ORDER Docket No. SW-12-02

I. NOTICE OF VIOLATION

Pursuant to the authority of Section 75-10-221(1), Montana Code Annotated (MCA), the Department of Environmental Quality (Department) hereby gives notice to Asphalt Plus, Inc. and Michael and Melinda Oedekoven (collectively referred to hereafter as "Respondents") of the following Findings of Fact and Conclusions of Law with respect to violations of the Montana Solid Waste Management Act (SWMA), Title 75, chapter 10, part 221, MCA, and its implementing rules, the Administrative Rules of Montana (ARM) Title 17, chapter 50.

II. FINDINGS OF FACT AND CONCLUSIONS OF LAW

The Department hereby makes the following Findings of Fact and Conclusions of Law:

1. The Department is an agency of the executive branch of government of the State of Montana, created and existing under the authority of Section 2-15-3501, MCA.

2. The Department administers the SWMA.

3. The Department is authorized to issue this Notice of Violation and Administrative Compliance Order (Order) to address the violation of the SWMA alleged herein, and to require corrective actions to resolve the violation. *See* Section 75-10-227, MCA.

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4. Michael C. and Melinda M. Oedekoven (Oedekovens) are natural persons and Asphalt Plus, Inc (Asphalt Plus) is a close corporation registered with the State of Montana. Both parties, therefore, meet the definition of, a "person" as defined in Section 75-10-203, MCA, and ARM 17.50.502(30).

5. The Oedekovens are principals of Asphalt Plus.

6. The Oedekovens own or control, either themselves or through Asphalt Plus, real property at 425 Johnson Lane, Yellowstone County, Montana (the Property).

7. The Property contains a drainage area and is adjacent to the Lockwood Irrigation Ditch.

8. "Solid waste management system" means any system that controls the storage, treatment, recycling, recovery, or disposal of solid waste. *See* Section 75-10-203(12), MCA.

9. "Solid waste" means all putrescible and nonputrescible wastes including, but not limited to, garbage; rubbish; refuse; ashes; sludge from sewage treatment plants, water supply treatment plants, or air pollution control facilities; construction and demolition wastes; dead animals, including offal; discarded home and industrial appliances; and wood products or wood byproducts and inert materials. *See* ARM 17.50.403(45). Group IV solid waste includes construction and demolition waste, and asphalt, except regulated hazardous wastes. *See* ARM 17.50.503(1)(c), MCA.

10. "Dispose or disposal" means the discharge, injection, deposit, dumping, spilling, leaking, or placing of any solid waste into or onto the land so that the solid waste or any constituent of it may enter the environment or be emitted into the air or discharged into any waters, including ground water. *See* ARM 17.50.403(8).

11. "Storage" means the actual or intended containment of waste, either on a temporary basis or for a period of years. *See* ARM 17.50.403(50).

Operating a solid waste management system without a license

12. Except for the exclusions provided in Section 75-10-214, MCA, a person may not dispose of solid waste or operate a solid waste management system without a license from the Department. *See* Section 75-10-221(1), MCA. None of the exceptions provided by Section 75-10-214, MCA, apply to these findings of fact. Therefore, Respondents are subject to the requirements of Section 75-12-221(1), MCA.

13. Respondents have not applied for and they do not have a solid waste management license issued by the Department to operate a Solid Waste Management System and store or dispose of solid waste.

14. Waste asphalt is a Group IV solid waste. *See* ARM 17.50.503(c).

15. In response to a citizen complaint, the Department conducted a field investigation of the Property on August 19, 2011. The Department observed piles of waste asphalt on the Property and waste asphalt mixed with dirt (fill) in the drainage on the Property.

16. On December 9, 2011, the Department sent Respondents a letter notifying them of conditions on the Property that appeared to violate the SWMA. In addition, the letter requested that Respondents remove waste asphalt from the drainage and the fill and store it in a separate pile on the Property. The letter also requested Respondents to submit a plan for the intended use of the waste asphalt on a road planned for the Property by June 30, 2012.

17. On June 5, 2012, the Department sent Respondents a letter to reiterate the requests set out in the December 9, 2011 letter, and to clarify that waste asphalt did not have to be milled prior to use on the road. The June 5, 2012 letter also stated that if the waste asphalt was not used on the road or removed and properly disposed by June 30, 2012, they would be in violation of the SWMA and be subject to formal enforcement and penalties.

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18. On July 12, 2012, the Department conducted a field investigation to determine if Respondents had used the waste asphalt on a road on the Property of if the waste asphalt had been removed and properly disposed by the June 30, 2012 deadline. The Department observed piles of waste asphalt on the Property, waste asphalt in fill in the drainage, and waste asphalt in the Lockwood Irrigation Ditch adjacent to the Property.

19. On July 18, 2012, the Department sent a violation letter to notify Respondents that they were operating a solid waste management system without a license by storing and disposing of waste asphalt on the Property.

20. The accumulation of waste asphalt in piles on the Property constitutes the storage of solid waste. Piles of waste asphalt on the Property, waste asphalt mixed in fill in the drainage, and waste asphalt in the Lockwood Irrigation Ditch adjacent to the Property, constitute the disposal of solid waste. The disposal and storage of waste asphalt on the Property is considered evidence of operating a solid waste management system.

21. Respondents do not have a license issued by the Department to operate a solid waste management system.

22. Respondents are in violation of the SWMA, Section 75-10-212(1), MCA, by operating a solid waste management system on the Property without a license.

III. ADMINISTRATIVE ORDER

This Order is issued to Respondents pursuant to the authority vested in the State of Montana, acting by and through the Department under the SWMA, Section 75-10-201, *et seq.*, MCA, and its implementing administrative rules, ARM Title 17, chapter 50. Based on the foregoing Findings of Fact and Conclusions of Law and the authority cited above, the Department hereby ORDERS Respondents to do the following:

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23. Upon receipt of this Order, Respondents shall cease storage or disposal of any additional waste asphalt brought onto the Property.

24. Within 60 days from receipt of this Order, Respondents shall remove all waste asphalt buried within the fill in the drainage. Waste asphalt removed from the fill must be either stockpiled on the Property in a separate pile or disposed of at an appropriately licensed solid waste management facility. Copies of photos taken during the removal that document all waste asphalt has been removed must be submitted to the Department. If the waste asphalt is disposed of at a licensed facility, copies of disposal receipts must be submitted to the Department within 10 days of the completion of disposal. Respondents shall contact John Arrigo at 406-444-5327 five days before the removal is to begin. Photographs and receipts must be sent to:

John L. Arrigo, Administrator
DEQ Enforcement Division
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901
Email: jarrigo@mt.gov

25. No later than 90 days after receipt of this Order, Respondents shall complete one of the following corrective actions:

a. Remove all the piles of waste asphalt on the Property, including waste asphalt in the Lockwood Irrigation Ditch, and the waste asphalt contained in the drainage fill and dispose the asphalt at an appropriately licensed solid waste management facility. Respondents shall send copies of disposal receipts to the Department at the address in Paragraph 24 within 10 days of the completion of disposal; or

b. Submit a complete application to the Department for a Class IV Solid Waste Landfill License or a Resource Recovery License; or

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c. Contact Rick Thompson of the Department's Solid Waste Section at 406-444-5345 and submit a written request for a Beneficial Use Determination that is satisfactory to the Department. If it is determined that Respondents can beneficially use waste asphalt, a license will not be required.

26. Failure to take the required corrective actions by the specified deadlines, as ordered herein, constitutes a violation of the SWMA, and may result in the Department seeking a court order assessing civil penalties of up to $1,000 per day of violation pursuant to Section 75-10-228, MCA.

27. None of the requirements in this Order are intended to relieve Respondents from complying with all applicable state, federal, and local statutes, rules, ordinances, orders, and permit conditions.

28. The Department may take any additional enforcement action against Respondents, including injunctive relief, civil penalties, and other available relief for any violation of, or failure or refusal to comply with, this Order.

IV. NOTICE OF APPEAL RIGHTS

29. Respondents may appeal this Order under Section 75-10-227, MCA, by filing a written request for a hearing before the Montana Board of Environmental Review no later than 30 days after service of this Order. Service by mail is complete on the date of mailing. Any request for a hearing must be in writing and sent to:

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

30. Hearings are conducted as provided in the Montana Administrative Procedure Act, Section 2-4-601, *et seq.*, MCA. Hearings are normally conducted in a manner similar to

court proceedings, with witnesses being sworn and subject to cross-examination. Proceedings prior to the hearing may include formal discovery procedures, including interrogatories, requests for production of documents, and depositions. The Oedekovens have the right to be represented by an attorney in all proceedings. *See* ARM 1.3.231(1). Because Asphalt Plus is not an individual, Asphalt Plus must be represented by an attorney in any contested case hearing. *See* ARM 1.3.231(2) and Section 37-61-201, MCA.

31. If a hearing is not requested within 30 days after service of this Order, the opportunity for a contested case appeal is waived.

32. This Order becomes effective upon signature of the Director of the Department or his designee. Service is complete on the date of mailing.

IT IS SO ORDERED:

DATED this 12th day of October, 2012.

STATE OF MONTANA
DEPARTMENT OF ENVIRONMENTAL QUALITY

John L. Arrigo

JOHN L. ARRIGO, Administrator
Enforcement Division

BEFORE THE BOARD OF ENVIRONMENTAL REVIEW
OF THE STATE OF MONTANA

IN THE MATTER OF: VIOLATIONS OF THE MONTANA SOLID WASTE MANAGEMENT ACT BY ASPHALT PLUS, LLC, A CORPORATION, AND MICHAEL C. AND MELINDA M. OEDEKOVEN, AS INDIVIDUALS, AT 425 JOHNSON LANE, BILLINGS, YELLOWSTONE COUNTY, MONTANA. [FID #2199, DOCKET NO. SW-12-02]	**CASE NO. BER 2012-13 SW**

FIRST PREHEARING ORDER

On November 13, 2012, Ms. Melinda Oedekoven, on behalf of Asphalt Plus, LLC, a corporation, and Michael C. and Melinda M. Oededoven, individuals (hereafter "Appellants"), filed a notice of appeal and request for hearing appealing the Notice of Violation and Administrative Compliance Order, Docket No. SW-12-02, issued by the Department of Environmental Quality (Department) on October 12, 2012 relating to property located at 425 Johnson Lane in Billings, Montana.

The following guidelines and rules are provided to assist the parties in an orderly resolution of this matter.

1. REFERENCES: This matter is governed by the Montana Administrative Procedure Act, Contested Cases, Mont. Code Ann. Tit. 2, ch. 4, pt. 6, and Mont. Admin. R. 17.4.101, by which the Board of Environmental Review (Board) has adopted the Attorney General's Model Rules for contested cases, Mont. Admin. R. 1.3.101, 1.3.102, 1.3.201 through 1.3.233, and by Mont. Code Ann. Tit. 75, ch. 10, pt. 2.

2. FILING: Except for discovery requests and responses (which are not routinely filed), **original** documents shall be sent for filing with the Board, addressed as follows:

MS. JOYCE WITTENBERG
Secretary, Board of Environmental Review
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901

One **copy** of each document that is filed should be sent to the Hearing Examiner addressed as follows:

KATHERINE J. ORR
Hearing Examiner
Agency Legal Services Bureau
1712 Ninth Avenue
P.O. Box 201440
Helena, MT 59620-1440

Although discovery documents are not normally filed, when a motion or brief is filed making reference to discovery documents, the party filing the motion or brief should also attach the relevant discovery documents.

3. SERVICE: Copies of all documents filed with the Board and provided to the Hearing Examiner, including correspondence, must be served upon the opposing party. A certificate of service should be provided.

4. EX PARTE COMMUNICATIONS: The Montana Administrative Procedure Act in Mont. Code Ann. § 2-4-613, and the Attorney General's Model Rule 18 in Mont. Admin. R. 1.3.222, prohibit *ex parte* communications with a hearing examiner concerning any issue of fact or law in a contested case. In addition to observing this rule, please contact the opposing party before you communicate with the undersigned, even on purely procedural matters such as the need for a continuance.

5. SCHEDULING: The parties are requested to consult with each other and propose a schedule upon which they agree to the undersigned by **December 11, 2012**. The schedule should include the following dates:

(a) for joinder/intervention of additional parties;

(b) for disclosure by each party to the other parties of: (1) the name and address of each individual likely to have discoverable information that the disclosing party may use to support its claims or defenses, and, (2) a copy of, or a description by category and location of, all documents and tangible things that are in the possession, custody, or control of the disclosing party and that the disclosing party may use to support its claims or defenses;

(c) for completion of discovery (if any party wishes to conduct discovery);

(d) for exchange of lists of witnesses and copies of documents that each party intends to offer at the hearing;

(e) for submitting any motions and briefs in support;

(f) for a prehearing conference to hear argument on any motions and resolve other prehearing matters; and,

(g) for the contested case hearing, as well as the place of hearing.

6. If the parties are unable to agree upon the date for any item set forth in the preceding paragraph, the undersigned may set a schedule.

7. Appellant Asphalt Plus, LLC must be represented by counsel pursuant to the case of Weaver v. Law Firm of Graybill, Ostrem, Warner & Crotty, 246 Mont. 175, 803 P.2d 1089 (1990) and Mont. Code Ann. § 37-61-201 and Mont. Code Ann. § 37-61-210.

DATED this 21st day of November, 2012.

KATHERINE J. ORR
Hearing Examiner
Agency Legal Services Bureau
1712 Ninth Avenue
P.O. Box 201440
Helena, MT 59620-1440

CERTIFICATE OF SERVICE

I hereby certify that I caused a true and accurate copy of the foregoing First Prehearing Order to be mailed to:

Ms. Joyce Wittenberg
Secretary, Board of Environmental Review
Department of Environmental Quality
1520 East Sixth Avenue
P.O. Box 200901
Helena, MT 59620-0901
(original)

Mr. Dana David
Legal Counsel
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Mr. John Arrigo
Administrator, Enforcement Division
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Melinda and Michael Oedekoven
425 Johnson Ln.
Billings, MT 59101

DATED: November 21, 2012