Voluntary Cleanup and Redevelopment Act Application Guide

January 2020

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Voluntary Cleanup Plan Preparation Guidance

Purpose:	The purpose of this document is to assist potential voluntary cleanup applicants in meeting the requirements outlined in the Voluntary Cleanup and Redevelopment Act (VCRA).
Scope:	This guidance identifies the requirements of VCRA and provides information applicable to preparation of the two components to the voluntary cleanup plan (VCP): the Environmental Assessment VCP and the Remediation Proposal VCP.

Revision Date	Revision Description
April 1997	Original VCRA Checklist
August 2002	Checklist to guidance document update
March 2012	Legislative changes to VCRA update
May 2018	General information and clarification update
January 2020	Revised information to reflect 2019 legislative changes to VCRA; update references

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LIST OF ACRONYMS

ARM – Administrative Rules of Montana
CECRA – Comprehensive Environmental Cleanup and Responsibility Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
CFR – Code of Federal Regulations
COC – contaminant of concern
DAF – dilution attenuation factor
DEQ – Montana Department of Environmental Quality
DEQ-7 – Montana Numeric Water Quality Standards Circular DEQ-7
EPA – U.S. Environmental Protection Agency
ERCLs – environmental requirements, criteria, or limitations
IC – Institutional control
MCA – Montana Code Annotated
MCL – federal Maximum Contaminant Level
O&M – operation and maintenance
QA/QC – Quality assurance/quality control
RAGS – Risk Assessment Guidance for Superfund
RBCA – Risk-Based Corrective Action
RBSL – Risk-Based Screening Level
RCRA – Resource Conservation and Recovery Act
RSL – EPA Regional Screening Level
SCEM – site-conceptual exposure model
SSL – EPA Soil Screening Level
SSU – State Superfund Unit
VCP – Voluntary Cleanup Plan
VCRA – Voluntary Cleanup and Redevelopment Act

BACKGROUND

The State of Montana has many facilities where soil, surface water, sediment, air, or groundwater have become contaminated. These facilities can range in size from small spills involving a few square feet of surface contamination to facilities where contaminants have impacted several square miles of land. The Montana Department of Environmental Quality (DEQ) oversees cleanup of most of these facilities.

Assuming the facility is not being addressed by another regulatory program such as DEQ's Hazardous Waste Program, there are two ways under Montana's state Superfund law to address a facility. Both ways must fulfill all the requirements found in the Comprehensive Environmental Cleanup and Responsibility Act (CECRA) § 75-10-701 through § 75-10-757, MCA§

1) The more traditional method is where the cleanup of a facility is actively managed by DEQ's State Superfund Unit (SSU).

2) The voluntary process was established in 1995 by the Voluntary Cleanup and Redevelopment Act (VCRA) §§ 75-10-730 through 75-10-738, MCA, with less active management by DEQ's SSU.

DEQ prepared this guide to assist potential applicants in meeting the requirements outlined in VCRA. The legislature intended this voluntary program provide for the protection of the public health, welfare, and safety, and of the environment; foster the cleanup, transfer, reuse, or redevelopment of facilities; permit and encourage voluntary cleanup of facilities; encourage and facilitate prompt cleanup activities; eliminate impediments to the sale or redevelopment of facilities where releases or threatened releases of hazardous or deleterious substances exist; and minimize administrative processes and costs (Section 75-10-731, MCA).

A Voluntary Cleanup Plan (VCP) is comprised of two components:

1) The Environmental Assessment – The Environmental Assessment discusses the environmental and regulatory setting and requirements, past and current facility, and operational and regulatory history; and presents methods and results of investigations completed at the facility. CECRA defines the facility to include "any site or area where a hazardous or deleterious substance has been deposited, stored, disposed of, placed, or otherwise come to be located." Therefore, it is critical to completion of the VCP to adequately investigate and identify the nature and extent of contamination on the entire facility, which not only includes the properties where the source area(s) are located, but also includes any adjoining or nearby property that may have been impacted by the release. Historically, DEQ deemed many VCPs incomplete due to the VCP applicant focusing only on the area of known contamination and not investigating other areas that may be impacted at the facility. The Environmental Assessment is discussed further in Section 2.0 of the VCRA Guide.

2) The Remediation Proposal – Once DEQ determines that the Environmental Assessment is complete, the VCP applicant may submit a Remediation Proposal for DEQ review. The Remediation Proposal addresses how the facility will be remediated so that it will be protective of public health, safety, and welfare, and the environment; and meet applicable or relevant state

and federal environmental requirements, criteria, or limitations (ERCLs). The Remediation Proposal is discussed further in Section 3.0 of the VCRA Guide.

A flowchart outlining the VCRA process is provided in Figure 1.

Purpose

DEQ prepared this guide to assist VCP applicants in meeting the requirements outlined in VCRA. This guide identifies the requirements of VCRA and provides a suggested format for VCPs. The primary target audience for this guide is the qualified environmental professional who is preparing the VCP. However, the guide is also designed to provide information to all applicants or potential applicants regarding the VCRA process.

This guide is presented in five sections: 1) the Introduction; 2) the Environmental Assessment; 3) the Remediation Proposal; 4) Completion of the VCP; and 5) the References. Sections 2.0 and 3.0 of the guide are meant to represent sections of the VCP. VCPs that follow this format are more likely to contain the information necessary for DEQ to determine both components of a VCP are complete under VCRA. Section 4 identifies what is needed for completing and closing the VCP and Section 5 addresses references to include in the VCP. This guide is also available on DEQ's website at http://deq.mt.gov/Land/statesuperfund/vcraguide and can be provided in alternative formats if requested.

Adherence to the requirements outlined in VCRA is mandatory; however, adherence to this guide is not. This guidance does not create any requirements or obligations on the regulated community. These recommendations do not supersede any statutory or regulatory requirements, are subject to change, and are not independently binding on DEQ. Additionally, if a conflict exists between this guidance and the statutory or regulatory requirements, the conflict must be resolved in favor of the statute or regulation. DEQ has developed this guidance using its scientific and technical expertise, a review of relevant Montana-specific information, as well as other technical documents.

A VCP must include the information specified in § 75-10-734, MCA, and be adequate and accurate for DEQ to consider it complete. Applicants must provide enough information in sufficient detail for DEQ to make a completeness determination. The type and amount of information provided in a VCP is facility-specific. DEQ recognizes that certain types of information may not be relevant or essential to a particular facility. However, where VCRA specifies legal requirements of a VCP, those requirements must be met for the VCP to be complete. If certain information is not applicable to the facility, the VCP should include an explanation as to how or why identified information is not applicable.

Helpful Information

In the past, DEQ has determined many VCPs incomplete because of a lack of detail. DEQ encourages the applicant to consult with DEQ when questions arise about the type and level of detail required before submitting the VCP to DEQ for review. DEQ maintains examples of approved VCPs in its records, which are available upon request. Additional information can be found at DEQ's VCRA website at http://deq.mt.gov/Land/StateSuperFund/vcra including links to Frequently Asked Questions (FAQs), regulations, and an online searchable mapper/database service. If some information is unobtainable, the applicant must clearly document all attempts to obtain the required information. If

DEQ determines a VCP component incomplete, it is in the best interest of the applicant to revise the document as quickly as possible to help ensure conditions have not changed at the facility.

- **Checklist** – A checklist is attached to assist the applicant in providing the level of detail required to determine a VCP complete. Appendix A provides the checklist.

- **Frequently Asked Questions** – Prior to starting the Environmental Assessment, DEQ recommends that the qualified environmental professional become familiar with DEQ's FAQs found at the following webpage: http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions. Topics addressed range from soil sampling requirements to examples of restrictive covenants.

Submittals

To facilitate DEQ's 30-day review, the applicant should submit two hard copies and a CD containing a modifiable electronic format copy, and a compiled searchable PDF version of each VCP component. In order to expedite DEQ's review and minimize costs to the applicant in revising the VCP components, DEQ will provide its comments via redline/strikeout to the extent practical. In some instances, revisions may be submitted using replacement pages when appropriate, which minimizes reproduction costs. Therefore, VCP submittals should be submitted in three-ring binders or comb-binders, rather than spiral binding.

Letter of Intent to Submit a VCP

An applicant may submit a letter to DEQ stating its intent to submit a VCP and agree to pay DEQ's costs prior to submittal of a VCP to allow more meaningful up-front interaction between DEQ and an applicant prior to submittal of a VCP. Potential reasons to submit a letter of intent to DEQ include: 1) DEQ may be able to develop a greater understanding of the facility specifics (assuming information is available to develop that understanding), and 2) it will allow DEQ to provide more assistance with facility-specific questions.

DEQ's involvement in preparation of a VCP prior to submittal will be limited for those applicants that choose not to submit a letter of intent and agree to pay DEQ's costs. In those cases, DEQ's assistance will be limited to addressing program-specific and process-specific questions posed by applicants or consultants. However, applicants who choose not to submit the letter of intent are still encouraged to contact DEQ during preparation of a VCP to receive tips for preparation of a successful VCP.

1.0 INTRODUCTION TO VOLUNTARY CLEANUP

1.1 VCP Submittal

Section 75-10-733(1), MCA, allows any person to submit an application for the approval of a VCP to DEQ under the provisions of VCRA for any eligible facility with a release or threatened release of a hazardous or deleterious substance, regardless of whether or not the facility is on the CECRA Priority List. The statutory exceptions are discussed in Section 1.4.

1.2 Liability Protection

As stated in § 75-10-736(13), MCA, if a person who would otherwise not be a liable person under § 75-10-715(1), MCA, elects to undertake a voluntary cleanup under VCRA, the person may not become a liable person under § 75-10-715(1), MCA, by undertaking a voluntary cleanup if the person materially complies with the VCP approved by DEQ pursuant to VCRA. However, § 75-10-736(14), MCA, indicates that immunity from liability under this section does not apply to a release that is caused by conduct that is negligent or grossly negligent or that constitutes intentional misconduct. In addition, if a person is liable under § 75-10-715(1), MCA, conducting a voluntary cleanup under VCRA does not change that liability.

1.3 Eligibility

Section 75-10-732(1), MCA, provides that a facility where there has been a release or threatened release of a hazardous or deleterious substance that may present an imminent and substantial endangerment to the public health, welfare, and safety, and of the environment may be eligible for voluntary cleanup procedures under VCRA. A potential imminent and substantial endangerment to public health, welfare, and safety, and of the environment generally means contaminant concentrations in the environment exist or have the potential to exist above risk-based screening levels (See ARM 17.55.102). DEQ-approved generic screening levels are discussed in Section 2.9.2 of this guide.

Under § 75-10-732(1), MCA, the following facilities are **not** eligible to be addressed under VCRA:

- **a)** A facility that is listed or proposed for listing on the national priorities list pursuant to 42 U.S.C. 9601, *et seq*.;
- **b)** A facility for which an order has been issued or consent decree has been entered into pursuant to CECRA;
- **c)** A facility that is the subject of an agency order or an action filed in district court by any state agency that addresses the release or threatened release of a hazardous or deleterious substance;
- **d)** A facility where the release or threatened release of a hazardous or deleterious substance is regulated by the Montana Hazardous Waste Act (§ 75-10-401 through 451, MCA and ARM 17.53 sub chapters 1 through 15) and regulations under that act; or
- **e)** A facility that is the subject of pending action under CECRA (§ 75-10-701, *et seq*., MCA) because the facility has been issued a notice commencing a specified period of negotiations on an administrative order on consent.

1.4 Eligibility Exceptions

Two exceptions to the general eligibility requirements discussed in Section 1.3 are included in § 75-10-732, MCA.

First, DEQ has discretion as to whether to accept and approve an application for a VCP for a facility that falls within criteria (b) through (e). Second, DEQ may determine that a facility qualifying under the eligibility criteria for voluntary cleanup would be better addressed under an administrative order or consent decree due to complexities regarding protection of public health, welfare, and safety, and of the environment. Examples of facilities that may be too complex for voluntary cleanup include those with extensive groundwater or free product contamination. However, DEQ would make this determination after reviewing the relevant, specific facts for a particular facility.

If a potential applicant disagrees with DEQ's decision to reject the filing of a VCP application because DEQ deems the facility ineligible for voluntary cleanup, the applicant may appeal to the Board of Environmental Review within 30 days of receipt of DEQ's decision.

1.5 Time Limitations

Only facilities that can be remediated within 60 months (120 months for groundwater remediation), excluding operation and maintenance (O&M), can be addressed through VCRA (§ 75-10-736(6), MCA). This typically excludes facilities with extensive groundwater contamination.

1.6 Phased VCPs

Section 75-10-733(4), MCA, indicates that DEQ may approve a VCP that provides for phases of remediation or that addresses only a portion of the facility. The Remediation Proposal of the VCP should clearly state whether the VCP addresses the entire facility or only a portion of the facility. Phased VCPs can either address specific areas (such as a particular parcel of property) or media (such as just soil or just groundwater). If only a portion of the facility is being addressed by the VCP, a statement should be included stating how the remainder of the facility will be addressed. In addition, this section should reference any previous VCPs upon which the current VCP relies. To the extent that the original Environmental Assessment required under § 75-10-734, MCA, remains pertinent for subsequent phases of remediation, the applicant may rely on that assessment when submitting subsequent Remediation Proposals. The applicant should reference the original Environmental Assessment in the later Remediation Proposal and identify its continued applicability to the current project. If the original Environmental Assessment no longer represents facility conditions, please coordinate with DEQ prior to submittal of the Remediation Proposal.

1.7 "No Further Action" VCPs

Generally, a VCP is submitted and DEQ approval of the cleanup plan is obtained prior to cleanup being conducted. On occasion, a VCP applicant conducts cleanup without the benefit of an approved VCP and then seeks a determination from DEQ that "no further action" is needed at the facility.

There are at least two situations where DEQ approval of a "no further action" VCP is necessary to obtain a DEQ closure letter and, if applicable, a delisting from the CECRA Priority List:

- a facility where cleanup has occurred outside of a legal order, consent decree, or without formal DEQ oversight; and

- a facility that relies on a facility-specific risk analysis/assessment (as opposed to comparison to generic screening levels discussed in Section 2.9.2) to determine that cleanup is not necessary.

A "no further action" VCP must meet all the requirements of VCRA; however, some requirements may not be as extensive (e.g., alternatives analysis) as a VCP requiring cleanup action. In particular, the public participation requirements of VCRA still apply.

If "no further action" is proposed for a facility where cleanup has occurred, the Environmental Assessment should describe the work that was performed and explain the current conditions at the facility. Confirmation sample results are key to demonstrating that the previous cleanup meets DEQ's requirements for a final cleanup, and should be provided in the VCP.

1.8 Reimbursement of DEQ's Remedial Action Costs

Section 75-10-733(3), MCA, states that the applicant shall reimburse DEQ for any remedial action costs the State incurs in the review and oversight of a VCP. This section of the VCP should include a statement that the applicant agrees to reimburse DEQ for incurred costs for review of the VCP and oversight of remedial actions. It is not possible to identify with specificity the amount of DEQ's oversight costs. DEQ costs have ranged from $2,000 to $100,000 depending upon the number of VCP submittals required and the complexity of the facility and cleanup actions proposed. "No further action" VCPs generally have lower oversight costs than VCPs requiring cleanup. As provided for in § 75-10-738(2)(c), MCA, DEQ cannot issue a closure letter on a VCP until all billed costs associated with the VCP have been paid.

If the VCP applicant does not pay the State's remedial action costs when payment is due, as provided for in § 75-10-722, MCA, the applicant is also responsible for statutory interest on the overdue amount. In addition, DEQ may: (1) discontinue the review or approval process of the VCP; (2) void its approval of the VCP; and/or (3) take action to recover the outstanding remedial action costs (§ 75-10-733, MCA).

1.9 Voluntary Action to Preclude Remedial Action by DEQ

Section 75-10-737, MCA, provides that if a VCP applicant has elected to undertake an approved voluntary cleanup and is diligently proceeding to implement the VCP, DEQ may not, except as provided in § 75-10-712, MCA, take remedial action under § 75-10-711, MCA, with regard to those releases or threatened releases of hazardous or deleterious substances that are being addressed by the approved VCP.

1.10 VCP Preparation

Section 75-10-734(1), MCA, states that DEQ may only accept VCPs that are prepared by a qualified environmental professional. A qualified environmental professional is a person with education, training, and experience in preparing environmental studies and assessments. This section of the VCP should include information about who is preparing the VCP and reference an appendix that includes a statement of qualifications or resume for the environmental professional. Typically, applicants hire an environmental consultant to prepare the VCP and may have the same consultant conduct the cleanup. However, some applicants may have staff environmental professionals who are qualified to prepare a VCP, while others may have staff available to operate the equipment required to conduct the cleanup.

Please also see Section 1.15 regarding VCP closure and certification by a qualified environmental professional for additional relevant information.

1.11 DEQ Review

Section 75-10-736, MCA, outlines the VCP review process and time limits. Section 75-10-736, MCA, requires DEQ to review each component of the VCP for completeness, including adequacy and accuracy, and provide a written completeness notice to the applicant within 30 days after receipt of a VCP component. The completeness notice must note all deficiencies identified in the information submitted. To date, no VCP has been determined complete upon initial submittal. DEQ suggests that applicants plan for at least two submittals to DEQ. Section 75-10-736(5), MCA, states that consistent with the provisions of § 75-10-707, MCA, DEQ may access the facility during review of the application and implementation of the VCP to confirm information provided by the applicant and verify that the cleanup is being conducted consistent with the approved VCP.

1.12 Public Comment

Section 75-10-735, MCA, outlines the public participation requirements of VCRA. As stated in §§ 75-10-735 (1) and (2), MCA, upon determination by DEQ that both components of a VCP are complete, DEQ must publish a notice and brief summary of the VCP in a daily newspaper of general circulation in the area affected. DEQ must also make the VCP available to the public. There will only be one public notice that covers both components of a VCP. The notice must provide 30 days for submission of written comments to DEQ regarding the plan. DEQ shall conduct a public meeting at or near the facility regarding the proposed VCP upon written request by 10 or more persons, by a group composed of 10 or more members, or by a local governing body of a city, town, or county within the comment period. The meeting must be held within 45 days of DEQ's completeness determination. Section 75-10-735 (3), MCA, requires DEQ to consider and respond to relevant written or verbal comments submitted during the comment period or at the public meeting. Although not required by VCRA, DEQ may also request that local city/county health departments review VCPs to identify any concerns of the local community.

1.13 VCP Approval

Following the one public comment period covering both components of a VCP, DEQ may require changes to the VCP based on the comments received. As stated in § 75-10-736(3), MCA, DEQ has 60 days to provide formal written notification that the VCP has been approved or disapproved. As stated in § 75-10-736(6), MCA, DEQ shall approve a VCP if it meets the requirements specified in § 75-10-734, MCA, and will attain a degree of cleanup and control of hazardous or deleterious substances that complies with the requirements of § 75-10-721, MCA. DEQ may not approve a VCP that would take longer than 60 months to complete after DEQ approval (120 months to complete after DEQ approval for groundwater remediation), except for the period necessary for the O&M of the approved Remediation Proposal. Once DEQ approves the VCP, § 75-10-735, MCA requires DEQ to publish notice of its decision to approve the VCP and the reasons for any significant modification of the final VCP. The notice will be published in a daily newspaper of general circulation in the area affected and make the final VCP available to the public. Section 75-10-736(7), MCA, states that DEQ shall promptly provide the applicant with a written statement of the reasons for denial if DEQ does not approve a VCP. The applicant may appeal the denial to the Board of Environmental Review in accordance with the provisions of § 75-10-732(4), MCA, or the applicant may revise the VCP to address the reasons for its denial, followed by resubmittal of the VCP.

1.14 VCP Modification

Section 75-10-736(9), MCA, provides for amendment of approved VCPs. During VCP implementation, § 75-10-736(9) MCA, states that the applicant shall notify DEQ within 10 days of discovery of conditions that were not identified in the Environmental Assessment that affect the risk to public health, welfare, and safety, and of the environment, and change the scope of the approved plan. DEQ may require the applicant to submit an amendment to the approved VCP to address the unforeseen conditions or may determine that a VCP is no longer appropriate.

Section 75-10-736(10), MCA, outlines certain conditions that may result in DEQ voiding its approval of the VCP. Conditions that will render the VCP approval void include: (1) failure of the applicant or the applicant's agents to materially comply with the VCP approved by DEQ; (2) submission of materially misleading information by the applicant or the applicant's agents in the application or during implementation of the VCP; and (3) failure to report to DEQ within 10 days any new information regarding releases or threatened releases of hazardous or deleterious substances discovered during the application process or implementation of the VCP.

Examples of conditions that must be reported to DEQ and that may require a VCP amendment include but are not limited to: (1) the discovery of additional contaminated media; (2) the discovery of additional contaminated areas; (3) the discovery of a much greater volume of contaminated material than anticipated; (4) a change in the remedy or disposal facility; or (5) a change in the anticipated future use of the facility.

1.15 VCP Closure

As indicated in § 75-10-736(11), MCA, within 60 days after completion of the entire approved VCP, the applicant shall provide to DEQ a certification from a qualified environmental professional that the VCP has been fully implemented. This certification will include initiation of any required O&M and all documentation necessary to demonstrate the successful implementation of the plan, such as confirmation sampling or filed restrictive covenants, if necessary. This documentation should be provided in the form of a construction completion report including construction diagrams, disposal manifests, sampling results, figures showing confirmation sample locations, photographs of cleanup work, and any other documentation necessary for DEQ to determine whether the VCP has been fully implemented. Construction completion reports may only be submitted after all remedial actions are complete (including established revegetation). DEQ will not review construction completion reports for partially completed VCPs.

Sections 75-10-738(1) and (2), MCA, states the applicant may petition DEQ for closure of the facility after completion of the VCP. Within 60 days of receipt of a petition for closure, weather permitting, DEQ shall: (1) conduct a review to determine that the releases or threatened releases addressed in the VCP do not pose a significant threat to public health, welfare, and safety, and of the environment as determined in accordance with § 75-10-721, MCA; and (2) that the applicant has:

1. Implemented all appropriate remedial actions;
2. If necessary, provided for long-term funding for facility O&M or monitoring; and
3. Reimbursed DEQ for all remedial action costs related to the voluntary cleanup.

Section 75-10-738(4), MCA, indicates that after completion of cleanup for a portion of a facility addressed in the VCP, DEQ shall issue a letter of completion notice to the applicant if DEQ determines that the applicant has satisfied the requirements of § 75-10-738(2), MCA. If remediation of the entire facility is addressed in the VCP and it is on the CECRA Priority List, the petition for closure may also include a petition for delisting of the facility. If appropriate, DEQ will initiate the delisting process described in ARM 17.55.114 upon issuing a closure letter for the facility.

"No further action" VCPs should include language requesting closure of the facility or portion of the facility addressed in the VCP following approval of the VCP. The following is suggested language for inclusion in the VCP:

> "As the VCP indicates that no further action is required for the [Facility Name or Portion of the Facility Name] to assure present and long-term protection of public health, welfare, and safety, and of the environment, [Applicant] hereby petitions for closure and delisting of the facility. All remedial action costs billed by DEQ to date have been paid, and [Applicant] will pay any outstanding bills sent by DEQ."

As indicated in § 75-10-738(3), MCA, in the event that the petition for closure is not approved, DEQ shall promptly provide the applicant with a written statement of the reasons for denial.

This section of VCRA also states that DEQ's written notification of approval must contain the following language:

> "Based upon the information provided by [insert name(s) of applicant(s)] concerning property located at [insert address], it is the opinion of the Montana Department of Environmental Quality that upon completion of the voluntary cleanup plan, no further action is required to ensure that this facility, when used for [insert purposes identified], is protective of existing and proposed uses and does not pose a significant risk to public health, welfare, and safety, and of the environment at the facility with regard to releases or threatened releases addressed in the voluntary cleanup plan. The department reserves the right to conduct or require further remedial action at this facility if a new release occurs or if the department receives new or different information than presented in the approved voluntary cleanup plan."

1.16 Financial Assurance

Section 75-10-738, MCA, states that DEQ may require long-term funding for facility O&M or monitoring from the VCP applicant if necessary. If DEQ determines such financial assurance is necessary, DEQ will work with the VCP applicant to obtain financial assurance by any one method or combination of methods satisfactory to DEQ, including but not limited to insurance, guarantee, performance or other surety bond, letter of credit, qualification as a self-insurer, or other demonstration of financial capability as described in Section 75-10-721(7), MCA.

2.0 ENVIRONMENTAL ASSESSMENT

Section 75-10-734(2), MCA, identifies the information required for the Environmental Assessment component of the VCP. This section of the VCP should include the requirements provided in § 75-10-734(2), MCA, and described in sections 2.1 through 2.11 of this guide.

> DEQ has deemed many Environmental Assessments incomplete because the VCP applicant addressed only areas of known contamination and did not consider other information about the operational history or actions that may have impacted the facility (e.g., asbestos-contaminated building debris, past materials storage or transport/loading areas, former waste disposal features, etc.). A broad investigation into the entire operational history is essential to ensuring the Environmental Assessment is complete. Once all potential sources of contamination at the facility have been identified, proper sampling must be performed to ensure that the Environmental Assessment accurately depicts the nature and extent of hazardous or deleterious substances present at the Facility.

2.1 Introduction

The first section in the Environmental Assessment component of the VCP should include the facility name, general location, and the name and address of the VCP applicant. It should also include a statement as to whether the facility is on the CECRA Priority List, a general description of the known type(s) and source(s) of contamination, and a description of eligibility as described in Section 1.3. In addition, the Introduction should state that, as required by § 75-10-733(3), MCA, the applicant agrees to reimburse DEQ for the State's remedial action costs.

2.2 Legal Description and Facility Map

Section 75-10-734(2)(a), MCA, requires that the VCP include the legal descriptions of all properties within the facility, and provide maps of the facility that identify: (1) the location and size of the facility; (2) all relevant features of the facility, such as property boundaries; (3) surface topography; (4) surface and subsurface structures; and (5) utility lines. The maps should be comprehensive in nature and be drawn to scale. The following location information should be provided:

- County,
- Distance to the nearest city or town,
- Street address if the facility is in town,
- Township, range, section, and ¼, ¼, ¼ of the section, and
- Latitude and longitude in decimal degrees World Geodetic System 1984 (WGS 84).

The VCP should include an appendix with copies of the property deeds for all properties within the facility.

2.2.1 Written Consent of Current Owners

Section 75-10-733(2)(c), MCA, requires that both the Environmental Assessment and the Remediation Proposal components include written consent of current owners of the facility or property within the

facility for access to the various properties within the facility, by the applicant, its agents, and DEQ. This would include consent for investigation activities, if applicable. Additionally, the Remediation Proposal component must include written consent of current owners of the facility or property within the facility for implementation of the VCP (when the remediation proposal contains the necessary information and meets DEQ requirements). This includes consent for implementation of the remedy. The signed consent forms are to be included in the VCP. The VCP will also include copies of all institutional controls (ICs) that require filing on property records (if applicable), and the agreement to implement and comply with those ICs. It is necessary to obtain written consent from all property owners within the potential boundaries of the facility.

If a corporation owns property, a designated representative can sign. If it is owned individually, all owners must sign unless the owners have signed a legal document (i.e., power of attorney) giving one person the right to consent on behalf of the other property owners. The consent form should identify the specific VCP (i.e., title and date) for which consent is granted. Attachments B1 through B3 of this guide provide example consent forms for both the Environmental Assessment and the Remediation Proposal components of the VCP.

2.3 Physical Characteristics

Section 75-10-734(2)(b), MCA, requires that the VCP include the physical characteristics of the facility and areas contiguous to the facility. This section of the VCP should also include a map (or maps, if needed), drawn to scale, that shows areas contiguous to the facility with an accompanying narrative in the text of the VCP that provides additional description. The following are examples of physical characteristics that could be discussed in this section of the VCP and depicted on a map(s), as appropriate:

- Topography;
- Stratigraphy;
- Structural geology;
- Regional groundwater flow patterns;
- Groundwater aquifers;
- Hydraulic conductivity;
- Floodplain designation;
- Climatological data, including wind speed and direction;
- All surface water bodies and wastewater discharge points;
- Groundwater monitoring and supply wells;
- Surface water intakes;
- Aquatic and terrestrial habitats;
- Sensitive environments (e.g., wetlands);
- Physical features such as buildings or roads;
- Facility process units and loading docks;
- Chemical and/or fuel transfer, and pumping stations;
- Current and historic railroad tracks, spur lines, and railcar loading areas;
- Surface and storm water run-off retention ponds and discharge points;
- Building drainage or wastewater discharge points;
- Spill collection sumps and/or drainage collection areas;
- Wastewater treatment units;
- All underground and above ground storage tanks;
- Underground and above ground piping;
- Water cooling systems and/or refrigeration units;
- Sewer lines;
- Underground utility lines and buried cables;
- French-drain systems;
- Water recovery sumps and building foundations;
- Surface impoundments;
- Waste storage and/or disposal areas/pits, landfills etc.;
- Chemical and/or product storage areas;

- Septic leach fields (drain fields);
- Irrigation ditches and/or irrigation systems;
- Dry wells and/or waste disposal sumps; and
- A list of all the other impacted facilities (CECRA, federal Superfund, leaking underground tank, contaminated groundwater, hazardous waste, etc.) within one-quarter mile of the facility. DEQ's digital atlas/online query service can be a valuable tool for locating neighboring facilities: http://deq.mt.gov/Land/StateSuperfund/findasite

2.4 Area Wells

Section 75-10-734(2)(c), MCA, requires that the VCP include the location of any wells located on the facility or on areas within a one-half mile radius of the facility, including a description of the use of each well. Because CECRA defines "facility" as wherever contamination has come to be located, the applicant should identify wells within a one-half mile radius of any contamination regardless of property boundaries. Well information is required regardless of whether groundwater at the facility is contaminated. This section of the VCP should include the following information unless it is unavailable, in which case an explanation should be provided in the VCP:

- A list of all wells within the one-half mile radius of the facility, including monitoring wells. Well information can be obtained from the Montana Bureau of Mines and Geology Groundwater Information Center (406-496-4336; http://mbmggwic.mtech.edu), the Montana Department of Natural Resources and Conservation, and any other sources that identifies the use, depth, geologic formation/aquifer and yield of those wells.
- To the extent practicable, a map, drawn to scale, with geographic references that shows the locations of the wells.
- Documentation of any efforts to verify the presence or absence of unregistered wells supplying groundwater for domestic use in older residential neighborhoods or in rural areas (e.g., door-to-door inspection or survey from public rights-of-way). Note: This information is critical when there is a likelihood that groundwater contamination has or may affect drinking water wells that are not listed in readily available databases.
- To the extent practicable the following should also be provided: owner, address, map location, driller, date drilled, static water level, well logs, and well construction designs or diagrams (and lithologic logs, if available) showing screened interval, casing type and construction details (available from the from the Montana Bureau of Mines and Geology Groundwater Information Center (see above) and/or the Montana Department of Natural Resources and Conservation) including: gravel pack interval, bentonite seal thickness, and cemented interval. This information is particularly important for wells within the current or historical operational areas of the facility.

2.5 Groundwater and Surface Water Usage

Section 75-10-734(2)(d), MCA, requires that the VCP include the current and reasonably anticipated future use of groundwater and surface water at the facility. This section of the VCP should include sufficient detail about both current and anticipated future groundwater and surface water usage to evaluate human health and environmental exposure. The determination of future groundwater and surface water usage should be based on the following:

- Suitability of water for beneficial uses;
- Historical land and water uses;
- Anticipated future land and water uses;
- Community and nearby property owners' concerns regarding future water use;
- Regional and local development patterns;
- Regional and local population projections;
- Availability of alternate water sources including, but not limited to, public water supplies, groundwater sources, and surface water sources;
- Specific conductivity and class of the groundwater (discussed below); and
- Classification of any steams or rivers on or near the facility (discussed below).

This section should also include the specific conductivity of the groundwater and indicate the class of the groundwater as defined in ARM 17.30.1006. A general description of the suitable use of the class of groundwater should also be provided. The lowest specific conductivity for the groundwater at the facility corresponding to the highest quality is appropriate for classification of the groundwater. This may require determination of the specific conductivity of the groundwater upgradient from any contaminant sources.

Example

The following specific conductivities are available for monitoring wells at the facility:

800 µSiemens/cm	1050 µSiemens/cm
950 µSiemens/cm	1100 µSiemens/cm

The groundwater is Class I because the lowest specific conductivity is less than or equal to 1000 µSiemens/cm (ARM 17.30.1006(1)(a)).

In addition, this section should include the classification of any streams or rivers located on or near the facility and a general description of suitable use of the class of stream. ARM 17.30.606 through 17.30.629 provides information about stream classification. The Montana 303(d) list of impaired and threatened water bodies in need of water quality restoration should also be consulted to determine if any surface water bodies located on or near the facility are included. The VCP should include a description of any contribution the facility's current condition or proposed remedial action will have on the total maximum daily load for the water body if any water bodies located on or near the facility are determined to be on the 303(d) list.

2.6 Operational History of the Entire Facility

Section 75-10-734(2)(e), MCA, requires that the VCP include the operational history of the facility. The operational history will include information related to the current and past ownership and facility use(s). The VCP should include any readily available aerial or oblique photographs showing the evolution of the facility or its operations in an appendix.

Examples of the information appropriate for this section include:

- Records, dates, and descriptions of past and current operations, activities, conditions or incidents at the facility or nearby facilities that may have resulted in a release or threatened release of a hazardous or deleterious substance;
- Historic ownership records, including copies of deeds and any easements;
- Readily available aerial photographs;
- Building department records;
- A description of all activities or businesses that occupied the facility as far back as typical historical records and knowledge allows, including years of operation;
- A description of any historical records including county clerk and recorder and tax assessor records, Polk directories, and Sanborn fire insurance maps (copies of easily obtainable, relevant documents should be included in an appendix to the VCP);
- Diagrams of all facility operations (e.g., railroad facility maps, permitted activity diagrams);
- The dates that the activities occurred and the dates during which the hazardous or deleterious substances may have been released into the environment;
- The approximate volumes of the materials released;
- A description of past and present waste disposal practices and areas;
- A list of any known hazardous or deleterious substances used at the facility, with volume estimates and a list of all wastes generated at the facility, including manifests for disposal;
- References and information about the sources of the operational history, including a brief description of the efforts made to research various informational sources;
- Information about the current use of the facility;
- Current hazardous or deleterious substance usage;
- Current waste disposal practices;
- Registries or publicly available lists of engineering controls; and
- Registries or publicly available lists of institutional controls, including any use restrictions and current zoning information along with copies of zoning regulations as an appendix.

2.7 Regulatory and Compliance History

Section 75-10-734(2)(j), MCA, requires that the VCP include readily available information on the environmental regulatory and compliance history of the facility, including all environmental permits. This section of the VCP should include the following and any other relevant regulatory history:

- A list of all local, state, and federal environmental permits obtained for the facility, including, for example:
  - Montana Pollutant Discharge Elimination System
  - Montana Ground Water Pollution Control System
  - underground storage tank removal
  - storage or disposal
  - asbestos abatement
  - pesticide applicator
  - storm water discharge
  - solid waste disposal
  - hazardous waste treatment
  - air quality
  - mining

- Information on permit violations, notices to take corrective action, or similar issues for each of these permits;

- A list of all facility-specific notifications made as a result of any management activities of hazardous substances conducted at the facility, including any and all EPA identification numbers obtained for management of hazardous substances at the facility from either the state or the EPA and any conditionally exempt small quantity generator determinations;

- A list of all notifications made to state and/or federal agencies reporting spills and/or accidental releases and any actions taken to address those spills/releases, including confirmation sample results;

- A description of any actions taken under any regulatory authority (including but not limited to CECRA, federal Superfund, Resource Conservation and Recovery Act [RCRA], Montana Water Quality Act, and federal Clean Water Act) at the facility (e.g., notice letters, proper and expeditious letters, or orders);

- A description of any private or agency litigation associated with the facility; and

- A description of any Controlled Allocation of Liability Act actions related to the facility.

Please note that all non-reported spills should be referenced in Section 2.6.

2.8 Current and Future Facility Usage

Section 75-10-734(2)(f), MCA, requires that the VCP include the current and reasonably anticipated future uses of the facility and immediately adjacent properties.

"Reasonably anticipated future uses" is defined in § 75-10-701(18), MCA, as likely future land or resource uses that take into consideration: (a) local land and resource use regulations, ordinances, restrictions, or covenants; (b) historical and anticipated uses of the facility; (c) patterns of development in the immediate area; and (d) relevant indications of anticipated land use from the owner of the facility and local planning officials.

This section of the VCP should include the current use of the facility and immediately adjacent properties along with information about the anticipated future use of the facility and immediately adjacent properties and provide the source of information used to determine future use. Information that may be used to determine current and future use includes local zoning regulations, comprehensive plans, redevelopment plans, and consultation with local planners and property owners. The VCP must include enough information on current and future uses of the facility and immediately adjacent properties to determine whether the Remediation Proposal will be protective of those uses. In addition to identifying general uses (e.g. industrial, residential, commercial, recreational, etc.), this section should identify any relevant zoning, zoning restrictions, easements, restrictive covenants, equitable servitudes, and any other restrictions on the use of the facility and adjacent property.

2.9 Facility Characterization

Section 75-10-734(2)(g), MCA, requires that the VCP include information on the methods and results of investigations concerning the nature and extent of any releases or threatened releases of hazardous or deleterious substances that have occurred at the facility. It also requires a map that shows general areas of hazardous or deleterious substances and associated concentrations as identified through

sampling. Investigations should characterize the entire facility including surface soil, subsurface soil, sediment, air, vapor intrusion, groundwater, and surface water, as applicable. Characterization will need to be conducted such that results will delineate the source area(s) and extent of contamination within the facility.

Section 75-10-734(2)(h), MCA, requires that the VCP include any sampling results or other data that characterizes the soil, air, sediment, groundwater, or surface water within the facility. Sample results should be summarized in the text of the VCP, provided in summary tables, and on facility maps. Results of laboratory data and data validation reports should also be summarized in the text of the VCP and included as an appendix. An example of the extent of data validation required can be found by referencing DEQ's Data Validation Guidelines for Evaluating Analytical Data. Data previously submitted to DEQ and validated may be summarized and referenced in the VCP.

2.9.1 Characterization Information

Examples of the information appropriate for this section include:

- Identification of the nature and extent of hazardous or deleterious substances that have been released into surface soil, subsurface soil, soil gas, air, sediment, groundwater and surface water throughout the facility, which includes wherever the contamination has come to be located regardless of property boundaries.

- Include a table that lists the contaminants identified for each media, and the estimated vertical and areal extent of contamination in each medium.

- Data summary discussion(s) and table(s) related to the contamination present at the facility, separated out by impacted media. This should include all the samples collected in that media. The data tables should present the total number of samples collected by media and analyses by media. Non-detects should be represented using less than the method detection limit value, and should include a comparison of sample results to generic screening levels.

- A map indicating all potential source areas, investigation areas and associated concentrations of hazardous or deleterious substances, and any previous hazardous or deleterious substance treatment, materials storage, or discharge areas (wastewater, storm water, etc.).

- A site conceptual model of sources showing potential migration pathways.

- A description of the chemical nature, mobility, and toxicity of the hazardous or deleterious substances, estimated volumes and concentrations of substances discharged at each area, and the discharge point, drain, or leakage point of the release. If this information is not available, clarify steps taken to try and determine if the information was available.

- A map, drawn to scale, showing groundwater elevation across the facility, and the inferred direction, gradient, and estimated rate of groundwater movement across the facility, using a minimum of three measuring points and depicting seasonal high and low water variations.

- A discussion of all hydraulic tests performed at the facility or nearby to characterize the hydrogeologic properties of any facility aquifers, and aquifers in the area including vertical gradients if appropriate;

- A discussion of how all environmental samples/data were collected, including:
  - the rationale involved in sampling locations, parameters, and methodology;
  - a description of sampling locations (including test pit and borehole logs);
  - facility well construction details (showing screened interval, casing type, gravel pack interval, bentonite seal thickness and cemented interval);
  - facility lithologic logs for boreholes;
  - quality assurance/quality control measures associated with the sampling and analysis as well as data validation of sample results including, a brief discussion of the quality of the data;
  - sampling frequency and locations; and
  - the rationale involved in choosing each analytical method. These methods should be appropriate and sufficient to fully characterize the nature and extent of contamination. The applicant should use EPA-approved or DEQ-approved analytical methods with appropriate method detection limits. Detection limits must be low enough to allow comparison to appropriate screening levels or cleanup levels. The applicant should consult DEQ about the suitability of other analytical methods before using them; and

- A discussion of any previous interim remedial actions already performed at the facility (especially important for "no further action" or partial action VCPs addressing a portion of the facility), including:
  - a statement indicating if a regulatory agency required the action and if so, which agency;
  - a description and figure showing the location of contaminants of concern (COCs);
  - a description and figure showing the area of the interim remedial action and confirmation samples;
  - the method employed to carry out the interim remedial action;
  - assessment of remedial method, analytical methods, and frequency of confirmation samples;
  - a description of the ultimate disposition of all contaminated media; and
  - comparison of confirmation samples to the screening/cleanup levels that were used to verify the effectiveness of the interim remedial action. If site-specific screening or cleanup levels were calculated, a detailed description of the calculation methods and exposure assumptions/parameters should be included in the Environmental Assessment VCP component rather than waiting until the Remediation Proposal VCP component. Please see Section 3.2 for more detail about cleanup levels and the type of information that should be included for interim remedial actions already performed at the facility;
  - a description of any backfill activities, including any backfill source identification steps, sampling and associated data validation activities, as well as revegetation activities (see Section 3.4.2 for more detail).
  - If previous interim remedial actions were performed at the Facility prior to submittal of the Environmental Assessment VCP where an element of that interim remedial action remains onsite at the time of submittal and will be part of the final remedy (e.g., a capped repository, etc.), then the Environmental Assessment VCP should provide enough information to demonstrate that the previous activities are protective of human health and the environment and comply with current environmental regulations. This evaluation will not be performed until the Remediation Proposal VCP, but will rely on information provided in the Environmental Assessment VCP.

DEQ reserves the right to require additional confirmation sampling and /or investigations.

2.9.2 Screening Contaminants of Concern

Hazardous or deleterious substances at a facility may present an imminent and substantial endangerment to public health, welfare, and safety, and of the environment if contaminant concentrations exceed certain screening levels. COCs are those contaminants whose concentrations exceed these screening levels and, therefore, require additional evaluation. Contaminants whose concentrations fall below these screening levels will not typically trigger CECRA action.

The various screening levels listed below are separated out by media (please note that these screening levels are updated periodically. Therefore, the applicant must ensure that the most current version of these screening levels are used; see DEQ's website at: http://deq.mt.gov/Land/StateSuperfund/resources).

2.9.2.1 Groundwater/Drinking water/Surface water

Screen surface water and groundwater concentrations against the standards provided in the current Montana Numeric Water Quality Standards Circular DEQ-7 (DEQ-7). Note that some contaminants in surface water require hardness data to determine if a standard is exceeded.

Screen drinking water against the Maximum Contaminant Levels (MCLs), published at 40 CFR 141.

Screen petroleum compounds that do not have DEQ-7 standards or MCLs against the groundwater risk-based screening levels (RBSLs) from the current Montana Tier 1 Risk-Based Corrective Action Guidance for Petroleum Releases (RBCA) document.

Screen those compounds or chemicals with no DEQ-7 standard, MCL, or RBSL screening level against the tap water regional screening levels contained in the current EPA Regional Screening Levels for Chemical Contaminants at Superfund Sites (RSLs).

For surface water, also screen the concentrations against EPA Region 3 BTAG Freshwater Surface Water Screening Benchmarks. Note that some contaminants require hardness data to determine if a screening level is exceeded.

2.9.2.2 Soils and Sediments

Screen dry-weight sediment concentrations against EPA Region 3 BTAG Freshwater Sediment Screening Benchmarks.

Screen dry-weight soil concentrations using DEQ's Soil Screening Process flowchart, Parts 1 and 2. DEQ's Soil Screening Process flowchart examines both direct contact and leaching to groundwater risks and contains the following screening levels:

- DEQ's Soil Background Concentrations of Inorganic Constituents in Montana Surface Soil (these apply to both surface and subsurface soils).
- Soil RBSLs for petroleum compounds provided in the current RBCA Guidance.
- All other soils are screened using current EPA RSLs, adjusted as follows:

(i) Non-carcinogenic contaminant screening levels found in one of the RSL tables are based upon a hazard index of 1. When screening contaminant concentrations to the RSLs, with the exception of lead, adjust all non-carcinogenic levels by dividing by 10. This ensures that when multiple contaminants are found at a facility that may have the same health effects, cumulative potential health effects are considered. Alternatively, the VCP applicant can use the RSL table based upon a hazard index of 0.1 and not make the division adjustment.

(ii) Exposure to lead in soils is evaluated in a unique way by calculating potential blood lead levels resulting from exposure to lead in soil, in addition to other unavoidable lead exposure pathways like water and food. Therefore, DEQ does not include exposure to lead with the other cumulative non-carcinogenic effects. Rather, DEQ used EPA's Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children and Adults Lead Model with 5 µg/dL as the predicted blood lead level to develop screening levels. EPA's RSLs for lead were developed using these models and are currently based on a 10 µg/dL blood lead level. DEQ has developed screening levels based upon the 5 µg/dL blood lead level. While EPA has not yet issued final guidance requiring remediation to the 5 µg/dL endpoint, it is appropriate to evaluate against the 5 µg/dL endpoint when screening lead contamination in the VCP. Please check with your DEQ contact to ensure that the most current version of these screening levels is used.

(iii) The protection of groundwater soil screening levels (SSLs) found in EPA's RSL table are based upon MCLs and a dilution attenuation factor of one (1). For compounds whose MCL and the DEQ-7 groundwater standard is the same, the SSL can be multiplied by a dilution attenuation factor of 10, the state-specific attenuation factor. If the DEQ-7 groundwater standard is more conservative than the MCL, recalculate the SSL so that it is based upon DEQ-7 groundwater standard and then multiply by the dilution attenuation factor of 10 (See Part 2 of the Soil Screening Flowchart for an example equation).

2.9.2.3 Indoor Air/Soil Vapor

Indoor air and soil vapor concentrations are compared to the RSLs. Similar to soils, non-carcinogenic indoor air and soil vapor contaminant screening levels found in the RSL table are based upon a hazard index of 1. When screening contaminant concentrations to the RSLs, adjust all non-carcinogenic levels by dividing by 10.

DEQ has developed generic screening levels for the petroleum fractions detected using the Massachusetts Air-Phase Petroleum Hydrocarbons (APH) method not found in the RSL table. DEQ calculated these screening levels using the same assumptions as those EPA used to calculate the RSLs. As these petroleum fractions are non-carcinogens, DEQ adjusted the target hazard index by dividing by 10 to ensure that cumulative potential health effects are considered (please see Section 2.9.1.2). The adjusted APH generic screening levels can be found in the answer to the first frequently asked question (FAQ) under the "Sampling" category on DEQ's FAQs page at the following link: http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions.

2.10 Human and Environmental Exposure

Section 75-10-734(2)(i), MCA, requires that the VCP include a description of the human and environmental exposure to releases or threatened releases of hazardous or deleterious substances at the

facility based upon the current use of the facility and adjacent properties and any reasonably anticipated future uses of the facility. This section of the VCP should describe the types of people, plants, animals, and components of the environment (e.g., the groundwater) that may potentially be exposed to contamination from the facility and how they may be exposed. DEQ also considers the reasonably anticipated future uses of adjacent properties in determining potential exposure.

The applicant should start by providing a site conceptual exposure model (SCEM) for the current and reasonably anticipated future use of the facility that indicates the facility-specific contaminant sources (e.g., underground tanks, sewer lines, etc.), release mechanisms, transport routes and media, and potential receptors. An example of a SCEM is provided as Attachment C; note that Attachment C is more extensive than what may be necessary for most VCRA facilities and may not include all exposure pathways but is meant to provide a reasonably comprehensive example. For instance, the breast milk exposure media is not evaluated at all facilities and is typically included for facilities with bioconcentrating contaminants like dioxins/furans. A visual diagram SCEM (also found in Attachment C) can also be helpful in portraying and explaining sources of contamination to the public.

The applicant should also include a standard risk assessment table for the facility's COCs. This table should follow the Occurrence, Distribution, and Selection of Chemicals of Potential Concern (ODSCOPC) table (EPA 2001) and include, at a minimum, the following: COC, minimum concentration, maximum concentration, location of maximum concentration, detection frequency, range of detection limits, sample concentration used for screening, generic screening level and reference, facility-specific screening level (if appropriate) and reference, if the chemical is a COC, and the rationale for this decision. The ODSCOPC table can be found at the following link: https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part-d (see example table 2).

When evaluating current and future exposure, DEQ considers soil from the top 0 to 2 feet below ground surface as surface soil available for the long-term residential, commercial/industrial, construction worker, recreational, and trespasser type exposure. DEQ considers soil from 2 to 10 feet below ground surface as short-term excavation or construction worker exposures. DEQ has developed guidance related to soil sampling and reporting requirements that can be found at the following link: http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions.

This section of the VCP should also include a narrative discussion of the SCEM. More exposure information may be necessary if the Remediation Proposal involves cleanup to facility-specific cleanup levels rather than generic screening levels. Also see discussions in Section 2.9.1 regarding inclusion of a discussion about development of cleanup levels for interim remedial actions already completed in the Environmental Assessment component.

CECRA requires an analysis of both human exposure at the facility and the potential exposure of ecological receptors to any contaminated media at the facility. The amount of discussion and evaluation of ecological exposure required for the VCP varies based on the type of facility. An operating commercial/industrial facility located in an urban area may only require a brief discussion indicating that the setting is not suitable habitat for long-term ecological exposure. In contrast, a more isolated facility, such as a closed mine located along a stream, may require a more extensive analysis. See DEQ's Ecological Risk Assessment Guidance for more information (available on DEQ's website at http://deq.mt.gov/Portals/112/Land/StateSuperFund/Documents/Ecorisk.pdf?ver=2017-03-30-082110-617).

Evaluation of the soil to groundwater pathway is also necessary as all soil cleanup levels must be protective of groundwater. Soil greater than 10 feet below ground surface are typically only required to meet leaching to groundwater cleanup levels. Contaminant concentrations in soil must not be significant enough to leach to groundwater and cause contamination above MCLs, DEQ-7 standards, and other appropriate risk-based concentrations for contaminants not included in DEQ-7 or MCLs. This section should include an analysis of the fate and transport scenario for this pathway at the facility and include an analysis of human exposure to groundwater that may potentially become contaminated in the future. DEQ's Technical Guidance for Fate and Transport Modeling can be found under "Guidance/References" at the following link: http://deq.mt.gov/Land/StateSuperfund/resources.

If volatile compounds are present at the Facility in soil or groundwater, DEQ requires an evaluation of vapor intrusion to indoor air. Please see DEQ's Vapor Intrusion Guide found at http://deq.mt.gov/Land/statesuperfund/viguide for more information. Please also see section 2.9.2 for how to screen indoor air and soil vapor concentrations.

"No further action" VCPs must include a demonstration that the current condition of the facility meets all facility-specific cleanup levels and that no further remedial action is necessary to ensure protectiveness of public health, welfare, and safety, and of the environment and meet applicable or relevant ERCLs. As a result, for facilities where cleanup work has already been performed (e.g., a "no further action" or "partial action" VCP), the Environmental Assessment component typically includes a detailed discussion of cleanup levels used, including discussion of how site-specific cleanup levels were calculated. If this is applicable to preparation of your Environmental Assessment, please see Section 3.2 for more information about cleanup levels and ensure that the necessary information is included.

2.11 Summary of Maps, Figures, and Photographs

Where appropriate, please include the following maps, figures, or photographs in the Environmental Assessment. These maps and map features may be combined where appropriate:

- **Site/Facility Location Map**
  - Portion of the USGS 7.5' Quadrangle depicting the site/facility location;
  - Facility boundary;
  - Surface water bodies; and
  - Topography.
- **Aerial Photographs:** Current and all historical readily available aerial photographs.
- **Site/Facility Plan View Map(s)**
  - Location and size of Facility;
  - Property boundaries;
  - Facility boundary;
  - Surface topography;
  - Surface & subsurface structures and features;
  - Utility lines;
  - Community roads, and railroads and spur lines;
  - Above- or below- ground tanks;
  - Surrounding, nearby, and/or impacted properties;

- All Facility wells and other wells within one-half mile radius (including a description of use);
- Potential source areas and concentrations of hazardous or deleterious substances;
- Potentially impacted receptors; and
- Other physical characteristics not previously identified.

— Sample Location Map(s)

- Depict locations of all monitoring wells;
- Soil borings and test pits;
- Soil gas;
- Groundwater survey probes;
- Surface and subsurface samples;
- Surface water and groundwater (including residential, commercial, and public water supply) samples; and
- At least one map should include (as a base layer) the highest quality or most current color orthophoto with georeferenced Sanborn map information and/or any other site/facility historic blueprint/map information overlain with all labeled sample locations to assist in the identification of historic sources and operations (this map is typically a 24" x 26" map to allow for greater site detail). Additional maps may be needed to illustrate facility operations and potential source areas over time.

— Potentiometric Surface Map(s)

- Includes depicting the potentiometric groundwater surface during high and low water table;
- Data such as static water level elevations (expressed as feet above Mean Sea Level); and
- Arrows depicting groundwater flow direction.

— Geologic Cross Sections

- Show site stratigraphy through full depth of potentially impacted water-bearing units;
- A minimum of three cross-sections per site (i.e. one parallel to groundwater flow direction and two perpendicular to flow direction and/or skewed to align with actual well/boring sample locations); and
- Indicate contaminant location, monitoring wells depicting their screened intervals, and subsurface conduits/piping, etc., depicting the subsurface of the property.

— Soil Contamination

- Isoconcentration map depicting soil analytical data. Include at least three labeled isoconcentration lines for each contaminant (one identifying the area of sampling method detection limit exceedance, one identifying each applicable standard and/or screening level (i.e. RBSL, RSL, etc.) exceedance, and one identifying areas of increased concentrations.

— Groundwater Contamination Isoconcentration Map(s)

- Isoconcentration map depicting the extent and degree of groundwater contamination; and
- Include at least three labeled isoconcentration lines for each contaminant (one identifying the required reporting value identified in DEQ-7, one identifying each applicable standard and/or screening level (i.e. MCL, DEQ-7, RBSL) exceedance, and then as many isoconcentration lines as necessary to demonstrate the range of dissolved concentrations).

— Separate Phase Product Isoconcentration Map(s)

- If separate phase product is encountered, a map depicting product extent and thickness should be provided. Include at least three labeled isoconcentration lines for each separate phase product (one identifying the edge of measurable product thickness; then as many isoconcentration lines as necessary to demonstrate the range of thickness encompassed by the plume).

— Facility Contaminant Affected Area Map

— Map of all identified contaminant isoconcentration areas (for all media in both the surface and subsurface) color-coded to distinguish different contaminant areas/media. All sample locations should be labeled and included, contaminant source locations should be identified, as well as other pertinent features.

3.0 REMEDIATION PROPOSAL

Section 75-10-736(2), MCA states that once DEQ determines that the Environmental Assessment component of a VCP is complete, the applicant may submit the Remediation Proposal component. Section 75-10-734(3), MCA, includes the requirements for the Remediation Proposal component of the VCP. The information required in the Remediation Proposal is further described in Sections 3.1 through 3.8 of this guide.

DEQ expects that the Remediation Proposal will be submitted in a timely manner after completion of the Environmental Assessment so as to ensure that there are no changes to the facility conditions as presented in the complete Environmental Assessment.

As in the Environmental Assessment, the Remediation Proposal must be prepared by a qualified environmental professional. Written consent of the current owners of the facility, or property within the facility, for access to the facility by the applicant, its agents, and DEQ should already have been included in the Environmental Assessment VCP. However, the Remediation Proposal VCP must provide written consent to implement the remedy included in the VCP.

3.1 Introduction

The introduction should include a statement that the Environmental Assessment was deemed complete by DEQ and reference the completeness determination date. In addition, a statement should also be included in the introduction to the Remediation Proposal component of the VCP identifying whether the VCP addresses the entire facility or a portion of the facility. Section 75-10-733(4), MCA states that DEQ may approve a VCP that provides for phases of remediation or that addresses only a portion of the facility. If only a portion of the facility is being addressed by the VCP, a statement must be included stating how the remainder of the facility will be addressed. If the VCP is to be considered as a "no further action" VCP, this should be stated in the introduction. A statement indicating the anticipated length of time needed to complete the cleanup should also be included.

3.1.1 Verification of Facility Conditions

DEQ's determination that the Environmental Assessment is complete is based on the conditions of the facility at the time of the Environmental Assessment's submittal. Please include a brief discussion verifying that facility conditions have not changed that may affect the Environmental Assessment. Examples of changes in conditions include but are not limited to: facility use, zoning, surface conditions, activities that may alter sampling results, adjacent property use, changes in groundwater or surface water use, new releases, or changes that affect eligibility. If any interim remedial actions have occurred since completion of the Environmental Assessment, include a detailed description of those actions completed prior to the submittal of the Remediation Proposal.

3.1.2 Written Consent of Current Owners

Section 75-10-733(2)(c), MCA, requires that both the Environmental Assessment and the Remediation Proposal components include written consent of current owners of the facility, or properties within the facility, for access to the various properties within the facility, by the applicant, its agents, and DEQ. This would include consent for investigation activities, if applicable. Additionally, the Remediation

Proposal component must include written consent of current owners of the facility or property within the facility for implementation of the VCP (when the remediation proposal includes the necessary information and meets DEQ requirements). This includes consent for implementation of the remedy included in the VCP and, if the VCP provides for institutional controls (ICs) that require filing on the property records, agreement to implement and comply with those ICs. When identifying facility boundaries and property owners, it is necessary to obtain this written consent from all associated property owners.

If a corporation owns property, a designated representative can sign. If it is owned individually, all owners must sign unless the owners have signed a legal document (i.e., power of attorney) giving one person the right to consent on behalf of the other property owners. The consent form should identify the specific VCP (i.e., title and date) for which consent is granted. Attachments B1 through B3 of this guide provide example consent forms for both the Environmental Assessment and the Remediation Proposal.

3.1.3 Review of COCs

Provide a summary discussion of all the COCs for the various media that were discussed in the Environmental Assessment component of the VCP.

3.2 Cleanup Levels

Section 75-10-734(3)(i), MCA, requires that the Remediation Proposal portion of the VCP include the proposed cleanup levels for the facility. The proposed cleanup levels must be protective of public health, welfare, and safety, and of the environment based on the current and reasonably anticipated future uses of the facility. Once the COCs for the facility have been determined, appropriate cleanup levels can be derived using the following methods or a combination of methods. Whichever methods are used, the rationale and description for selecting the proposed cleanup level must be detailed in the Remediation Proposal. Please consider the phytotoxicity of metals in determining appropriate cleanup levels. The following lists the type of possible cleanup levels that may be proposed by the applicant for use at a facility:

1) **Background levels:** a) Use of DEQ-approved facility-specific background levels may be appropriate. DEQ-approved facility-specific background levels are developed based on samples collected from unimpacted areas and are representative of conditions at the facility for compounds such as metals. b) Use of DEQ background threshold values (BTVs) for metals in soils may be appropriate at a facility. DEQ has developed background threshold levels for inorganics in soil, which are presented in Table 4-4 of the Montana Inorganic Background Investigation Report (available on DEQ's website at http://deq.mt.gov/Land/statesuperfund/background). In some cases, background concentrations may exceed screening levels and may be used in place of screening levels. However, background concentrations that do not comply with ERCLs may necessitate that a facility remain on the CECRA Priority List regardless of the status of a VCP until concentrations are reduced to comply with ERCLs.
2) **Established generic screening levels:** DEQ's generic screening levels may be appropriate for use as cleanup levels. The generic screening levels are described in Section 2.9.2, above.
3) **Facility-specific adjusted screening levels:** Facility-specific adjusted screening levels may be used as cleanup levels. Developing facility-specific adjusted screening levels involves adjusting

the generic screening levels (see Section 2.9.2) based on the number of compounds present at an individual facility. For carcinogens, the cumulative risk for all the contaminants at the facility should not exceed the DEQ-accepted cumulative cancer risk of $1x10^{-5}$. For non-carcinogens, the cumulative potential health effects should not exceed a total hazard index equal to 1. For example, in the RSL table, RSLs for carcinogenic compounds are based on a $1x10^{-6}$ cumulative risk, while DEQ will accept a cumulative risk of $1x10^{-5}$. The RSLs for non-carcinogenic compounds can be adjusted in a similar manner to account for multiple compounds that have the same critical effect or target organ.

4) **Facility-specific risk-based cleanup levels:** The applicant may propose cleanup levels based on a facility-specific risk analysis conducted using standard EPA human health risk assessment guidance (RAGS) (EPA 2009, 2004, 2001, 1999, 1997b, 1992, 1991a-c, and 1989) and/or, as applicable, standard EPA ecological risk assessment guidance (EPA 2000a, 1998, and 1997a). For human health, DEQ allows cleanup levels calculated based on cumulative risk levels less than or equal to a total excess cancer risk of $1x10^{-5}$ for carcinogens or a total hazard index less than or equal to 1 for non-carcinogens. Ecological risks should also be evaluated and acceptable risk determinations be made on a facility-specific basis (see DEQ's Ecological Risk Assessment Guidance at http://deq.mt.gov/Portals/112/Land/StateSuperFund/Documents/Ecorisk.pdf?ver=2017-03-30-082110-617 for more information). It is helpful to consult with DEQ to ensure that all exposure assumptions are acceptable. Additional information can be found on DEQ's FAQ webpage at http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions.

5) **Facility-specific leaching to groundwater cleanup levels:** The applicant may propose facility-specific fate and transport modeling for the development of facility-specific cleanup levels. DEQ's Technical Guidance for Fate and Transport Modeling can be found under "Guidance/References" at the following link: http://deq.mt.gov/Land/StateSuperfund/resources.

This section does not address the development of facility-specific cleanup levels to address protectiveness of ecological receptors. If the facility at issue may pose a risk to ecological receptors, please discuss with DEQ before submitting the Remediation Proposal.

3.3 Remedial Alternatives Comparison

Section 75-10-734(3)(b), MCA, requires a brief comparison of reasonable remedial alternatives based on the remedy selection criteria specified in § 75-10-721, MCA. These seven criteria indicate that the proposed remedy must:

- assure protection of public health, welfare, and safety, and of the environment;
- be consistent with applicable or relevant state and federal ERCLs (See Section 3.3.2 for a discussion of ERCLs);
- consider present and reasonably anticipated future uses and, giving due consideration to institutional controls, demonstrate acceptable mitigation of exposure to risks to the public health, welfare, and safety, and of the environment;
- be effective and reliable in the short and long term;
- be technically practicable and implementable;
- use treatment technologies or resource recovery technologies if practicable giving due consideration to engineering controls; and
- be cost-effective.

This section is meant to provide a truncated feasibility study type analysis, which includes both text and a summary table. The text should provide a brief description of each alternative based on how it would or would not meet each of the seven criteria included in § 75-10-721, MCA. A "no action" alternative should be included to serve as a baseline for comparison with other alternatives.

Comparisons between the remedial alternatives should **not** be discussed or included in the table at this point. The table is meant to provide a concise summary of each alternative to each of the criteria. Attachment D provides an example of a comparison of alternatives including a summary table. The following is a summary of the type of information that should be included in the table for each alternative.

Criteria	**Evaluation of Criteria Relative to Alternative**
Protectiveness	Whether the alternative is protective of public health, welfare, and safety, and of the environment.
Compliance with ERCLs	Whether the alternative complies with all ERCLs.
Mitigation of exposure to risk	Whether the alternative mitigates exposure to risk to public health, welfare, and safety, and of the environment; includes an analysis of the proposed cleanup levels from Section 3.2.
Effectiveness and reliability	Whether the alternative is effective and reliable in the short term. Whether the alternative is effective and reliable in the long term.
Practicability and implementability	Whether the alternative can be implemented and the ease or difficulty with which it may be implemented.
Use of treatment or resource recovery technologies	Whether the alternative employs these types of technologies; CECRA indicates a preference for treatment or recovery.
Cost-effectiveness	Compare incremental cost with incremental risk reduction.

The final remedial proposal is selected based on which alternative best meets the seven remedy selection criteria. If multiple remedial alternatives meet all seven criteria, a discussion must be included describing why the remedial proposal was proposed (e.g. while alternative A and B equally meet criteria 1 through 6, alternative A is the most cost-effective alternative; while alternatives C and D meet all the criteria, alternative C provides greater mitigation of exposure to risk for the same cost).

If future use of the facility is proposed as anything other than unrestricted residential use, ICs must be included as part of the proposed remedy to ensure long-term protectiveness. One IC typically used at CECRA facilities is a restrictive covenant document; an example is included as Attachment E.

No-Further Action Proposals

"No further action" VCPs must follow the same remedial alternative comparison process as traditional "action" VCPs. However, this analysis is typically less complex than that necessary for VCPs requiring further remedial action. The "no further action" alternative must still be evaluated against all seven of the criteria. In addition, other remedial alternatives must also be individually evaluated against the same criteria. A discussion should then be included explaining why "no further action" was chosen as the remedial proposal. Typical remedial alternatives evaluated in "no further action" VCPs include capping, complete removal and off-site disposal, or an on-site repository.

Typically, "no further action" VCPs are submitted for facilities with residual contaminant levels that are below acceptable cleanup levels. Therefore, all remedial alternatives may be equally protective, in compliance with ERCLs, mitigate risks, and as effective and reliable as the no action alternative. However, these alternatives are typically less practicable and implementable and cost-effective than the "no action" alternative and they may or may not use treatment, resource recovery technologies, or engineering controls. A brief discussion is required explaining how the "no action" alternative best meets the seven remedy selection criteria.

"No further action" VCPs for facilities meeting facility-specific cleanup levels but with residual contamination above generic screening levels should also include a brief alternatives analysis to demonstrate how no further action effectively meets the seven criteria in § 75-10-721, MCA versus other reasonable alternatives.

"No further action" VCPs for facilities meeting generic screening levels may not need an alternatives analysis if there are no areas of contamination, no unacceptable risks to human health or ecological receptors, and therefore no risks to mitigate. Remediation Proposals for facilities meeting these unique circumstances may include a brief discussion outlining why there are no reasonable alternatives to consider given the conditions outlined above as they apply to the seven criteria included in § 75-10-721, MCA.

Please note that VCPs where ICs are proposed to restrict certain exposure scenarios are considered "action" VCPs. The Remediation Proposal in these instances is the implementation of the IC; therefore, this proposal is addressed as described earlier in Section 3.3.

3.3.1 Protectiveness

Section 75-10-721(1), MCA, requires that a voluntary cleanup under §§ 75-10-730 through 75-10-738, MCA, attain a degree of cleanup of the hazardous or deleterious substance and control of a threatened release or further release of that substance that assures protection of public health, welfare, and safety, and of the environment. This section of the VCP should describe how the Remediation Proposal renders the facility protective for current and reasonably anticipated future uses. For instance, the remedy may include soil removal to cleanup levels, described in Section 3.2, which is protective of both the groundwater and future residential users based on a facility-specific risk analysis. Another remedy might include an on-site repository that provides both a liner as a barrier between soil and groundwater and a cap to prevent direct exposure to contaminated soil. Thus, the repository is protective of the groundwater and current and future on-site recreational users. "No further action" VCPs must include evidence that further action is not required to assure the facility is protective.

3.3.2 Environmental Requirements, Criteria, or Limitations

Sections 75-10-721(2)(a) and (b), MCA, provides that in approving or carrying out remedial actions performed under this part, DEQ must require cleanup consistent with applicable state or federal ERCLs and may consider substantive state or federal ERCLs that are relevant to the facility conditions. This section of the VCP should include a description of both applicable and relevant state and federal ERCLs. Applicable requirements apply at a facility regardless of whether the proposed remedy is being conducted under VCRA. Relevant requirements are those that are not applicable, but address situations or problems sufficiently similar to those at the facility and therefore, are relevant for use at the facility. Section 75-10-721(b), MCA, states that DEQ may consider relevant requirements in

approving cleanups. DEQ considers relevant ERCLs on a case-by-case basis considering facility-specific information. Some ERCLs may change from relevant to applicable if the proposed remedy changes. ERCLs should cover activities necessary to implement the remedy at the Facility and may need to discuss past interim remedial actions if the past interim remedial actions remain onsite and will be part of the final remedy at the Facility (e.g. prior in place stabilization and capping activities that the VCRA applicant will rely on as part of the final remedy).

ERCLs are generally of three types: action-specific, contaminant-specific, and location-specific. Action-specific requirements are those that are triggered by the performance of a certain activity as part of a particular remedy. They do not in themselves determine the remedy but rather indicate the manner in which the remedy must be implemented. For example, hazardous waste disposal requirements include specifications for the manner in which land disposal units are constructed but these requirements are not triggered unless a land disposal unit is proposed. Contaminant-specific requirements are those that establish an allowable level or concentration of a hazardous or deleterious substance in the environment or that prescribe a level or method of treatment for a hazardous or deleterious substance. Examples include promulgated state standards establishing acceptable concentrations of constituents present at the facility in air, surface water, or groundwater. Location-specific requirements are those that serve as restrictions on the concentration of a hazardous or deleterious substance or the conduct of activities solely because the facility is in a specific location or the action affects specified types of areas. Location-specific requirements relate to facilities with potential historical, cultural, or ecological significance, or facilities located near wetlands, floodplains, surface water, endangered species habitat, and migratory bird habitat.

DEQ has prepared ERCLs analyses for various facilities and the applicant is encouraged to obtain relevant examples from DEQ to assist in the applicant's analysis of applicable laws and regulations. The ERCLs analysis must include information about **how** the Remediation Proposal complies with each ERCL. Attachment F includes a sample ERCLs analysis.

"No further action" VCPs must also include a complete ERCLs analysis. Action-specific ERCLs are included in "no further action" VCPs in order to evaluate alternatives involving remedial actions. This section of the "no further action" VCP must demonstrate **how** no further action complies with all of the ERCLs. When evaluating whether the "no further action" alternative meets action-specific ERCLs, the VCP should include a statement that the alternative complies with these ERCLs since no action is proposed or required.

3.3.3 Mitigation of Risk

Section 75-10-721(2)(c)(i), MCA, requires DEQ to select remedial actions, considering present and reasonably anticipated future uses, that demonstrate acceptable mitigation of exposure to risks to the public health, welfare, and safety, and of the environment. In addition, § 75-10-734(3)(a)(iv), MCA, requires a demonstration that exposures to risk affecting the public health, welfare, and safety, and of the environment at the facility will be substantially mitigated by the plan. This section of the VCP should include a description of how the proposed remedy mitigates the risks presented at the facility. Mitigation of risks can be shown by describing how the remedy reduces the levels of contaminants to which humans and ecological receptors will be exposed. Risks to components of the environment, like the groundwater, must also be mitigated. This requirement can be addressed by describing how the proposed cleanup levels will be achieved and stating that these cleanup levels represent risks that are allowable by DEQ. Alternatively, risks may be mitigated with remedies that block the pathways by

which exposure may occur via the installation of caps, liners, or on-site repositories. "No further action" VCPs must include a demonstration that risks at the facility are less than or equal to those allowed by DEQ and therefore no action is required to mitigate them.

3.3.4 Effective and Reliable

Section 75-10-721(2)(c)(ii), MCA, requires DEQ to select remedial actions, considering present and reasonably anticipated future uses, that are effective and reliable in the short-term and the long-term. This section of the VCP should include a demonstration that the proposed remedy is effective and reliable in the short term because it will not result in a further release of contamination or an increase in the risks posed by the facility to unacceptable levels during the cleanup. Short-term adverse effects may include air emissions or mobilization of contaminants into the groundwater or surface water via runoff. This section of the VCP should also demonstrate that the remedy is effective and reliable in the long-term because it includes measures to ensure that a release will not occur in the future and that acceptable risk levels will be maintained on a long-term basis. Assuring long-term effectiveness may require remedial actions such as the implementation of institutional controls (e.g., restrictive covenants) or repository maintenance. "No further action" VCPs must include a demonstration that taking no further remedial action is effective and reliable in the short and long term. This may require assurance that facility usage will not change and that controls are in place to guarantee this.

3.3.5 Practicable and Implementable

Section 75-10-721(2)(c)(iii), MCA, requires DEQ to select remedial actions, considering present and reasonably anticipated future uses, that are technically practicable and implementable. This section of the VCP should include a demonstration that the proposed remedy may be implemented. Remedies that include impracticable components may not be selected. For example, reprocessing of tailings material may not be practicable because there may be no methods currently available to extract reasonable quantities of metals from the material. A soil vapor extraction system may be a proven effective remedial technology for solvents in certain types of soil and installation of a system is achievable. "No further action" VCPs should include a statement that no further remedial action is practicable and implementable because there are no impediments to taking no further action.

3.3.6 Treatment or Resource Recovery Technologies

Section 75-10-721(2)(c)(iv), MCA, requires DEQ to select remedial actions, considering present and reasonably anticipated future uses, that use treatment technologies or resource recovery technologies if practicable, giving due consideration to engineering controls. This section of the VCP should include a discussion of whether the proposed remedy employs treatment technologies, resource recovery technologies, or engineering controls. An example of a remedy employing resource recovery technologies is the use of petroleum-contaminated soils in asphalt production. An example of treatment technologies would be stabilization of lead-contaminated soil to remove a toxicity characteristic or soil vapor extraction with effluent treatment to remove volatile organic compounds from soil. These remedies may be preferable to excavation and land disposal. A proposed remedy may not meet this criterion, but still be chosen as the preferred alternative if it meets all the other selection criteria. DEQ interprets the statute as referring to long-term engineering controls, not engineering controls employed only during remediation, such as dust control. An example of an engineering control that DEQ might consider an appropriate remedy would be an on-site repository. "No further action" VCPs should include a statement that treatment technologies, resource recovery

technologies, or engineering controls are not necessary because no further remedial action is required to meet the other cleanup requirements.

3.3.7 Cost-Effectiveness

Section 75-10-721(2)(c)(v), MCA, requires DEQ to select remedial actions, considering present and reasonably anticipated future uses, that are cost-effective. Section 75-10-721(5), MCA, states that cost-effectiveness must be determined through an analysis of incremental costs and incremental risk reduction and other benefits of alternatives considered, taking into account the total anticipated short-term and long-term costs of remedial action alternatives considered, including the total anticipated cost of O&M activities. This section of the VCP should include a demonstration that the proposed remedy is cost-effective for the amount of risk reduction achieved. Actual estimated costs should be provided. "No further action" VCPs should include a statement that no further remedial action is cost-effective given that there is no cost and no risk reduction is necessary to meet the other cleanup requirements.

3.4 Proposed Cleanup Plan

Based on the comparison of alternatives in Section 3.3, the applicant identifies its preferred remedy. Section 75-10-734(3)(a), MCA, requires that the VCP include a detailed description of the components of the Remediation Proposal. The proposal must be described in sufficient detail to allow DEQ to evaluate whether or not the proposal satisfies all cleanup requirements of Section 75-10-721, MCA. The proposal must also provide enough detail for DEQ to determine whether all environmental requirements will be met by the proposal. Maps identifying areas to be remediated and diagrams of the remedial design, with specifications as appropriate, are examples of the type of information needed to fulfill this requirement. DEQ must also be able to determine if the proposal can be completed within the timeframe specified in § 75-10-736, MCA. "No further action" VCPs must include a statement that no further remedial action is required at the facility to meet the requirements specified in the following sections.

3.4.1 Waste Management

Many cleanup actions involve the treatment and/or disposal of wastes that are listed or characteristic wastes as defined in the RCRA and the Montana Hazardous Waste Act and the regulations adopted pursuant to it. The Remediation Proposal should include a discussion of whether a hazardous waste will be generated by its implementation (e.g., through the excavation of contaminated material, which may have been discharged prior to 1980, but which would become a hazardous waste upon being excavated or managed), and the volume of this material. This section of the VCP should also include a description of how such hazardous waste will be managed in accordance with current state and federal hazardous waste regulations. Specific information about the proposed disposal facility should be included in the VCP, if applicable. If applicable, the VCP should describe the sampling program that will be used to verify that the material is not a hazardous waste or that treatment of the contaminated media has resulted in a non-hazardous waste.

3.4.2 Implementation of the Approved Plan

Section 75-10-736(9), MCA, provides that if conditions are discovered during implementation of the VCP that were not identified in the Environmental Assessment, affect the risk to public health, welfare, and safety and of the environment, and change the scope of the approved VCP, the applicant must

notify DEQ within ten days of discovery. DEQ may require the applicant to submit an amendment to the VCP to address the conditions or may determine that a VCP is no longer appropriate.

Most Remediation Proposals will include a description of all confirmation sampling, backfill, and revegetation activities. Redevelopment information should **not** be included in the VCP. It is acceptable to indicate that revegetation requirements may not apply because the property will be redeveloped immediately upon completion of remedial activities. However, figures of future redevelopment plans should not be included in the VCP.

3.4.2.1 Confirmation Sampling

A confirmation sampling plan needs to be developed as part of the Remediation Proposal. The confirmation sampling plan will need to provide sufficient sampling coverage to ensure all contamination above cleanup levels has been removed and to verify attainment of cleanup levels. This section of the VCP should include a description of the confirmation sampling that will be conducted during and following the cleanup to verify that cleanup levels have been met. A confirmation sampling plan should include the following:

- A discussion of the number, location, and type of samples to be collected;
- Collection and analytical methods that will be used. Please note that it is critical that confirmation samples be analyzed using methods with detection limits adequate to determine if the data is valid and whether cleanup levels have been met;
- A brief reference to the approved cleanup levels ("No further action" VCPs should include a reference to the risk analysis which indicates that no further actions are necessary);
- Any RCRA contained-out determinations should be discussed in this section; and
- A discussion of what quality assurance/quality control (QA/QC) documentation will be followed including: completion of data validation checklists/reports (see DEQ's Data Validation Guidelines for Evaluating Analytical Data), copies of all laboratory results, and a completed chain of custody with the laboratory's sample receipt checklist. Please identify in the text that the validation checklist/report will clearly identify and discuss all QA/QC issues noted in the data review.

DEQ typically requires that a 5-point composite confirmation sample be collected from each cell of a 25-foot by 25-foot sampling grid. Confirmation samples should be collected from the excavation floor as well as along all side-walls. Separate samples should be collected from surface and subsurface soil for sidewalls, and samples from separate sidewalls should generally not be composited. If sampling along a narrow corridor, a 5-point composite sample should be collected over an area of 625 square feet. Alternate sampling strategies are considered on a facility-specific basis. For example, it may be appropriate to collect samples along radial lines extending from a known source of airborne contamination. It may also be appropriate to collect samples from larger grids on very large facilities; however, factors like heterogeneity of contamination must be considered in determining grid size.

In some situations, EPA's ProUCL software can be used to calculate a reasonable maximum exposure point concentration (RMEPC) for direct contact. Additional information regarding RMEPCs, EPA's ProUCL software, and general assumptions for facility specific risk assessment/analysis can be found in DEQ's Risk Assessment FAQs at the following link: http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions.

The confirmation sampling results are typically provided to DEQ for approval as soon as the validated analytical results are available.

3.4.2.2 Backfill

Backfill material to be used at a facility needs to be adequately characterized to demonstrate that the backfill material does not contain contaminants at concentrations greater than the appropriate cleanup or screening levels. A backfill approval request letter should be submitted for DEQ approval, for all proposed backfill and borrow source material, before backfilling takes place. A backfill approval request letter should include the following:

- A description and map of the backfill source material. This discussion should include the search results in DEQ's online electronic databases for known contaminated facilities to determine if the proposed backfill source is a known contaminated facility or is adjacent to a known contaminated facility listed in the databases. Because DEQ is in the process of upgrading its databases, they do not currently include all facilities. Therefore, you will also need to submit a records request to identify known contaminated facilities near the proposed backfill source. Please include a latitude and longitude in the request, which can be submitted at http://deq.mt.gov/Public/RequestPublicRecords.
- If the proposed backfill source is in the database or is adjacent to a facility listed in the database, additional analysis may be required for parameters known to be present at the listed facility. In addition to contaminants present in known sources of contamination on or adjacent to the backfill source area, backfill samples must also be analyzed for the following total metals: arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury. For metals analyses (whether backfill or other types of soil sampling) please sieve the samples to 250 microns (a No. 60 sieve) and analyze the finer fraction (for more information see DEQ's frequently asked question regarding sieving at http://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions).
- A discussion of the number and type of samples collected and the quantity of material that will be used as source material. Generally, at least one 5-point composite sample should be collected for every 400 cubic yards of backfill material. If large volumes of backfill material are needed, the applicant may propose an alternate sample frequency.
- A discussion of the sample results compared to DEQ background, cleanup, or generic screening levels (for additional information please see DEQ's flow chart of the soil screening process at the following link: http://deq.mt.gov/Land/StateSuperfund/resources). This discussion must include a summary table with both the analytical results and all appropriate background, cleanup or screening levels.
- Proper QA/QC documentation, including complete data validation checklists/reports, copies of all laboratory results, and a completed chain of custody with the laboratory's sample receipt checklist. All QA/QC issues in the lab reports must be clearly identified and discussed in the validation checklist/reports to ensure the data is usable for decision-making.

3.4.2.3 Revegetation

Based on applicable or relevant reclamation ERCLs, the following information should be provided in this section of the VCP, as appropriate:

- Recontouring/grading, including final slope and aspect, drainageway reconstruction, and erosion control methods;
- Cover soil/topsoil, including soil source, soil texture, percent rock fragments, and percent organic matter;
- Seedbed preparation, including depth of tilling and equipment to be used;
- Amendment application, including fertilizer, mulch, or other amendment application rates;
- Seeding/planting, including seed mixes, seed sources, seeding rates, seeding techniques, seeding times, and transplants;
- Noxious weed control;
- Reference area delineation or description of vegetation typical of the surrounding area (see below); and
- Monitoring, including monitoring and reporting frequency, and sampling methods.

The Remediation Proposal should state how success of revegetation will be determined. Success of revegetation should be determined by comparison with uncontaminated reference areas or by comparison with technical standards. Reference areas and standards should be representative of vegetation and related site characteristics and should occur on lands exhibiting good ecological integrity. Reference areas are parcels of land chosen for comparison to revegetated areas. A reference area is not required for vegetation parameters with approved technical standards. DEQ will approve the reference areas, technical standards, and methods of comparison.

Lands where waste has been removed should be revegetated using plant species native to the area and should achieve a vegetative cover equal to 85% of the vegetative cover of adjacent lands that were not previously disturbed within three years of the initial seeding. The noxious weed target will be 0% over the revegetated areas (§ 17.24.726, ARM). Compliance with the Noxious Weed Management Act (7-22-2101 through 7-22-2153 , MCA, as amended) may be required.

Descriptions of reference areas of vegetation typical of the surrounding area and vegetation monitoring reports should provide adequate information for DEQ to be able to assess vegetation success according to the following criteria:

- Percent vegetation cover by species (current year's growth, including noxious weeds);
- Percent total vegetative cover (current year's growth, not including noxious weeds);
- Percent litter (litter plus rock over 2 inches in diameter);
- Percent bare ground;
- Herbaceous production;
- Shrub density (if applicable); and
- List of species (observed anywhere within the seeded area).

By the end of the first season after remediation, DEQ may perform a revegetation inspection. Only after the DEQ has approved the revegetation and the applicant has submitted and received approval of

their revegetation plan from the County Weed Control Board should the applicant submit a construction completion report. An applicant may solicit approval of the revegetation plan from the County Weed Control Board prior to submittal of the VCP and include the approval letter in the VCP.

3.4.2.4 Cover Soils

The organic content of the topsoil should be within a range of values not less than 1% and not greater than 20%. The top 24 inches should have no more than 20% particles greater than 2.0 mm. The soil pH should be between 5.5 and 8.0.

The proposed topsoil source may not contain any "noxious weeds or noxious weed seeds." If noxious weeds are found on the topsoil source site, the topsoil will be rejected and not used for revegetation. Clay textured soils with more than 40% clay may be unsuitable. The following is an example of topsoil specification used by the Abandoned Mine Reclamation Bureau (DEQ 1990).

TOPSOIL GRADATION SPECIFCIATIONS

Fraction	Particle Size (mm)	Max. % of Soil (-10 Mesh) Fraction
Sand	0.05 - 2.0	70
Silt	0.002 - 0.05	70
Clay	Less than 0.0023	40
Gravel	Larger than 2.0	Maximum 20%

3.4.3 Operation and Maintenance

For VCPs that include an O&M period, an O&M plan should be submitted with the Remediation Proposal component of the VCP. The O&M plan should describe the O&M activities that will be performed to ensure that cleanup action objectives will not be compromised. The O&M plan may also include a sampling program that may be used to monitor the effectiveness of the remedy. As stated previously, DEQ may require financial assurance for O&M. Closure letters for facilities requiring O&M will be limited and include language related to the O&M and continued payment of DEQ costs related to the O&M. For facilities where all remedial activities except O&M activities are complete, the facility will be placed in O&M status on the CECRA Priority List.

3.4.4 Treatability Studies

The applicant is required to address any treatability studies in the Remediation Proposal component of the VCP.

Section 75-10-734(3)(a)(iii), MCA, requires that the Remediation Proposal component of the VCP include identification of sampling or treatability studies. This section of the VCP should include a description of any sampling or treatability studies required before or during the implementation of the VCP. For example, if an appropriate stabilization mixture must be developed prior to implementation,

a description of the treatability studies associated with its development should be included here. It is advisable that the applicant conduct the majority of the sampling and treatability studies necessary for the remedy prior to submittal of the VCP, to ensure that adequate information is available to indicate that the remedy is appropriate.

3.5 VCP Schedule

Section 75-10-734(3)(c), MCA, requires a timetable for implementing the proposal and for any necessary monitoring of the facility after the proposed measures are completed. Rather than specifying the dates, the timetable should provide relative timeframes. As stated in § 75-10-736(8), MCA, voluntary cleanups must be initiated within 12 months of approval of the VCP and completed in 60 months or less, excluding O&M, or DEQ's approval lapses. Under facility-specific circumstances, DEQ may grant an extension of the time limit for completion of the VCP.

3.6 Health and Safety

Section 75-10-734(3)(d), MCA, requires that the Remediation Proposal component of the VCP include a statement that applicable health and safety regulations will be met during implementation of the Remediation Proposal. DEQ requires only that this commitment be included without any further information. DEQ does not approve health and safety plans; however, DEQ may request copies of facility-specific health and safety plans prior to conducting oversight of field activities to ensure the health and safety of DEQ staff.

3.7 Minimization of Short-Term Disturbances

Section 75-10-734(3)(e), MCA, requires that the Remediation Proposal component of the VCP include a description of how short-term disturbances during implementation of the Remediation Proposal will be minimized. Examples include: how dust or storm water runoff will be controlled during construction activities, traffic plans for haul trucks, etc.

3.8 Required Permits

Section 75-10-734(3)(f), MCA, requires that the Remediation Proposal component of the VCP include identification of any permits necessary to conduct the proposed remedy. Any federal, state, and/or local permits that may be required must be obtained before the VCP can be implemented. Examples of permits that may be required include EPA Form 8700-12, Notification of Hazardous Waste Activity, State of Montana construction storm water discharge permit, State of Montana Floodplain Development Permit, U.S. Army Corps of Engineers 404 permit, State of Montana 312 Permit, and County Conservation District 310 Permit. The Montana Environmental Quality Council publishes the Montana Index of Environmental Permits available online at http://leg.mt.gov/css/publications/environmental/permit_index/permit_tofc.asp. In addition, for remedies impacting streams, the Montana Association of Conservation Districts publishes a Guide to Stream Permitting in Montana. These guides should be consulted to determine which permits may be required for the proposed remedy. The proposed remedy must comply with all federal, state, and local regulations regarding health and safety and remediation. The VCP should identify any applicable local regulations. Copies of all required permits must be provided to DEQ prior to initiation of the cleanup.

4.0 COMPLETION OF THE VCP

4.1 Construction Completion Report

As indicated in § 75-10-736(11), MCA, 60 days after completion of the approved Remediation Proposal (including established revegetation), the applicant shall provide to DEQ a certification from a qualified environmental professional that the VCP has been fully implemented. In this certification, the qualified environmental professional should include a signed letter to this effect and include all documentation necessary to demonstrate the successful implementation of the VCP. This documentation should include (but is not limited to) the following:

- A list of all COCs along with the remaining concentrations;
- Any deviations from the approved Remediation Proposal. Significant deviations (e.g. discovery of new sources of COCs; discovery of significant new amounts of known COCs; inability to complete the approved Remediation Proposal; newly-discovered condition that affects the risk to public health, welfare, and safety, and of the environment; or newly-discovered condition that changes the scope of the approved Remediation Proposal) will require DEQ's pre-approval. Discussions of these significant deviations and copies of DEQ's pre-approval should be included in this section;
- Any material changes or differences from either the Environmental Assessment or Remediation Proposal;
- Final construction diagrams and pertinent figures and drawings of all remedial systems;
- Disposal manifests;
- Confirmation sampling locations, sample results and laboratory data packages, data validation reports of the confirmation sampling, discussion of any confirmation sampling plan deviations and any QA/QC issues, and comparison to approved VCP cleanup levels;
- A discussion of the DEQ approved backfill and a reference to the backfill approval request letter;
- Copies of all field logbooks and photographs taken during implementation of the Remediation Proposal;
- Documentation of revegetation with photographs;
- Discussion and scheduling of any long-term O&M or engineering controls;
- A copy of all recorded ICs;
- Any VCP amendments; and
- Any other documentation necessary for DEQ to determine if the VCP has been fully implemented.

4.2 Closure and No Further Action

Sections 75-10-738(1) and (2), MCA, indicate that after completion of the VCP, an applicant may

petition DEQ for closure of the facility. Within 60 days of receipt of a petition for closure, weather permitting, DEQ will conduct a review to determine that the releases or threatened releases addressed in the VCP do not pose a significant threat to public health, welfare, and safety, and of the environment as determined in accordance with § 75-10-721, MCA, and that the applicant has:

1. implemented all appropriate remedial actions;
2. if necessary, provided for long-term funding for facility maintenance or monitoring; and
3. reimbursed DEQ for all remedial action costs of the voluntary cleanup.

Section 75-10-738(4), MCA, indicates that after completion of a portion of a facility addressed in the VCP, DEQ shall issue a letter of completion notice to the applicant if DEQ determines that the applicant has satisfied the requirements of § 75-10-738(2), MCA.

If the entire facility is not addressed in the VCP, DEQ's letter of completion notice is typically equivalent to a "no further action" letter for that portion of the facility addressed in the VCP.

4.3 Delisting

If a facility is included on the CECRA Priority List and the entire facility is addressed in the VCP, the applicant's petition for closure may also include a petition for delisting of the facility. If appropriate, DEQ will initiate the delisting process described in ARM 17.55.114 upon issuing a closure letter for the facility.

5.0 REFERENCES

This section of the VCP should include a list of the references cited in the VCP. The following are a list of references used to complete the VCRA Guide. It does not include legal citations such as those found in the Montana Code Annotated, Administrative Rules of Montana, United States Code, and Code of Federal Regulations.

DEQ 2020. DEQ SSU Frequently Asked Questions
https://deq.mt.gov/Land/StateSuperfund/FrequentlyAskedQuestions

DEQ 2019. Circular DEQ-7, Montana Numeric Water Quality Standards, June 2019.

DEQ 2018. Montana Risk-Based Corrective Action Guidance for Petroleum Releases, May 2018.

DEQ 2018a. Evaluating Lead in Soil memorandum, https://deq.mt.gov/Portals/112/Land/StateSuperFund/Documents/FAQ/2018LeadMemo.pdf October 19, 2018.

DEQ 2017. DEQ Ecological Risk Assessment Guidance, March 2017.

DEQ 2017a. DEQ Risk Assessment Guidance for Superfund Tables, http://deq.mt.gov/Land/statesuperfund/resources/mrat, April 2017.

DEQ 2013. Montana Department of Environmental Quality (DEQ), Remediation Division, Background Concentrations of Inorganic Constituents in Montana Surface Soil, September 2013.

DEQ 2011. Montana Vapor Intrusion Guide, April 2011.

DEQ 2008. DEQ's Technical Guidance General Field Data Needs for Fate and Transport Modeling, September 2008.

DEQ 2004. Abandoned Mine Reclamation Bureau Risk-Based Cleanup Guidelines for Abandoned Mine Sites, July 2004.

DEQ 1990. Standard Specifications for Abandoned Mine Construction: Montana Abandoned Mine Reclamation Bureau, December 1990.

EPA 2019. EPA Regional Screening Levels, November 2019.

EPA 2015. OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air, June 2015.

EPA 2014. Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors, February 2014.

EPA 2011. Exposure Factors Handbook 2011 Edition (Final Report) EPA/600/R-09/052F, September 2011.

EPA, 2009. Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment). January 2009.

EPA 2006. EPA Region 3 Biological Technical Assistance Group Freshwater Sediment Screening Benchmarks, August 2006.

EPA 2006a. EPA Region 3 Biological Technical Assistance Group Freshwater Screening Benchmarks, July 2006.

EPA 2004. Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual, Supplemental Guidance for Dermal Exposure Assessment (Part E) (EPA/540/R/99/005, July 2004).

EPA 2003. Guidance for Developing Ecological Soil Screening Levels (Eco-SSLs), November 2003.

EPA 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites, December 2002.

EPA 2001. RAGS, Volume 1, Human Health Evaluation Manual Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments: EPA/540-R-97-033, December 2001.

EPA 1998. Guidelines for Ecological Risk Assessment: EPA/630/R-95/002F, April 1998.

EPA 1997. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, June 1997.

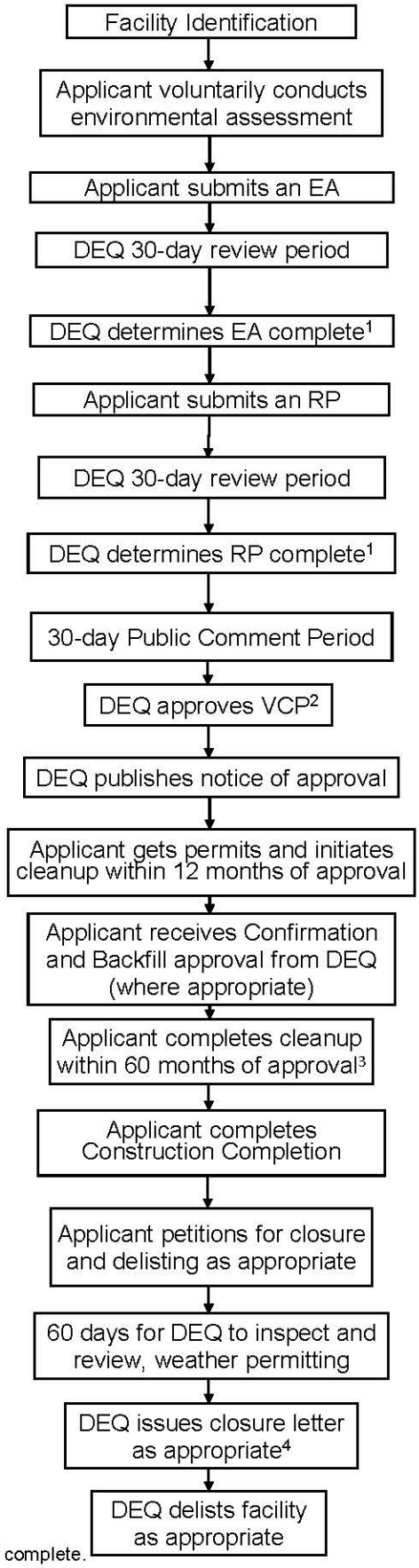
EPA 1996. Soil Screening Guidance: User's Guide, EPA/540/R-96/018, July 1996. Note: Accompanying documents include Soil Screening Guidance: Technical Background Document: EPA/540/R-95/128 and Soil Screening Guidance: Supplemental Guidance for Developing Soil Screening Levels for Superfund Site, December 2002.

EPA 1991. RAGS, Volume I, Human Health Evaluation Manual Part B, Development of Risk-based Preliminary Remediation Goals: EPA 540/R-92/003, December 1991.

EPA 1991a. RAGS, Volume I, Human Health Evaluation Manual Part C, Risk Evaluation of Remedial Alternatives: EPA/540/R-92/004, October 1991.

EPA 1989. RAGS, Volume I, Human Health Evaluation Manual Part A: EPA/540/1-89/002, December 1989.

FIGURE 1
THE VOLUNTARY CLEANUP AND REDEVELOPMENT ACT (VCRA) PROCESS



VCP = Voluntary Cleanup Plan (a complete EA & RP)
DEQ = Montana Department of Environmental Quality
EA = Environmental Assessment
RP = Remediation Proposal

[1] A VCP may require more than one revision to be deemed complete.

[2] DEQ may require changes based on public comment prior to approval or may not approve the VCP.

[3] Within 120 months of approval for groundwater cleanup.

[4] Applicants are required to pay the State's remedial action costs before DEQ will issue a closure letter.

VCRA Guide Checklist

This checklist includes all the elements to a complete VCP and is organized to coincide with the sections of the VCRA Guide. If an element is not included in the submitted VCP, its absence should be explained in the narrative.

Environmental Assessment (EA)

☐ **Applicant has reviewed both Section 1 and 2 of the VCRA Guide**

2.0 ENVIRONMENTAL ASSESSMENT

2.1 Introduction: (additional information may also be found in Section 1.0 of the VCRA Guide)

- ☐ Facility name and general location;
- ☐ Name and address of applicant submitting the VCP (and owner if different);
- ☐ Statement indicating whether the facility is on the CECRA Priority List;
- ☐ In general, type and source of contamination;
- ☐ An agreement to reimburse DEQ costs.
- ☐ Statement indicating that the facility is eligible for voluntary cleanup procedures per the criteria discussed in Section 2.0 of the VCRA guide;
- ☐ Information indicating the EA has been prepared by a qualified environmental professional;
  - ☐ Include all qualifications in an Appendix to the EA. The RP can reference back to that information.
  - ☐ If the RP is prepared by a different professional, include those qualifications in an Appendix to the RP.

2.2 Legal Description and Map:

- ☐ Include county, city, or distance to nearest city; street address; township, range and section; and latitude and longitude;
- ☐ Map to scale identifying the location and size of the facility and relevant features such as property boundaries, surface topography, surface and subsurface structures, and utility lines;
- ☐ Copies of property deeds should be included as an appendix.

2.2.1 Written Consent of Current Owners: The written consent of current owners of the facility or property for access to the facility by the applicant and its agents and DEQ, and any other sampling or activities necessary for completion of the EA.

2.3 Physical Characteristics of the Facility: (includes all areas where contamination has come to be located) and areas contiguous to the Facility including:

- ☐ Topography;
- ☐ Stratigraphy;
- ☐ Structural geology;
- ☐ Regional groundwater flow patterns;
- ☐ Groundwater aquifers;
- ☐ Hydraulic conductivity;
- ☐ Floodplain designation;
- ☐ Climatological data, including wind speed and direction;

- All surface water bodies and wastewater discharge points;
- Groundwater monitoring and supply wells;
- Surface water intakes;
- Aquatic and terrestrial habitats;
- Sensitive environments (e.g., wetlands);
- Physical features such as buildings or roads;
- Facility process units and loading docks;
- Chemical and/or fuel transfer and pumping stations;
- Current and historic railroad tracks and railcar loading areas;
- Surface and storm water run-off retention ponds and discharge points;
- Building drainage or wastewater discharge points;
- Spill collection sumps and/or drainage collection areas;
- Wastewater treatment units;
- All underground and above ground storage tanks;
- Underground and above ground piping;
- Water cooling systems and/or refrigeration units;
- Sewer lines;
- Underground utility lines and buried cables;
- French drain systems;
- Water recovery sumps and building foundations;
- Surface impoundments;
- Waste storage and/or disposal areas/pits, landfills etc.;
- Chemical and/or product storage areas;
- Septic leach fields (drain fields);
- Irrigation ditches and/or irrigation systems;
- Dry wells and/or waste disposal sumps; and
- A list of all the other impacted facilities (CECRA, federal superfund, leaking underground storage tank, contaminated groundwater, hazardous waste, etc.) within one-quarter mile of the facility.

2.4 Area Wells: Provide a description of all wells at the facility or within a one-half mile radius of the facility, including:

- A list of all wells identifying the use, depth, geologic formation/aquifer and yield of those wells;
- A map to scale using geographic references showing the locations of these wells;
- Documentation of any efforts to verify the presence or absence of unregistered wells; and
- A list providing all available well construction information, ownership, address, driller, date drilled, static water level, well construction design, well logs, and field notes.

2.5 Groundwater and Surface Water Usage: Provide a description of the current and reasonably anticipated future use of onsite ground and surface water, including:

- Suitability of water for beneficial uses;
- Historical land and water uses;
- Anticipated future land and water uses;
- Community and nearby property owners' concerns regarding future water use;
- Regional and local development patterns;
- Regional and local population projections;

- Availability of alternate water sources including, but not limited to, public water supplies, groundwater sources, and surface water sources;
- Specific conductivity and class of the groundwater.; and
- Classification of any steams or rivers on or near the facility.

2.6 Operational History of the Entire Facility: Provide a description of the following:

- Records, dates, and descriptions of past and current operations, activities, conditions or incidents at the facility or nearby facilities that may have resulted in a release or threatened release of a hazardous or deleterious substance;
- Complete ownership history of all property comprising the facility;
- Copies of deeds/easements;
- Readily available aerial photographs;
- Building department records;
- A description of all activities or businesses that occupied the facility as far back as typical historical records and knowledge allows, including years of operation;
- A description of any historical records including county clerk and recorder and tax assessor records, Polk directories, and Sanborn fire insurance maps (include copies of easily obtainable, relevant documents in an appendix);
- Diagrams of facility operations (e.g., railroad facility maps, permitted activity diagrams);
- The dates that the activities occurred and the dates during which the hazardous or deleterious substances may have been released into the environment;
- The approximate volumes of the materials released;
- A description of past and current waste disposal practices and areas;
- A list of any known hazardous or deleterious substances used at the facility, with volume estimates and a list of all wastes generated at the facility, including manifests for disposal;
- References and information about the sources of the operational history, including a brief description of the efforts made to research various informational sources;
- A description of the current use of the facility;
- Current hazardous or deleterious substance usage;
- Current waste disposal practices;
- Registries or publicly available lists of engineering controls; and
- Registries or publicly available lists of institutional controls, including environmental land use restrictions.

2.7 Current and Future Facility Use: Describe the current and reasonably anticipated future uses of the facility and immediately adjacent properties by analyzing likely future land or resource uses that take into consideration the following:

- Local land and resource use regulations, ordinances, restrictions, or covenants;
- Historical and anticipated uses of the facility;
- Patterns of development in the immediate area; and
- Relevant indications of anticipated land use from the owner of the facility and local planning officials.

2.8 Regulatory and Compliance History: Provide a description of the following

- List of all local, state, and federal environmental permits obtained for the facility;
- Information on permit violations, notices to take corrective action, or similar issues for each of these permits;
- List all facility-specific notifications made as a result of any management activities of hazardous substances conducted at the facility, including any and all EPA identification numbers obtained for management of hazardous substances at the facility from either the state or the EPA and any conditionally exempt small quantity generator determinations;
- List all notifications made to state and/or federal agencies reporting spills and/or accidental releases and any actions taken to address those spills/releases, including confirmation sample results;
- A description of any actions taken under any regulatory authority (CECRA, CERCLA, RCRA, WQA, CWA, etc.) at the facility (e.g., notice letters, proper and expeditious letters, or orders); and
- A description of any private or agency litigation associated with the facility; and
- A description of any controlled allocation of liability act actions related to the facility.

2.9 Facility Characterization:

2.9.1 Characterization Information:

- A narrative describing methods and results from all investigations characterizing nature and extent of any releases or threatened releases of hazardous or deleterious substances that have occurred at the facility. The investigations should characterize the entire facility including surface soils, subsurface soils, sediment, air, soil gas, vapor intrusion, groundwater, and surface water, as applicable;
- A table of contaminants indicating which media is contaminated and estimated extent of that contamination;
- A data summary discussion and table of the samples collected by media, including identification of all analyses for that media. These data tables should also include comparison to generic screening levels;
- A map indicating all potential source areas, areas and concentrations of hazardous or deleterious substances, previous, hazardous or deleterious substance treatment, and storage or discharge areas;
- Site conceptual model of sources showing potential migration pathways;
- Describe the chemical nature, mobility and toxicity of the hazardous or deleterious substances, estimated volumes and concentrations of substances discharged at each area, discharge point, drain, or leakage point (if available);
- Map drawn to scale showing groundwater elevation and groundwater flow direction;
- Discussion of all hydraulic tests performed at the facility or nearby to characterize the hydrogeologic properties of any aquifers in the area;
- Discussion of how all environmental samples/data were collected, including:
  - The rationale involved in sampling locations, parameters, and methodology;
  - A description of sampling locations;
  - Well construction details (showing screened interval, casing type, gravel pack interval, bentonite seal thickness and cemented interval) and lithologic logs;
  - Test-pit and borehole logs;
  - Quality assurance/quality control measures associated with the sampling and analysis;
  - Data validation of sample results including a brief discussion of the quality of the data;
  - Sampling frequency and locations;

- The use of EPA-approved analytical methods with appropriate method detection limits. Detection limits must be low enough for comparison with appropriate screening levels or cleanup levels; and
- Include the laboratory data and data validation reports as an appendix.

- Discussion of any remedial actions already performed at the facility (especially important for "no further action" VCPs), including:
  - A description and figure of the location of contaminants of concern (COCs);
  - A description and figure of the area of the remedial action and confirmation samples;
  - The method employed to carry out the remedial action;
  - Assessment of, methodology, analytical methods, and frequency of confirmation samples;
  - Description of the disposition of all contaminated media; and
  - Comparison of confirmation samples to screening/cleanup levels which were used to verify the effectiveness of the remedial action. If site-specific cleanup levels were calculated, a discussion of calculation methods and assumptions used should be included.

2.9.2 Screening Contaminants of Concern: All contaminants must be screened against generic screening levels to determine the COCs for the Facility. This section should include:

- Surface water and groundwater concentrations must be screened against the most current DEQ-7 standards, RBSLs, or tapwater RSLs;
- Drinking water must be compared to the MCLs;
- Dry weight sediment concentrations must be compared to the most current EPA Region 3 BTAGs;
- Dry weight soil concentrations must be screened using DEQ's Soil Screening Process found on DEQ's website at http://deq.mt.gov/Land/StateSuperfund/resources; and
- Soil-gas, sub-slab, and indoor air concentrations must be screened against the most current EPA RSLs for residential air and the Montana APH generic screening levels.

2.10 Human and Environmental Exposure: Description of the human and environmental exposure to releases or threatened releases of hazardous or deleterious substances at the facility based upon the current use of the facility and adjacent properties and any reasonably anticipated future uses of the facility;

- Provide a site conceptual exposure model (SCEM) and a visual diagram SCEM. Include a narrative for the current and reasonably anticipated future use of the facility that indicates the facility-specific contaminant sources (e.g., underground tanks, sewer lines, etc.), release mechanisms, transport routes and media, and potential receptors;
- Include a table or list of site contaminants indicating which media are contaminated and the estimated vertical and areal extent of contamination in each medium;
- Include an Occurrence, Distribution, and Selection of Chemicals of Potential Concern (ODSCOPC) table with the following information: COCs minimum concentration, maximum concentration, location of maximum concentration, detection frequency, range of detection limits, sample concentration used for screening, generic screening level and source, site-specific screening level (if appropriate) and source, if the chemical is a COC, and the rationale for this decision;
- Discuss and evaluate ecological receptors;
- Provide an evaluation of the soil leaching to groundwater pathway. All soil cleanup levels must be protective of groundwater;
- If volatile compounds are present at the facility, evaluate vapor intrusion to indoor air; and

- “No further action” VCPs must include a demonstration that the current condition of the facility meets all appropriate cleanup levels and that no further remedial action is necessary to achieve cleanup goals.

2.11 Facility Maps, Figures, and Photographs: The following is a list of maps, figures, and photographs that should be included where appropriate. These maps, figures, and photographs may be combined where appropriate.

- **Site/Facility Location Map**
  - Portion of the USGS 7.5’ Quadrangle depicting the site/facility location;
  - Facility boundary;
  - Surface water bodies; and
  - Topography.
- **Aerial Photographs:** Current and all historical readily available aerial photographs.
- **Site/Facility Plan View Map(s)**
  - Location and size of Facility;
  - Property boundaries;
  - Facility boundary;
  - Surface topography;
  - Surface & Subsurface structures;
  - Utility lines;
  - Above- or below- ground tanks;
  - Surrounding, nearby, and/or impacted properties;
  - Physical characteristics;
  - All Facility wells within one-half mile radius (including a description of use);
  - Potential source areas and concentrations of hazardous or deleterious substances; and
  - Potentially impacted receptors.
- **Sample Location Map(s)**
  - Depict locations of all monitoring wells;
  - Soil borings and test pits;
  - Soil gas;
  - Groundwater survey probes;
  - Surface and subsurface samples;
  - Surface water and groundwater (including residential, commercial, and public water supply) samples; and
  - One map should include (as a base layer) the highest quality or most current color orthophoto with georeferenced Sanborn map information and/or any other site/facility historic blueprint/map information overlain with all labeled sample locations to assist in the identification of historic sources and operations. (This map is typically a 24”x26” map to allow for greater site detail).
- **Potentiometric Surface Map(s)**
  - Includes depicting the potentiometric groundwater surface during high and low water table;
  - Data such as static water level elevations (expressed as feet above Mean Sea Level); and
  - Arrows depicting groundwater flow direction.
- **Geologic Cross Sections**
  - Show site stratigraphy through full depth of potentially impacted water-bearing units;
  - A minimum of three cross-sections per site (i.e. one parallel to groundwater flow direction and two perpendicular to flow direction and/or skewed to align with actual well/boring sample locations); and

- Indicate contaminant location, monitoring wells depicting their screened intervals, and subsurface conduits/piping, etc., depicting the subsurface of the property.

Soil Contamination

- Isoline map depicting soil analytical data. Include at least three labeled isolines for each contaminant (one identifying the area of sampling method detection limit exceedance, one identifying each applicable standard and/or screening level (i.e. RBSL, RSL, etc.) exceedance, and one identifying areas of increased concentrations.

Groundwater Contamination Isoconcentration Map(s)

- Isoline map depicting the extent and degree of groundwater contamination; and
- Include at least three labeled isolines for each contaminant (one identifying the required reporting value identified in DEQ-7, one identifying each applicable standard and/or screening level (i.e. MCL, DEQ-7, RBSL) exceedance, and as many isoconcentrations as necessary to demonstrate the range of dissolved concentrations).

Separate Phase Product Isoline Map(s)

- If separate phase product is encountered, a map depicting product extent and thickness should be provided. Include at least three labeled isolines for each separate phase product (one identifying the edge of measurable product thickness; then as many isolines as necessary to demonstrate the range of thickness encompassed by the plume).

Facility Contaminant Affected Area Map

- Map of all identified contaminant isoline areas (for all media in both the surface and subsurface) color-coded to distinguish different contaminant areas/media. All sample locations should be labeled and included, contaminant source locations should be identified, as well as other pertinent features.

Please ensure that all relevant Figures, Tables, and Appendixes included in Environmental Assessment are also included in the Remediation Proposal.

Remedial Proposal (RP):

- **Applicant has reviewed both Section 3 and 4 of the VCRA Guide**

3.0 REMEDIATION PROPOSAL

- Once DEQ determines that the EA component of VCP is complete, the applicant may submit the RP component.
- Verify the RP was prepared by a qualified environmental professional (include qualifications in an Appendix).
- This section of the VCP should include the information described in Section 3 of the VCRA guide.

3.1 Introduction: Include the following information:

- Facility name and general location;
- Date that the EA was deemed complete by DEQ;
- Statement indicating if the VCP addresses the entire facility or only a portion (if so what portion);
- Anticipated length of time needed to complete the cleanup (e.g. "No Further Action", 6 months, 2 years, 5 years; must be 60 months or less, except for groundwater, which must be 120 months or less);
- Verification of Facility Conditions;
- Written consent from current owners to implementation of the VCP;
- Review of COCs; and
- A detailed description of all actions that have occurred between completion of the EA and the submittal of the RP.

3.2 Cleanup Levels: Identify the proposed cleanup levels for the facility and how they were derived:

- Background cleanup levels;
- Established generic screening levels;
- Facility-specific adjusted screening levels;
- Facility-specific risk-based cleanup levels; and
- Facility-specific leaching to groundwater cleanup levels.

3.3 Remedial Alternatives Comparison: This section requires a brief comparison of several remediation alternatives. This section of the VCP should include:

- Text providing a brief description of each alternative, and a discussion regarding how each alternative would or would not meet each of the seven criteria from section 75-10-721, MCA;
  - Protectiveness;
  - Compliance with ERCLs;
  - Mitigation of risk;
  - Effectiveness and reliability;
  - Practicability and implementability;
  - Use of treatment or resource recovery technologies; and
  - Cost-effectiveness.

- A summary table providing a comparison of the proposed remedy to other reasonable alternatives based on the seven criteria. This section is meant to provide a truncated feasibility study type analysis.

3.4 Proposed Cleanup Plan: The RP must provide a detailed description of all components of the cleanup plan.

- Remediation system design diagrams showing how the system will be constructed in the field;
- A map identifying areas to be remediated, the area where the remediation system will be located, the locations of confirmation samples, the locations of monitoring wells, areas where contaminated media will temporarily be stored/staged and areas not requiring cleanup;
- Sufficient information to determine if the applicant will be capable of completing the VCP within the 60-month time requirement (120 months for groundwater); and
- "No further action" VCPs must include a statement that no further remedial action is required at the facility to meet the requirements specified in § 75-10-721, MCA.

3.4.1 Waste Management: Include a discussion of whether or not a hazardous waste will be generated and the volume of this material. If applicable, the RP should describe the sampling program that will be used to verify that the material is not a hazardous waste or that treatment of the contaminated media has resulted in a non-hazardous waste.

3.4.2 Implementation of the VCP: the RP should include a discussion of:

- **Confirmation Sampling Plan:** The confirmation sampling plan should describe the sampling program that will be used to verify clean-up levels and includes:
  - A discussion of the number, location, and type of samples to be collected;
  - Collection methods and analytical methods that will be used;
  - A brief reference to the approved cleanup levels;
  - Any RCRA contained-out determinations; and
  - A discussion of what quality assurance/quality control (QA/QC) documentation will be followed.
- **Backfill:** A backfill approval request letter should be submitted for DEQ approval, for all proposed backfill and borrow source material, **before** backfilling takes place. A backfill approval request letter should include the following:
  - A description and map of the backfill source material clarifying proximity of source to other contaminated facilities and analyses to be used;
  - A discussion of the number and type of samples collected and the quantity of material that will be used as source material;
  - A discussion of the sample results verses DEQ background, cleanup, or generic screening levels; and
  - Proper QA/QC documentation, including a complete data validation checklist/report, copies of all laboratory results, and a completed chain of custody with the laboratory's sample receipt checklist.
- **Revegetation**: the RP should not include detailed information about planned redevelopment activities but should include discussion of:
  - Recontouring/grading, including final slope and aspect, drainageway reconstruction, and erosion control methods;
  - Coversoil/topsoil, including soil source, soil texture, percent rock fragments, and percent organic matter;

- Seedbed preparation, including depth of tilling and equipment to be used;
- Amendment application, including fertilizer, mulch, or other amendment application rates;
- Seeding/planting, including seed mixes and sources; and seeding rates, techniques, times, and transplants;
- Submit revegetation plan to, and receive approval from, the county weed control board.
- Reference area delineation or description of vegetation typical of the surrounding area;
- Monitoring, including monitoring and reporting frequency, and sampling methods; and
- Description of reference areas or vegetation typical of the surrounding area needs to provide adequate information for DEQ to be able to assess vegetation success according to the following criteria:
  - Percent vegetation cover by species (current year's growth, including noxious weeds);
  - Percent total vegetative cover (current year's growth, not including noxious weeds);
  - Percent litter (litter plus rock over 2 inches in diameter);
  - Percent bare ground;
  - Herbaceous production;
  - Shrub density (if applicable);
  - List of species (observed anywhere within the seeded area); and
  - Discussion of the gradation and organic content of topsoil.

3.4.3 Operation and Maintenance: The RP O&M plan should include, at a minimum:

- How the system will be optimized and operated to ensure that it functions as designed without interruptions; and
- A sampling program that will be used to monitor its effectiveness in achieving the desired goal.

3.4.4 Sampling or Treatability Studies:

- The RP should include a description of any sampling or treatability studies required before or during the implementation of the VCP.

3.5 Project Schedule:

- A timetable for implementing the RP and for any necessary monitoring of the facility after the proposed measures are completed
- Voluntary cleanups must be initiated within 12 months of approval of the VCP and completed in 60 months or less (120 months or less for groundwater), excluding O&M.

3.6 Health and Safety Regulations:

- A statement that applicable health and safety regulations will be met during implementation of the RP.

3.7 Minimization of Short-Term Disturbances:

- A description of how short-term disturbances during implementation of the RP will be minimized

3.8 Permits

- Identification of any permits necessary to conduct the work.
- Provide copies of the permits to DEQ before initiation of remediation

4.0 CONSTRUCTION COMPLETION REPORT: Within 60 days after completion of the VCP (including established revegetation), the applicant shall provide to DEQ the following:

A certification in letter form from a qualified environmental professional that the VCP has been fully implemented (including initiation of any required O&M or ICs);

A construction completion report including:

- A list of all COCs along with the remaining concentrations;
- Any deviations from the approved RP and copies of DEQ's approval of those deviations;
- Any material changes or difference from either the EA or the RP VCP;
- Final construction diagrams and pertinent figures and drawings of all remedial systems;
- Disposal manifests;
- Confirmation sampling locations, sample results and laboratory data packages, data validation reports of the confirmation sampling, and comparison to approved VCP cleanup levels;
- Copies of all field logbooks and photographs taken during implementation of the RP;
- Documentation of revegetation with photos;
- Discussion and scheduling of any long-term O&M or engineering controls;
- A copy of all recorded ICs;
- Any VCP Amendments; and
- Any other documentation necessary for DEQ to determine if the VCP has been fully implemented.

ATTACHMENT B-1

WRITTEN CONSENT OF PROPERTY OWNERS
FOR ACCESS
[insert facility name and location]

A voluntary cleanup plan is being prepared by [insert applicant name] for the [insert facility name] located in [insert city], Montana, for submittal to the Montana Department of Environmental Quality (DEQ) in accordance with the Voluntary Cleanup and Redevelopment Act. Section 75-10-733(2)(c), Montana Code Annotated, requires that voluntary cleanup plans must include, "the written consent of current owners of the facility or property to allow: (i) access to the facility by the applicant and its agents and the department." The following agreement has been developed to satisfy the facility access requirement and will be submitted with the environmental assessment portion of the voluntary cleanup plan.

As a property owner of [insert facility name (or a portion of the facility name)] as described below, I, [insert owner name], grant access to the facility to [insert applicant name], its agents, and DEQ.

[insert property description]

[insert name and address of owner]

_____
Signature(s)

_____
Name/Title (please print)

_____
Date

ATTACHMENT B-2

WRITTEN CONSENT OF PROPERTY OWNERS
FOR VOLUNTARY CLEANUP
[insert facility name and location]

A voluntary cleanup plan is being prepared by [insert applicant name] for the [insert facility name] located in [insert city], Montana, for submittal to the Montana Department of Environmental Quality (DEQ) in accordance with the Voluntary Cleanup and Redevelopment Act. Section 75-10-733(2)(c), Montana Code Annotated, requires that voluntary cleanup plans must include, "the written consent of current owners of the facility or property to allow: (i) access to the facility by the applicant and its agents and the department; and (ii) implementation of the voluntary cleanup plan when a remediation proposal includes the information required in 75-10-734 and meets the requirements of 75-10-721." The following agreement has been developed to satisfy the requirement for owner consent to the implementation of the voluntary cleanup plan, and will be submitted with the remediation proposal portion of the voluntary cleanup plan.

As a property owner of [insert facility name (or a portion of the facility name)] as described below, I, [insert owner name], having been presented with the remediation proposal, provide consent for the implementation of the voluntary cleanup plan proposed for the facility as approved by DEQ.

[insert property description]

[insert name and address of owner]

_____
Signature(s)

_____
Name/Title (please print)

_____
Date

Note: This written consent example is intended for use by the voluntary cleanup applicant who is also the facility owner and may be used in both portions of the voluntary cleanup plan.

ATTACHMENT B-3

WRITTEN CONSENT OF PROPERTY OWNERS FOR VOLUNTARY CLEANUP IMPLEMENTATION AND PROPERTYACCESS [insert facility name and location]

A voluntary cleanup plan is being prepared by [insert applicant name] for the [insert facility name] located in [insert city], Montana, for submittal to the Montana Department of Environmental Quality (DEQ) in accordance with the Voluntary Cleanup and Redevelopment Act. Section 75-10-733(2)(c), Montana Code Annotated (MCA), requires that voluntary cleanup plans must include, "the written consent of current owners of the facility or property to allow: (i) access to the facility by the applicant and its agents and the department; and (ii) implementation of the voluntary cleanup plan when a remediation proposal includes the information required in 75-10-734 and meets the requirements of 75-10-721." The following agreement has been developed to satisfy the statutory requirement for owner consent.

[insert applicant name] is the property owner of [insert facility name (or a portion of the facility name)] as described below. [insert applicant name] provides consent for the implementation of the voluntary cleanup plan proposed for the facility as approved by DEQ, and grants access to the facility to its agents and DEQ. If other properties not owned by [insert applicant name] are identified during the course of the environmental assessment of the facility, owner consents will be provided in accordance with 75-10-733(2)(c) MCA.

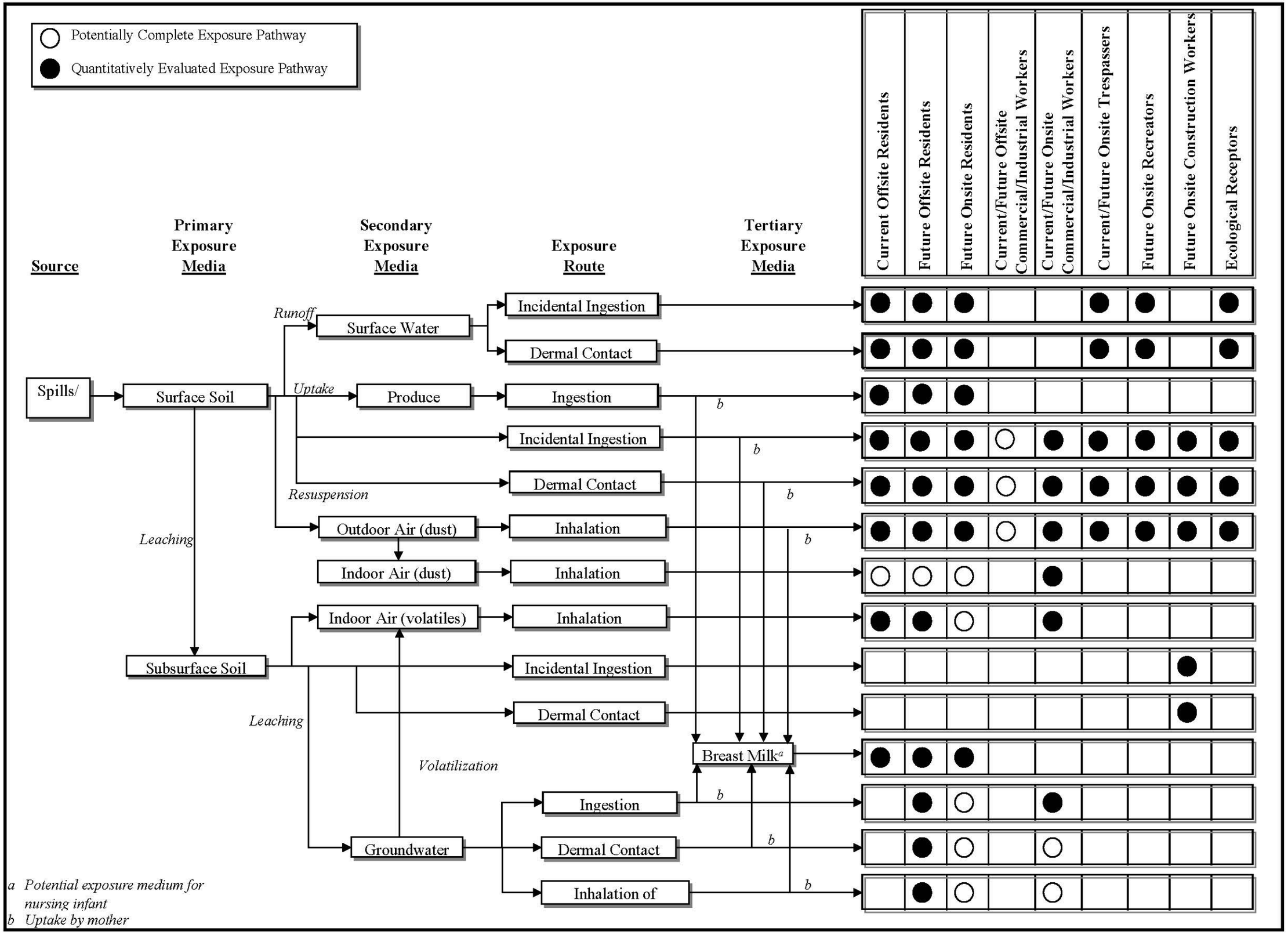
[insert property description]

[insert name and address of applicant/owner]

_____
Signature(s)

_____
Name/Title (please print)

_____
Date


Potentially Complete Exposure Pathway
Quantitatively Evaluated Exposure Pathway
Source
Primary Exposure Media
Secondary Exposure Media
Exposure Route
Tertiary Exposure Media
Current Offsite Residents
Future Offsite Residents
Future Onsite Residents
Current/Future Offsite Commercial/Industrial Workers
Current/Future Onsite Commercial/Industrial Workers
Current/Future Onsite Trespassers
Future Onsite Recreators
Future Onsite Construction Workers
Ecological Receptors
Spills/
Surface Soil
Runoff
Surface Water
Incidental Ingestion
Dermal Contact
Uptake
Produce
Ingestion
Incidental Ingestion
Dermal Contact
Resuspension
Outdoor Air (dust)
Inhalation
Indoor Air (dust)
Inhalation
Leaching
Indoor Air (volatiles)
Inhalation
Subsurface Soil
Incidental Ingestion
Dermal Contact
Leaching
Volatilization
Breast Milk[a]
Ingestion
Groundwater
Dermal Contact
Inhalation of
b
a Potential exposure medium for nursing infant
b Uptake by mother

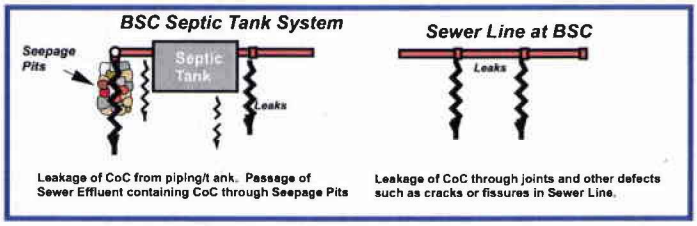
Primary Source

Primary Source of Contamination

Other Sources of Contamination

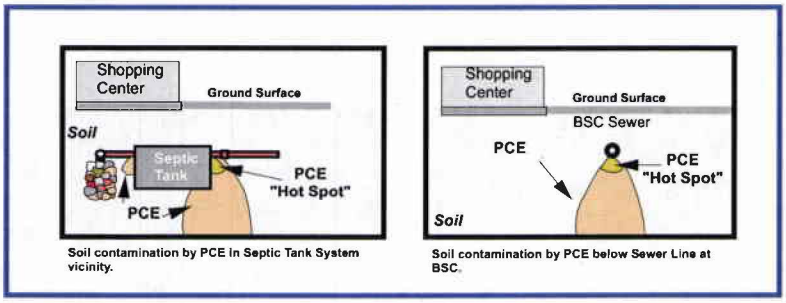
Potential Other Sources may occur at any business connected to Sewer Line which dispenses chemicals of concern (CoC) to the sewer line.

Infrastructure Losses

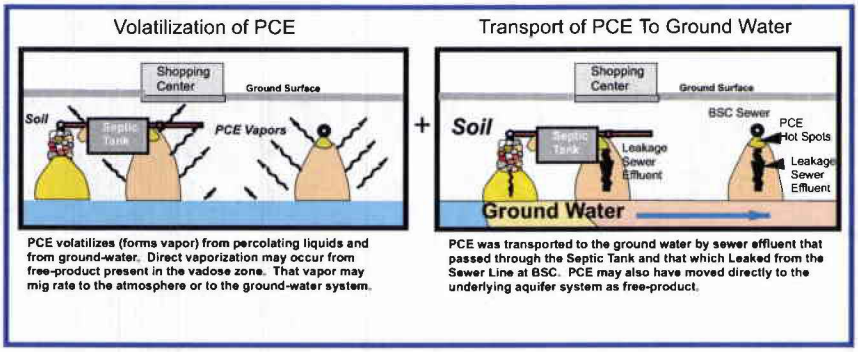


Secondary Sources

Soil Contamination



Transport to Air/ Ground Water



=

Bozeman Solvent Site

From: NE&W, 1999

NICKLIN EARTH & WATER, INC.

Primary and Secondary Sources of Contamination at Buttrey Shopping Center

Figure 5

ATTACHMENT D-1

EXAMPLE
(Further Remediation Required)

5.5 COMPARISON OF REMEDIATION PROPOSAL TO ALTERNATIVES

Section 75-10-734(3)(b), MCA, requires a brief comparison of the remediation proposal to reasonable alternatives based on the remedy selection criteria in § 75-10-721, MCA. Based on the information available about the facility and knowledge and experience with remedies for other similar facilities, four remedial alternatives have been identified as the most reasonable alternatives for the facility.

Alternative 1: No action (this alternative is retained as a basis for comparison to other alternatives)

Alternative 2: Remove all mine/mill waste and dispose in active offsite mine waste repository with associated institutional controls

Alternative 3: Consolidation of wastes in an existing capped onsite repository with its associated institutional controls

Alternative 4: Construction of a new onsite repository with additional institutional controls

These four alternatives are evaluated based on the following seven criteria (giving due consideration to institutional controls) included in § 75-10-721, MCA.

Protectiveness – The proposed remedy must be demonstrated protective of public health, safety and welfare and the environment.

Compliance – The proposed remedy must comply with applicable and relevant state or federal environmental requirements, criteria, or limitations.

Mitigation – The proposed remedy must be demonstrated to mitigate exposure to risks to public health, safety, and welfare and the environment to allowable levels.

Effectiveness and Reliability – The proposed remedy must be effective and reliable in the short and long term.

Practicability and Implementability – The proposed remedy must be practicable and implementable.

Applicable Technology – The proposed remedy must be chosen in consideration of treatment and resource recovery technologies, giving due consideration to engineering controls.

Cost-Effectiveness – The proposed remedy must be cost-effective relative to the risk reduction it would achieve.

5.5.1 Alternative 1: No Action

The no action alternative would leave the facility in its present condition without further remediation, monitoring, or institutional controls. The no action alternative is used as a baseline against which other remedial options may be compared.

Protectiveness – This alternative would not be protective of public health, safety and welfare and the environment as it would not prevent contact with impacted soil, surface water, or sediment, runoff to surface water, or contaminants leaching to groundwater.

Compliance – The no action alternative does not comply with ERCLs as it does not prevent leaching to groundwater or runoff to surface water that may result in exceedance of DEQ-7 standards. In addition, the no action alternative includes leaving contaminated material in a floodplain.

Mitigation – This alternative would not mitigate exposure to risks to public health, safety, and welfare and the environment.

Effectiveness and Reliability – This alternative is not effective and reliable in the short or long term.

Practicability and Implementability – This alternative is practicable and implementable.

Applicable Technology – This alternative does not use treatment technologies, resource recovery technologies, or engineering controls.

Cost-Effectiveness – The no further action alternative has no cost but does not reduce risks.

5.5.2 Alternative 2: Mine/Mill Waste Removal and Disposal in an Active Offsite Mine Waste Repository

This is the proposed remedy described in detail in Section 5.1. The remedy involves excavating, hauling, and placing all mine/mill waste materials, including soil contaminated above cleanup levels, in an active offsite mine waste repository and reconstructing the stream channel and floodplain. Institutional controls will only be required to prevent disturbance of the offsite repository. Long-term operation and maintenance of the offsite repository would be required.

Protectiveness – This alternative is protective of public health, safety and welfare and the environment because all contaminated materials would be placed in a permitted, maintained facility isolated from human contact and the environment (i.e., non-leaching).

Compliance – This alternative complies with all applicable and relevant ERCLs as described in Section 5.3.

Mitigation – This alternative mitigates exposure to risks by reducing contaminant concentrations remaining onsite to allowable levels as described in Section 5.2.

Effectiveness and Reliability – This alternative is effective and reliable in the short and long term because it will be conducted with adequate controls to prevent the spread of contamination during the remediation and the waste repository will be maintained in perpetuity.

Practicability and Implementability – This alternative is practicable and implementable because the technology exists to remove the contaminated materials and place them in an appropriate repository.

Applicable Technology – Although this alternative does not involve treatment or resource recovery technologies, it does make good use of available engineering controls.

Cost-Effectiveness – This alternative would cost approximately $600,000 to implement, which is cost-effective relative to the level of long-term risk reduction achieved.

5.5.3 Alternative 3: Consolidation of Wastes in Existing Capped Onsite Repository

This alternative involves excavating, hauling, and placing all mine/mill waste materials, including soil contaminated above cleanup levels, in the existing, capped, onsite repository. To accomplish this, approximately seven acres of the existing cap, which consists of soil cover, geotextile filter fabric layer, and capillary barrier rock layer, must be removed to expose the tailings previously placed in the repository. Based on the anticipated waste volume, the wastes could most likely be placed in the repository without expanding the repository footprint. However, the existing runon control ditch would require relocation. Removal and replacement of the cap materials would be costly for the small amount of additional waste placement and would destroy the existing vegetative cover, which would require replacement. Segregation of the cap materials would be difficult. The geotextile layer would likely be destroyed during the removal and would require replacement. Excavation and removal of the capillary barrier rock could not be accomplished without cross-contamination from tailings in the repository. Therefore, the existing capillary barrier would be left in place and the additional mine/mill wastes would be placed on top of it. This would require the placement of a new capillary barrier layer, which results in additional repository volume. If the waste volume were to exceed the capacity of the existing repository footprint, expansion of the repository would require removal and relocation of the existing repository terrace and subsurface riprap protections, which is cost prohibitive. Existing institutional controls would be maintained to prevent disturbance of the repository. Long-term operation and maintenance of the repository would be required.

Protectiveness – This alternative would be protective of public health, safety and welfare and the environment because all contaminated materials would be placed in a maintained facility isolated from human contact and the environment (i.e., non-leaching).

Compliance – This alternative would comply with all applicable and relevant ERCLs.

Mitigation – This alternative mitigates exposure to risks by reducing contaminant concentrations remaining onsite to allowable levels as described in Section 5.2.

Effectiveness and Reliability – This alternative is effective and reliable in the short and long term because it will be conducted with adequate controls to prevent the spread of contamination during the remediation and the waste repository would be maintained in perpetuity.

Practicability and Implementability – This alternative is practicable and implementable because the technology exists to remove the contaminated materials and place them in the existing repository.

Applicable Technology – Although this alternative does not involve treatment or resource recovery technologies, it does make use of available engineering controls.

Cost-Effectiveness – This alternative would cost approximately $645,000 to implement, which is not as cost-effective relative to the level of long-term risk reduction achieved as Alternative 2.

5.5.4 Alternative 4: Construction of New Onsite Repository

This alternative involves excavating and placing all mine/mill wastes, including soils above cleanup levels, in a new onsite repository. The repository would be constructed in the northwest area of the facility. The repository would be designed to contain the estimated waste volume of 41,000 cubic yards plus a 20 percent contingency for additional waste volume, which is a total volume of approximately 49,000 cubic yards. Figure 5-5-1 (fictitious) shows the conceptual design of an onsite repository with top dimensions of 92 feet by 250 feet and 4H:1V site slopes, which results in a waste storage volume of 49,940 cubic yards. The repository would be keyed into the elevation of the main level of the area (4,800 feet above mean sea level). As shown on Figure 5-5-1, a repository of this size would cross the gravel road on the east side of the area onto adjacent private property proposed for residential cleanup and would encroach on the paved county road. Because of the presence of relatively shallow groundwater (15 feet), the coalluvial nature of the underlying soil and the potential for acid generation, the repository would be constructed with top and bottom geosynthetic clay liners and a geocomposite drainage layer to prevent leaching of the mine/mill waste into the soil and groundwater.

Several problems exist with this alternative. 1) Although the applicant has been designated a potentially liable person for the facility, it does not currently own any portion of the facility. Implementation of this alternative would require the applicant to construct, operate and maintain a repository on property it does not own. This is not desirable from the standpoint of long-term access for operation and maintenance, and it may be difficult for the applicant to prevent the current or future property owners from disturbing the repository or changing its intended use. Purchasing the property from the current owners would add considerable cost to the overall project costs. 2) The repository would be located directly adjacent to the nearby town with virtually no separation from the paved county road. This coupled with the repository ownership issues, make it difficult to keep the repository secure and prevent long-term exposure to the mine/mill wastes. 3) This alternative would require rerouting or closing the gravel road on the east side of the facility and would deposit mine/mill waste on property owned by private individuals in the nearby town. Institutional controls would be required to prevent disturbance of the repository. Long-term operation and maintenance of the repository would be required.

Protectiveness – This alternative may be protective of public health, safety and welfare and the environment because all contaminated materials would be placed in a maintained facility isolated from human contact and the environment (i.e., non-leaching). However, significant long-term risk may exist because of the proximity of the repository to residential areas.

Compliance – This alternative would comply with all applicable and relevant ERCLs.

Mitigation – This alternative mitigates exposure to risks by reducing contaminant concentrations remaining onsite to allowable levels as described in Section 5.2. However, significant long-term risk may exist because of the proximity of the repository to residential areas.

Effectiveness and Reliability – This alternative is effective and reliable in the short-term because it will be conducted with adequate controls to prevent the spread of contamination during the remediation. However, the close proximity of the repository to the residential areas in the nearby town reduces the long-term effectiveness and reliability of the remedy for preventing exposures.

Practicability and Implementability – This alternative is practicable and implementable because the technology exists to remove the contaminated materials and place them in the existing repository. However, landowner and road issues may provide limitations to the remedy's implementation.

Applicable Technology – Although this alternative does not involve treatment or resource recovery technologies, it does make use of available engineering controls.

Cost-Effectiveness – This alternative would cost approximately $536,000 to implement, without the cost of purchasing property, which is not cost-effective relative to the level of long-term risk reduction achieved.

5.5.5 Summary of Alternatives Comparison

Alternative 1 was retained for comparative reasons but does not meet the seven criteria included in § 75-10-721, MCA. Alternative 3 meets the evaluation criteria; however, it does not provide a greater level of incremental risk reduction for the additional cost above that of Alternatives 2 and 4 and has greater cost uncertainty because of the potential to exceed the capacity of the existing repository footprint. Alternative 4 does not reduce long-term risks to an acceptable level and is not cost-effective relative to the level of long-term risk reduction achieved. There are also land ownership issues that may affect the implementability of this alternative. Alternative 2 meets all of the evaluation criteria, provides greater long-term protection of public health, safety and welfare and the environment than Alternative 4 and is more cost-effective relative to risk reduction that Alternative 3. Based on this analysis, Alternative 2, mine/mill waste removal and disposal in an active offsite mine waste repository, is the proposed remedy for the facility. Table 5-1 summarizes this evaluation.

EXAMPLE
(No Further Remedial Action Required)

5.5 COMPARISON OF REMEDIATION PROPOSAL TO ALTERNATIVES

Section 75-10-734(3)(b), MCA, requires a brief comparison of the remediation proposal to reasonable alternatives based on the remedy selection criteria in § 75-10-721, MCA. Based on the information available about the facility and knowledge and experience with remedies for other similar facilities, four remedial alternatives have been identified as the most reasonable alternatives for the facility.

Alternative 1: No further action

Alternative 2: Remove and dispose of all wastes at an appropriate offsite land disposal facility

Alternative 3: Consolidation and capping of materials onsite

These three alternatives are evaluated based on the following seven criteria (giving due consideration to institutional controls) included in § 75-10-721, MCA.

Protectiveness – The proposed remedy must be demonstrated protective of public health, safety and welfare and the environment.

Compliance – The proposed remedy must comply with applicable and relevant state or federal environmental requirements, criteria, or limitations.

Mitigation – The proposed remedy must be demonstrated to mitigate exposure to risks to public health, safety, and welfare and the environment to allowable levels.

Effectiveness and Reliability – The proposed remedy must be effective and reliable in the short and long term.

Practicability and Implementability – The proposed remedy must be practicable and implementable.

Applicable Technology – The proposed remedy must be chosen in consideration of treatment and resource recovery technologies, giving due consideration to engineering controls.

Cost-Effectiveness – The proposed remedy must be cost-effective relative to the risk reduction it would achieve.

5.5.1 Alternative 1: No Further Action

The no action alternative would leave the facility in its present condition without further remediation, monitoring, or institutional controls.

Protectiveness – This alternative is protective of public health, safety and welfare and the environment because contaminant levels remaining at the facility are appropriate for current and reasonable anticipated future usage of the facility.

Compliance – The no further action alternative complies with the ERCLs identified in Section 5.3 because no contaminant levels remaining at the facility are above levels that may result in leaching to groundwater or runoff to surface water that may result in exceedance of DEQ-7 standards. In addition, the no action alternative does not involve leaving contaminated material in a floodplain. All other ERCLs are similarly met by the no further action alternative as explained in Section 5.3.

Mitigation – The no further action alternative does not include mitigation of risks as the risks posed by the contaminant levels remaining are the facility are at allowable levels (see Section 5.2).

Effectiveness and Reliability – The no further action alternative is effective and reliable in the short and long term because, as it is, the facility is protective of current and reasonably anticipated future use.

Practicability and Implementability – The no further action alternative is practicable and implementable as it does not require any further action.

Applicable Technology – Although the no further action alternative does not employ treatment or resource recovery technologies or engineering controls, these technologies are not necessary to meet the other evaluation criteria.

Cost-Effectiveness – The no further action alternative has no cost and no risk reduction is required.

5.5.2 Alternative 2: Waste Removal and Disposal in an Offsite Land Disposal Facility

This alternative involves excavation, hauling, and disposal of residually contaminated soil at an offsite land disposal facility. To accomplish this, approximately 100 yards of material with residual contaminant concentrations below the cleanup levels included in Section 5.2 would require excavation, hauling, and disposal.

Protectiveness – This alternative would be protective of public health, safety and welfare and the environment because all contaminated materials would be placed in a permitted maintained facility isolated from human contact and the environment (i.e., non-leaching).

Compliance – This alternative would comply with all applicable and relevant ERCLs.

Mitigation – This alternative mitigates exposure to risks by reducing contaminant concentrations remaining onsite. However, this mitigation is not required because contaminant concentrations remaining onsite are below allowable levels as explained in Section 5.2.

Effectiveness and Reliability – This alternative is effective and reliable in the short- and long-term because it would be conducted with adequate controls to prevent the spread of contamination during the remediation and the permitted waste disposal facility would be maintained in perpetuity. However, excavation and hauling involve unnecessary short-term risks (risk of accidents during remediation and hauling) as the material may be appropriately left in place.

Practicability and Implementability – This alternative is practicable and implementable because the technology exists to remove and dispose of the contaminated materials. However, the no further action alternative is more practicable and implementable.

Applicable Technology – This alternative does not involve treatment or resource recovery technologies, it does make use of available engineering controls.

Cost-Effectiveness – This alternative would cost approximately $100,000 to implement, which is not as cost-effective relative to the level of long-term risk reduction achieved as Alternative 1.

5.5.3 Alternative 3: Consolidation and Capping Onsite

This alternative involves consolidating and capping all residually contaminated soil onsite. To accomplish this, approximately 50 yards of material with residual contaminant concentrations below the cleanup levels included in Section 5.2 would require excavation and consolidation. This remedy would also include construction and long-term maintenance of a 100 foot by 100 foot asphalt cap. Institutional controls would be required to prevent disturbance of the cap. Long-term operation and maintenance of the cap would be required.

Protectiveness – This alternative would be protective of public health, safety and welfare and the environment because all contaminated materials would be placed under a maintained cap isolated from human contact and the environment (i.e., leaching prevented).

Compliance – This alternative would comply with all applicable and relevant ERCLs.

Mitigation – This alternative mitigates exposure to risks by reducing contaminant concentrations remaining onsite. However, this mitigation is not required because contaminant concentrations remaining onsite are below allowable levels as explained in Section 5.2.

Effectiveness and Reliability – This alternative is effective and reliable in the short- and long-term because it would be conducted with adequate controls to prevent the spread of contamination during the remediation and the cap would be maintained in perpetuity. However, excavation and consolidation involve unnecessary short-term risks (risk of accidents during remediation) as the material may be appropriately left in place.

Practicability and Implementability – This alternative is practicable and implementable because the technology exists to consolidate and cap the contaminated materials. However, the no further action alternative is more practicable and implementable.

Applicable Technology – This alternative does not involve treatment or resource recovery technologies, but it does make use of available engineering controls.

Cost-Effectiveness – This alternative would cost approximately $50,000 to implement, which is not as cost-effective relative to the level of long-term risk reduction achieved as Alternative 1.

5.5.5 Summary of Alternatives Comparison

Alternative 2 meets some of the evaluation criteria; however, it does not provide a greater level of incremental risk reduction for the additional cost above that of Alternative 1 and includes additional unnecessary risks during excavation and hauling. Alternative 3 meets some of the evaluation criteria; however, it does not provide a greater level of incremental risk reduction for the additional cost above that of Alternative 1 and includes additional unnecessary risks during excavation and capping. Based on this analysis, Alternative 1, no further action, is the proposed remedy for the facility. Table 5-2 summarizes this evaluation.

ATTACHMENT D-2

TABLES 5-1 AND 5-2

Table 5-1	Evaluation Criteria						
Alternative	**Protective**	**Complies with ERCLs**	**Mitigates Risk**	**Effective & Reliable**	**Practicable & Implementable**	**Use of Technologies**	**Cost-Effective**
No Action	No	No	No	No	Yes	No	Yes, $0
Removal & Disposal at Offsite Permitted Waste Rock Repository	Yes	Yes	Yes	Short-term: Yes Long-term: Yes	Yes	Engineering controls	Yes, $600,000
Consolidation of Wastes in Existing Capped Onsite Repository	Yes	Yes	Yes	Short-term: Yes Long-term: Yes	Yes	Engineering controls	No, $645,000
Construction of New Onsite Repository	Potentially	Yes	Yes	Short-term: Yes Long-term: No	Potentially	Engineering controls	No, $536,000

Table 5-2	Evaluation Criteria						
Alternative	**Protective**	**Complies with ERCLs**	**Mitigates Risk**	**Effective & Reliable**	**Practicable & Implementable**	**Use of Technologies**	**Cost-Effective**
No Further Action	Yes	Yes	Yes, risk already allowable	Yes	Yes	No, none necessary	Yes, $0
Removal & Disposal at Offsite Permitted Land Disposal Facility	Yes	Yes	Yes, risk already allowable	Short-term: Yes Long-term: Yes	Yes	Engineering controls	No, $100,000
Consolidation and Capping of Material Onsite	Yes	Yes	Yes, risk already allowable	Short-term: Yes Long-term: Yes	Yes	Engineering controls	No, $50,000

ATTACHMENT E
DECLARATION OF RESTRICTIVE COVENANTS ON REAL PROPERTY

THIS DECLARATION OF RESTRICTIVE COVENANTS ON REAL PROPERTY (Restrictive Covenants) is made by [insert owner's name] as of [insert date].

RECITALS

WHEREAS, [insert owner's name] is the owner of certain real property (the Subject Property) located in [insert county name] County, Montana, is shown on Attachment 1 and is more particularly described as:

[insert property description]

WHEREAS, the Subject Property is or was previously located within the [insert facility name] (Facility) upon which hazardous or deleterious substances have come to be located; and

WHEREAS, [insert voluntary cleanup applicant's name] is seeking approval from the Montana Department of Environmental Quality (DEQ) for a Voluntary Cleanup Plan (VCP) for the Facility]. As part of the VCP, [insert voluntary cleanup applicant's name] and its officers, employees, agents, representatives, predecessors, successors in interest, and assignees desires to restrict development on the Subject Property and [insert owner's name] is willing to record and comply with such restrictions:

NOW, THEREFORE, [insert owner's name] hereby agrees and declares:

1. No wells may be drilled within the boundaries of the Subject Property without the express prior written approval of DEQ. Groundwater within the Subject Property may not be used for any purpose other than sampling without the express prior written approval of DEQ. The integrity of any monitoring wells must be maintained and no seals may be removed on any closed wells.

2. No soil or soil caps shall be disturbed in any manner, including without limitation drilling or excavation, without the express prior written approval of DEQ. It is the [insert owner's name] intent that this limitation be construed as broadly as possible to prohibit any type of excavation whatsoever.

3. No residential development or use, including but not limited to permanent residential use; temporary residential use; limited residential use; short-term residential use; children's day care; mobile homes with or without footings; mobile home with or without a pad; or camping shall occur upon the Subject Property. It is the [insert owner's name] intent that this limitation be construed as broadly as possible to prohibit any type of residential use whatsoever.

4. No structures, containments, footings for any purpose, or similar below ground appurtenances may be constructed upon the Subject Property.

5. No irrigation of any kind may occur on the Subject Property.

6. No action shall be taken, allowed, suffered, or omitted on the Subject Property if such action or omission is reasonably likely to create a risk of migration of hazardous or deleterious substances or a potential hazard to public health, safety, or welfare or the environment or result in a disturbance of the structural integrity of any engineering controls designed or utilized at the Facility to contain hazardous or deleterious substances or limit human or environmental exposure to the hazardous or deleterious substances.

7. [Insert owner's name] agrees to provide DEQ and its representatives and contractors, [insert voluntary cleanup applicant's name], and all representatives and contractors of any person conducting DEQ-approved remedial actions on the Subject Property access at all reasonable times to the Subject Property.

8. At all times after [insert owner's name] conveys its interest in the Subject Property and no matter what person or entity is in title to or in possession of the Subject Property, [insert owner's name] agrees that [insert voluntary cleanup applicant's name] and its agents shall retain the right to enter the Subject Property at reasonable intervals and at reasonable times of the day in order to inspect for violations of the Restrictive Covenants contained herein.

9. As part of its VCP, [insert voluntary cleanup applicant's name] has agreed to enforce the requirements of these Restrictive Covenants and take prompt action to correct any violations of these Restrictive Covenants. [Insert voluntary cleanup applicant's name] has also agreed to notify DEQ within 30 calendar days of receiving actual or constructive notice of any violation or potential violation of these Restrictive Covenants. [Insert owner's name] specifically agrees that the remedy of "specific performance" of these Restrictive Covenants shall be available to [insert voluntary cleanup applicant's name] in such proceedings. .

10. DEQ shall also be entitled to enforce these Restrictive Covenants as an intended beneficiary thereof. [Insert owner's name] specifically agrees that the remedy of "specific performance" of these Restrictive Covenants shall be available to DEQ in such proceedings. Venue for enforcement of these Restrictive Covenants by DEQ shall be in the state First Judicial District Court, Montana.

11. The provisions of these Restrictive Covenants of the Subject Property shall run with the land and bind all holders, owners, lessees, occupiers, and purchasers of the Subject Property. These restrictive covenants apply in perpetuity and every subsequent instrument conveying an interest in all or any portion of the Subject Property shall include these Restrictive Covenants. [Insert owner's name] will notify DEQ of any proposed conveyance of all or a portion of the Subject

Property at least 30 days prior to any such conveyance. [Insert owner's name] and all future owners will provide notice to all potential purchasers by providing a copy of these Restrictive Covenants prior to the conveyance of all or a portion of the Subject Property and shall provide a copy of this notice to DEQ.

12. [Insert owner's name] and all future owners shall cause the requirements of these Restrictive Covenants to be placed in all instruments that convey an interest in the Subject Property and shall file this document with the county clerk and recorder in [__] County, [___], Montana.

13. The rights provided to DEQ in this declaration include any successor agencies of DEQ.

IN WITNESS WHEREOF, [insert owner's name] has executed this Declaration of Restrictive Covenants on Real Property as of the first date written above.

[INSERT OWNER'S NAME]

_____
By:

State of Montana)
:ss.
County of [insert county name])

On this __ day of _____, 20__, personally appeared _____, before me, a Notary Public for the State of Montana, known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal the day and year hereinabove first written.

_____
NOTARY PUBLIC FOR THE STATE OF MONTANA
(SEAL) Residing at _____
My Commission Expires: _____

ATTACHMENT F
EXAMPLE

This document has been prepared to provide an example of an environmental requirements, criteria or limitations (ERCLs) analysis prepared to meet the requirements of the Voluntary Cleanup and Redevelopment Act (VCRA), which requires that the proposed remedy meet the requirements of §§ 75-10-721(2)(a) and (b), Montana Code Annotated (MCA). DEQ has included the ERCLs that have been identified in previous voluntary cleanup plans (VCPs) or other remedial actions. Therefore, the conditions described as being in the fictitious VCP under the VCP Compliance sections of this example may not be consistent with one remedy but are meant as examples of how various remedies might comply with the ERCLs identified. In addition, it is possible that some of these ERCLs might not apply to a remedy or that additional ERCLs may apply. It is the responsibility of the VCP applicant to identify laws that apply to the remedial actions and comply with those laws.

The introductory text that follows should be included at the beginning of the ERCLs section of the VCP with the VCP-specific bracketed information completed.

ENVIRONMENTAL REQUIREMENTS, CRITERIA OR LIMITATIONS ANALYSIS

Remedial action undertaken pursuant to the Comprehensive Environmental Cleanup and Responsibility Act (CECRA), § 75-10-701, *et seq.*, MCA, must "attain a degree of cleanup of the hazardous or deleterious substance and control of a threatened release or further release of that substance that assures protection of public health, safety and welfare and of the environment." Section 75-10-721(1), MCA. Additionally, the Montana Department of Environmental Quality (DEQ) "shall require cleanup consistent with applicable state or federal environmental requirements, criteria, or limitations" and "may consider substantive state or federal environmental requirements, criteria or limitation that are relevant to the facility conditions." Sections 75-10-721(2)(a) and (b), MCA.

There is a distinction between "applicable" requirements and those that are "relevant." "Applicable" requirements are those requirements that would legally apply at the facility regardless of the CECRA action. "Relevant" requirements are those requirements that are not applicable, but address situations or problems sufficiently similar to those at the facility and, therefore, are relevant for use at the facility. Attainment of "applicable" requirements is mandatory under CECRA. "Relevant" requirements may be considered by DEQ in approving remedial actions under CECRA. All relevant requirements identified in the approved VCP must be attained.

ERCLs are generally of three types: action-specific, contaminant-specific, and location-specific. Action-specific requirements are those that are triggered by the performance of a certain activity as part of a particular remedy. They do not in themselves determine the remedy but rather indicate the manner in which the remedy must be implemented. Contaminant-specific requirements are those that establish an allowable level or concentration of a hazardous or deleterious substance in the environment or which prescribe a level or method of treatment for a

hazardous or deleterious substance. Location-specific requirements are those that serve as restrictions on the concentration of a hazardous or deleterious substance or the conduct of activities solely because the facility is in a specific location or the action affects specified types of areas. Some ERCLs could be categorized in more than one way; in this case, they are generally not duplicated within the document.

CECRA defines as cleanup requirements only state and federal ERCLs. Remedial designs, implementation, operation, and maintenance must, nevertheless, comply with all other applicable laws, both state and federal. Many such laws, while not strictly environmental, have environmental impacts. Identification of all applicable laws, including health and safety laws and local regulations that must be complied with during implementation of the voluntary cleanup plan, remains the VCRA applicant's responsibility.

Many requirements listed here are promulgated as identical or nearly identical requirements in both federal and state law, usually pursuant to delegated environmental programs administered by the Environmental Protection Agency (EPA) and the states, such as the requirements of the federal Clean Water Act and the Montana Water Quality Act. The preamble to the National Contingency Plan states that such a situation results in citation to the state provision as the appropriate standard, but treatment of the provision as a federal requirement. ERCLs and other laws that are unique to state law are also identified.

Identified within this document are applicable or relevant state and federal ERCLs for the proposed [Facility] VCP. The ERCLs contained in this document are tailored to the proposed VCP submitted and are intended to apply exclusively to this VCP dated [VCP Date]. If a different VCP or remedial action were proposed, preferred, chosen, or implemented for this facility, the ERCLs contained herein might be substantially different.

1.0 ACTION-SPECIFIC ERCLs

1.1 Water Quality Requirements

1.1.1 Clean Water Act, Point Source Discharges Requirements, 33 USC § ' 1342 (applicable, substantive provisions only): Section 402 of the Clean Water Act, 33 USC § ' 1342, *et seq.*, authorizes the issuance of permits for the discharge of any pollutant. This includes storm water discharges associated with industrial activity. *See*, 40 Code of Federal Regulations (CFR) 122.26(a)ii). Industrial activity includes inactive mining operations that discharge storm water contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations, *see*, 40 CFR 122.26(b)(14)(iii); landfills, land application sites, and open dumps that receive or have received any industrial wastes including those subject to regulation under Resource Conservation and Recovery Act (RCRA) subtitle D, *see*, 40 CFR 122.26(b)(14)(v); and construction activity including clearing, grading, and excavation activities, *see*, 40 CFR 122.26(b)(14)(x). Because the State of Montana has been delegated the authority to implement the Clean Water Act, these requirements are enforced in Montana through the Montana Pollutant Discharge Elimination System (MPDES). The MPDES requirements are set forth below.

Administrative Rules of Montana (ARM) 17.30.1201 *et seq.*, (standards) and ARM 17.30.1301 *et seq.* (permits) (applicable): If point sources of water contamination are retained or created by any remediation activity, applicable Clean Water Act standards would apply to those discharges. The State of Montana established state standards and permit requirements in conformity with the Clean Water Act, and these standards and requirements apply to point source discharges. *See* ARM 17.30.1201.

ARM 17.30.1342-1344 (applicable): The State of Montana has been delegated the authority to implement the Clean Water Act and these requirements are enforced in Montana through the MPDES. These regulations set forth the substantive requirements applicable to all MPDES and National Pollutant Discharge Elimination System permits. The substantive requirements, including the requirement to properly operate and maintain all facilities and systems of treatment and control, are applicable requirements.

Model VCP Compliance: A permit will be obtained prior to initiation of cleanup activities and the conditions of the permit will be met throughout the remediation. Therefore, the proposed remedy meets the requirements of this ERCL.

1.1.2 Montana Water Quality Act, §§ 75-5-101, *et.seq.*, MCA:

Section 75-5-605, MCA (applicable), prohibits causing pollution of any state waters. Pollution is defined as contamination or other alteration of physical, chemical, or biological properties of state waters which exceeds that permitted by the water quality standards or the discharge, seepage, or drainage of any substances into state water that will likely create a nuisance or render the water harmful, detrimental or injurious to public health, recreation, safety, or welfare, or to livestock or wild animals. Also, it is unlawful to place or cause to be placed any wastes where they will cause pollution of any state waters.

Section 75-5-303, MCA (applicable), states that existing uses of state waters and the level of water quality necessary to protect the uses must be maintained and protected. Section 75-5-317, MCA, provides an exemption from non-degradation requirements which allows changes of existing water quality resulting from an emergency action or reclamation that is designed to protect the public health or the environment and that is approved, authorized, or required by the department. Degradation meeting these requirements may be considered nonsignificant.

ARM 17.30.637 (applicable), prohibits discharges containing substances that will: (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines; (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials; (c) produce odors, colors or other conditions which create a nuisance or render undesirable tastes to fish flesh or make fish inedible; (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; or (e) create conditions which produce undesirable aquatic life.

ARM 17.30.705 (applicable), provides that for all state waters, existing and anticipated uses and the water quality necessary to protect these uses must be maintained and protected unless degradation is allowed under the non-degradation rules at ARM 17.30.708.

ARM 17.30.1011 (applicable), provides that any groundwater whose existing quality is higher than the standard for its classification must be maintained at that high quality unless degradation may be allowed under the principles established in Section 75-5-303, MCA and the non-degradation rules at ARM 17.30.701, *et seq.*

1.1.3 Stormwater Runoff Control Requirements

ARM 17.24.633 (applicable), provides all surface drainage from a disturbed area must be treated by the best technology currently available (BTCA).

ARM 17.30.1341 to 1344 (applicable) requires a storm water permit for storm water point sources. Generally, the permits require the permittee to implement best management practices (BMPs) and to take all reasonable steps to minimize or prevent any discharge which has a reasonable likelihood of adversely affecting human health or the environment. However, if there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with the activity, an individual MPDES permit or alternative general permit may be required.

Model VCP Compliance: As described in Section 5.1 of this VCP, remedial actions at the facility are not expected to result in runoff to surface water at the facility. Remedial actions will be halted if significant runoff is generated and will not resume until adequate runoff control measures are in place. Therefore, the VCP meets the requirements of this ERCL.

1.2 Air Standards

These standards, promulgated pursuant to section 109 of the Clean Air Act, 42 U.S.C. §§ 7401, *et seq.*, (applicable) are applicable to releases into the air from any cleanup activities.

Sections 75-2-101, *et seq.*, MCA, (applicable) provide that state emission standards are enforceable under the Montana Clean Air Act.

ARM 17.8.802 (applicable) incorporates by reference the air regulations in certain parts of CFR Title 40 regarding quality assurance requirements for prevention of significant deterioration air monitoring; standards of performance for new stationary sources; emission standards for hazardous air pollutants, and other standards and requirements.

ARM 17.8.805 (applicable) provides ambient air ceilings, and states that no concentrations of a pollutant shall exceed concentrations permitted under with the applicable secondary or the primary national ambient air quality standard, whichever concentration is lowest for the pollutant for a period of exposure.

ARM 17.8.204 (applicable) provides for ambient air monitoring and provides that, generally, all ambient air monitoring, sampling and data collection, recording, analysis and transmittal must be in compliance with the Montana Quality Assurance Manual.

ARM 17.8.220 (applicable) prohibits causing or contributing to concentrations of particulate matter in the ambient air such that the mass of settle particulate matter exceeds a 30-day average: 10 gm/m^2, 30 day average, not to be exceeded. A measurement method is also provided.

ARM 17.8.308 (applicable) provides that no person shall cause or authorize the production, handling, transportation or storage of any material; or cause or authorize the use of any street, road, or parking lot; or operate a construction facility or demolition project, unless reasonable precautions to control emissions of airborne particulate matter are taken.

ARM 17.8.308 (applicable) states that emissions of airborne particulate matter must be controlled so that they do not "exhibit an opacity of 20 percent or greater average over six consecutive minutes."

ARM 17.8.324 (applicable) contains certain standards regarding hydrocarbon emissions and the treatment, storage, and handling of petroleum products.

ARM 17.8.604 (applicable) lists certain wastes that may not be disposed of by open burning, including oil or petroleum products, RCRA hazardous wastes, chemicals and wood and wood byproducts that have been coated, painted, stained, treated or contaminated by foreign material. Any waste which is moved from the premises where it was generated and any trade waste (material resulting from construction or operation of any business, trade, industry or demolition project) may be open burned only in accordance with the substantive requirements of ARM 17.8.611 or 612.

ARM 17.24.761 (relevant) specifies a range of measures for controlling fugitive dust emissions during mining and reclamation activities. Some of the measures could be considered relevant to control fugitive dust emissions in connection with excavation, earth moving and transportation activities conducted as part of the remedy at the facility. Such measures include, for example, paving, watering, chemically stabilizing, or frequently compacting and scraping roads, promptly removing rock, soil or other dust-forming debris from roads, restricting vehicle speeds, revegetating, mulching, or otherwise stabilizing the surface of areas adjoining roads, restricting unauthorized vehicle travel, minimizing the area of disturbed land, and promptly revegetating regraded lands.

Model VCP Compliance: The proposed remedy does involve handling impacted soil. However, as described in Section 5.1 of this VCP, remedial actions at the facility will include wetting and other best management practices related to fugitive dust control. Remedial actions will be halted if significant dust is generated and will not resume until adequate dust control measures are in place. Dust control measures will ensure that air standards will not be exceeded during the proposed remedial action. Air monitoring is not a necessary component of the proposed remedial action. The proposed remedy will not result in emissions of the specific compounds included in these regulations. The proposed remedy does not involve the treatment,

storage or handling of petroleum products other than basic refueling of construction equipment. Therefore, the proposed remedy meets the requirements of these ERCLs.

1.3 Water Well Requirements

Sections 37-43-101 to 402, MCA (applicable) provides regulations and licensing for drillers or makers of water wells and monitoring wells.

Section 85-2-505, MCA (applicable) precludes the wasting of groundwater. Any well producing waters that contaminate other waters must be plugged or capped, and wells must be constructed and maintained so as to prevent waste, contamination, or pollution of groundwater.

Section 85-2-516, MCA (applicable) requires that, within 60 days after any well is completed, a well log report must be filed by the driller with the Montana Bureau of Mines and Geology.

ARM 36.21.801-809 (applicable) specifies requirements for constructing monitoring wells.

ARM 36.21.810 (applicable) specifies requirements that must be fulfilled when abandoning monitoring wells.

Model VCP Compliance: A licensed monitoring well constructor will abandon a monitoring well and install a monitoring well as part of the proposed remedy. The licensed monitoring well constructor will install the monitoring well in accordance with the construction standards and will complete a well log report and file it with the Montana Bureau of Mines and Geology. Monitoring wells will also be sampled as part of the proposed remedy. The well to be abandoned will be done so in accordance with ARM 36.21.810. These activities will be conducted in accordance with the requirements of these ERCLs.

1.4 Solid Waste Management Requirements

Montana Solid Waste Management Act and regulations, §§ 75-10-201, *et seq.*, MCA, ARM 17.50.101 *et seq.* (applicable) - Regulations promulgated under the Solid Waste Management Act, § 75-10-201, *et seq.*, MCA, and pursuant to the federal Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 *et seq.* (RCRA Subtitle D) specify requirements that apply to the to the transportation of solid wastes and the operation, closure and post-closure care of solid waste facilities:

ARM 17.50.523 (applicable) **s**pecifies that solid waste must be transported in such a manner as to prevent its discharge, dumping, spilling or leaking from the transport vehicle.

ARM 17.50.525 (applicable) specifies DEQ may inspect solid waste facilities at reasonable hours upon presentation of proper credentials.

ARM 17.50.1004 (applicable) addresses Class II landfills in floodplains.

ARM 17.50.1005 (applicable) prohibits placement of a Class II landfill in a wetland unless special conditions are met.

ARM 17.50.1006 (applicable) prohibits placement of a Class II landfill within 200 feet of a fault which has had displacement in Holocene time unless special conditions are met.

ARM 17.50.1007 (applicable) prohibits placement of a Class II landfill in a seismic impact zone (as defined in ARM 17.50.1002(35)) unless special conditions are met.

ARM 17.50.1008 (applicable) prohibits placement of a Class II landfill in an unstable area, which are defined in ARM 17.50.1002(40) as including locations that are susceptible to events or forces that are capable of impairing the integrity of the landfill structural components responsible for preventing releases from the landfill.

ARM 17.50.1009 (applicable) provides that a solid waste management facility must be located where a sufficient acreage of suitable land is available for solid waste management, including adequate separation of wastes from underlying groundwater and adjacent surface water. The facility may not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife or result in the destruction or adverse modification of critical habitat for those species. Also, the facility must manage solid waste, gas, and leachate.

ARM 17.50.1009 (applicable) requires that Class II landfills be designed, constructed, and maintained with a run-on and run-off control system to address 25-year storm events.

ARM 17.50.1110 (applicable) prohibits a Class II landfill from causing a discharge of a pollutant into state waters, including wetlands.

ARM 17.50.1116(2)(f) (applicable) requires that a solid waste management facility be designed, constructed, and operated in a manner to prevent harm to human health and the environment.

ARM 17.50.1204(1)(b) (applicable) requires that a Class II landfill be constructed utilizing a composite liner and leachate collection and removal system that is designed and constructed to maintain less than a 30-centimeter depth of leachate over the liner.

ARM 17.50.1205(3) (applicable) requires that the leachate system provide for accurate monitoring of the leachate level and provide a minimum slop at the base of the overlying leachate collection layer equal to at least two percent.

ARM 17.50.1303 (applicable) identifies requirements for groundwater monitoring.

ARM 17.50.1312 (applicable) identifies requirements for monitoring well abandonment.

ARM 17.50.1403 (applicable) sets forth the closure requirements for Class II landfills. This includes the requirement that the cap be a minimum of 24 inches thick and other criteria, as follows:

1. install a cover that is designed to minimize infiltration and erosion;
2. design and construct the final cover system to minimize infiltration through the

closed unit by the use of an infiltration layer that contains a minimum 18 inches of earthen material and has a permeability less than or equal to the permeability of any bottom liner, barrier layer, or natural subsoils or a permeability no greater than $1x10^{-5}$ centimeters per second (cm/sec), whichever is less; and

3. minimize erosion of the final cover by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant.

ARM 17.50.1404 (applicable) sets forth post closure care requirements for Class II landfills. Post closure care requires maintenance of the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the cover and comply with the groundwater monitoring requirements found at ARM Title 17, chapter 50, subchapter 13.

In addition, § 75-10-212, MCA, (applicable) prohibits dumping or leaving any garbage, debris, or refuse upon or within 200 yards of any highway, road, street, or alley of the State or other public property, or on privately owned property where hunting, fishing, or other recreation is permitted. However, the restriction relating to privately owned property does not apply to the owner, his agents, or those disposing of debris or refuse with the owner's consent.

Model VCP Compliance: Non-hazardous waste from this facility will be transported and disposed of at [insert the name of the disposal facility], a licensed solid waste management facility, in accordance with these ERCLs. Transport vehicles will be tarped and tied down to avoid any leaking of waste during transport. The impacted soil remaining onsite will not adversely affect human health or the environment as it will be located below the ground surface and as indicated in Section 3.8.3 it is not leaching contaminants to groundwater. Dumping is not part of the proposed action and the owner of the facility has consented to leaving impacted soil below five feet at the facility. Therefore, the proposed remedy meets the requirements of these ERCLs.

1.5 Hazardous Waste Management Requirements

1.5.1 RCRA, 42 U.S.C. §§ 6901 *et seq.*, (applicable, as incorporated by the Montana Hazardous Waste Act) and the Montana Hazardous Waste Act, §§ 75-10-401 *et seq.*, MCA, (applicable) and regulations under these acts establish a regulatory structure for the generation, transportation, treatment, storage and disposal of hazardous wastes. These requirements are applicable to substances and actions at the facility which involve the active management of hazardous wastes.

Wastes may be designated as hazardous by either of two methods: listing or demonstration of a hazardous characteristic. Listed wastes are the specific types of wastes determined by EPA to be hazardous as identified in 40 CFR Part 261, Subpart D (40 CFR 261.30 - 261.35) (applicable, as incorporated by the Montana Hazardous Waste Act). Listed wastes are designated hazardous by virtue of their origin or source, and must be managed as hazardous wastes regardless of the

concentration of hazardous constituents. Characteristic wastes are those that by virtue of concentrations of hazardous constituents demonstrate the characteristic of ignitability, corrosivity, reactivity or toxicity, as described at 40 CFR Part 261, Subpart C (applicable, as incorporated by the Montana Hazardous Waste Act).

40 CFR 261.31 defines F032 waste as:

> Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with §261.35 of this chapter or potentially cross-contaminated wastes that are otherwise currently regulated as hazardous wastes (i.e., F034 or F035), and where the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.

Media at the facility is contaminated with pentachlorophenol from process residuals, preservative drippage, and spent formulations from a wood treating process that used chlorophenolic formulations. Therefore, the facility contains F032 listed hazardous wastes and the various media and wastes contaminated by the F032 wastes are hazardous wastes pursuant to 40 CFR Part 261. The RCRA requirements specified below are applicable requirements for the treatment, storage and disposal of these F032 wastes.

The RCRA regulations at 40 CFR Part 262 (applicable, as incorporated by the Montana Hazardous Waste Act) establish standards that apply to generators of hazardous waste. These standards include requirements for obtaining an EPA identification number and maintaining certain records and filing certain reports. These standards are applicable for any waste which will transported offsite.

The RCRA regulations at 40 CFR Part 263 (applicable, as incorporated by the Montana Hazardous Waste Act) establish standards that apply to transporters of hazardous waste. These standards include requirements for immediate action for hazardous waste discharges. These standards are applicable for any onsite transportation. These standards are independently applicable for any offsite transportation.

The regulations at 40 CFR 264, Subpart B (applicable, as incorporated by the Montana Hazardous Waste Act) establish general facility requirements. These standards include requirements for general waste analysis, security and location standards.

The regulations at 40 CFR 264, Subpart F (applicable, as incorporated by the Montana Hazardous Waste Act) establish requirements for groundwater protection for RCRA-regulated solid waste management units (i.e., waste piles, surface impoundments, land treatment units, and landfills). The regulations at Subpart F establish monitoring requirements for RCRA-regulated solid waste management units (i.e., waste piles, surface impoundments, land treatment units, and landfills). Subpart F provides for three general types of groundwater monitoring: detection

monitoring (40 CFR 264.98); compliance monitoring (40 CFR 264.99); and corrective action monitoring (40 CFR 264.100). Monitoring wells must be cased according to 264.97(c).

Monitoring is required during the active life of a hazardous waste management unit. If hazardous waste remains, monitoring is required for a period necessary to protect human health and the environment.

40 CFR Part 264, Subpart G (applicable, as incorporated by the Montana Hazardous Waste Act) establishes that hazardous waste management facilities must be closed in such a manner as to (a) minimize the need for further maintenance and (b) control, minimize or eliminate, to the extent necessary to protect public health and the environment, post-closure escape of hazardous wastes, hazardous constituents, leachate, contaminated runoff or hazardous waste decomposition products to the ground or surface waters or to the atmosphere.

Requirements for facilities requiring post-closure care include the following: the facilities must undertake appropriate monitoring and maintenance actions, control public access, and control post-closure use of the property to ensure that the integrity of the final cover, liner, or containment system is not disturbed. In addition, all contaminated equipment, structures and soil must be properly disposed of or decontaminated unless exempt and free liquids are removed or solidified, the wastes stabilized, and the waste management unit covered.

40 CFR Part 264, Subparts I and J (Applicable, as incorporated by the Montana Hazardous Waste Act) apply to owners and operators of facilities that store hazardous waste in containers, and store or treat hazardous waste in tanks, respectively. These regulations are applicable to any storage or treatment in these units at the facility. The related provisions of 40 CFR 261.7 regarding residues of hazardous waste in empty containers are also applicable.

40 CFR Part 264, Subpart L (Applicable, as incorporated by the Montana Hazardous Waste Act) applies to owners and operators of facilities that store or treat hazardous waste in piles. The regulations include requirements for the use of run-on and run-off control systems and collection and holding systems to prevent the release of contaminants from waste piles. These regulations apply to any storage in waste piles.

40 CFR Part 264, Subpart M (Applicable, as incorporated by the Montana Hazardous Waste Act) apply to owners and operators of facilities that treat hazardous waste in land treatment units.

40 CFR Part 264, Subpart S (Applicable, as incorporated by the Montana Hazardous Waste Act) provides special provisions for cleanup; 40 CFR 264.552 allows the designation of a corrective action management unit (CAMU) located within the contiguous property under the control of the owner or operator where the wastes to be managed in the CAMU originated and provides requirements for siting, managing, and closing the CAMU. An example of CAMU-eligible waste includes F0032-contaminated soil that must be managed to implement the cleanup. Placement of this CAMU-eligible waste does not constitute land disposal of hazardous waste. If staging piles are needed during remediation, compliance with 40 CFR 264.554 will be required.

40 CFR 264.554 sets forth the requirements for a staging pile. A staging pile must be located within the contiguous property under the control of the owner/operator where the wastes to be managed in the staging pile originated. The staging pile must be designed so as to prevent or minimize releases of hazardous wastes and hazardous constituents into the environment, and minimize or adequately control cross-media transfer, as necessary to protect human health and the environment (for example, through the use of liners, covers, run-off/run-on controls, as appropriate). The staging pile must not operate for more than two years and cannot be used for treatment.

Since the wastes to be treated are listed and characteristic wastes, the RCRA Land Disposal Restrictions (LDRs) treatment levels set forth in 40 CFR Part 268 are applicable requirements including the treatment levels for F032 listed wastes for the disposal of hazardous wastes generated at the facility. With the exception of treated soils, hazardous wastes are prohibited from disposal onsite.

The Hazardous Waste Identification Rule (HWIR) Media Rule promulgated at 63 Fed. Reg. 65874 (November 30, 1998) (applicable, as incorporated by the Montana Hazardous Waste Act) allows listed waste treated to levels protective of human health and the environment to be disposed onsite without triggering land ban or minimum technology requirements for these disposal requirements. Treated soils containing hazardous waste will need to meet site-specific cleanup levels as well as the LDR treatment standards (applicable, as incorporated by the Montana Hazardous Waste Act) (40 CFR 268.49(c) (1)(C)), which requires that contaminated soil to be land disposed be treated to reduce concentrations of the hazardous constituents by 90 percent or meet hazardous constituent concentrations that are ten times the universal treatment standards (UTS) (found at 40 CFR 268.48), whichever is greater, to avoid triggering land ban.

40 CFR Part 270 (applicable, as incorporated by the Montana Hazardous Waste Act) sets forth the hazardous waste permit program. The requirements set forth in 40 CFR Part 270, Subpart C (permit conditions), including the requirement to properly operate and maintain all facilities and systems of treatment and control are applicable requirements. For any management (i.e., treatment, storage, or disposal) or removal or retention, the RCRA regulations found at 40 CFR 264.116 (survey plats) and .119 (governing notice and deed restrictions), 264.228(a)(2)(i) (addressing de-watering of wastes prior to disposal), and 264.228(a)(2)(iii)(B)(C)(D) and .251 (c)(d)(f) (regarding run-on and run-off controls), are relevant requirements for any waste management units created or retained at the facility that contain non-exempt waste. A construction de-watering permit covers similar requirements.

1.5.2 The Montana Hazardous Waste Act, §§ 75-10-401 *et seq.*, MCA (applicable) and regulations.

This Act establishes a regulatory structure for the generation, transportation, treatment, storage and disposal of hazardous wastes. These requirements are applicable to substances and actions at the facility which involve listed and characteristic hazardous wastes.

ARM 17.53.501-502 (applicable) adopts the equivalent of RCRA regulations at 40 CFR Part 261, establishing standards for the identification and listing of hazardous wastes, including standards for recyclable materials and standards for empty containers, with certain State exceptions and additions.

ARM 17.53.601-604 (applicable) adopts the equivalent to RCRA regulations at 40 CFR Part 262, establishing standards that apply to generators of hazardous waste, including standards pertaining to the accumulation of hazardous wastes, with certain State exceptions and additions.

ARM 17.53.701-708 (applicable) adopts the equivalent to RCRA regulations at 40 CFR Part 263, establishing standards that apply to transporters of hazardous waste, with certain State exceptions and additions.

ARM 17.53.801-803 (applicable) adopts the equivalent to RCRA regulations at 40 CFR Part 264, establishing standards that apply to hazardous waste treatment, storage and disposal facilities, with certain State exceptions and additions.

ARM 17.53.1101-1102 (applicable) adopts the equivalent to RCRA regulations at 40 CFR Part 268, establishing land disposal restrictions, with certain State exceptions and additions.

Section 75-10-422 MCA (applicable) prohibits the unlawful disposal of hazardous wastes.

ARM 17.53.1201-1202 (applicable) adopts the equivalent to RCRA regulations at 40 CFR Part 270 and 124, which establish standards for permitted facilities, with certain State exceptions and additions.

ARM 17.53.1401 (applicable) adopts the equivalent of RCRA regulations at 40 CFR Part 279 that set forth the standards for the management of used oil.

Model VCP Compliance: As described in Section 5.1, the proposed remedy involves properly treating, transporting, and disposing of all hazardous waste at [insert the name of the facility] in accordance with the requirements of these ERCLs. The excavated soil will be placed into appropriately-sized containers that meet RCRA requirements and disposed of at an offsite RCRA-permitted hazardous waste facility. Investigation derived waste (IDW) will be generated in the form of water used for decontamination of sampling equipment (backhoe). IDW from decontamination of equipment will likely contain F032 listed hazardous waste and therefore will be contained in a drum with a lid that can be tightened to prevent leaking that will be placed into an overpack drum or other secondary containment and stored within an access-controlled (fenced) outdoor temporary storage area pending disposal at an offsite RCRA-permitted hazardous waste disposal facility capable of accepting F032 waste. The IDW will be transported outside the Facility within 90 days, a hazardous waste transporter will be used, and the hazardous waste will be manifested.

1.6 Technology-Based Treatment

ARM 17.30.1203 (Applicable): Provisions of 40 CFR Part 125 for criteria and standards for the imposition of technology-based treatment requirements are adopted and incorporated in DEQ permits. For toxic and nonconventional pollutants treatment must apply the best available technology economically achievable (BAT); for conventional pollutants, application of the best conventional pollutant control technology (BCT) is required. Where effluent limitations are not specified for the particular industry or industrial category at issue, BCT/BAT technology-based treatment requirements are determined on a case by case basis using best professional judgment (BPJ).

Model VCP Compliance: The VCP applicant will obtain the required permit which may impose a technology-based treatment requirement. The applicant will comply with all permit requirements. Therefore, the proposed remedy meets the requirements of these ERCLs.

1.7 Underground Injection Control Program

The Underground Injection Control Program provided in 40 CFR Parts 144 and 146 (Applicable) sets forth the standards and criteria for the injection of substances into aquifers. Wells are classified as Class I through V, depending on the location and the type of substance injected. For all classes, no owner may construct, operate or maintain an injection well in a manner that results in the contamination of an underground source of drinking water at levels that violate maximum contaminant levels (MCLs) or otherwise adversely affect the health of persons. Each classification may also contain further specific standards, depending on the classification.

Model VCP Compliance: No injection of substances will occur as part of the proposed remedy. Therefore, the proposed remedy meets the requirements of these ERCLs.

1.8 Underground Storage Tank Requirements

40 CFR Part 280, Subpart F (applicable**)** sets forth requirements for Release Response and Corrective Action for underground storage tank (UST) Systems Containing Petroleum or Hazardous Substances. These include initial response, initial abatement measures, facility characterization, free product removal, and investigations for soil and groundwater cleanup.

40 CFR 280.64 (applicable) provides that where investigations in connection with leaking underground storage tanks reveal the presence of free product, owners and operators must remove free product to the maximum extent practicable as determined by the implementing agency. This regulation also requires that the free product removal be conducted in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the facility, and that properly treats, discharges or disposes of recovery byproducts in compliance with applicable local, state and federal regulations.

40 CFR 280.64 (applicable) provides that abatement of free product migration is a minimum objective for the design of the free product removal system provides that any flammable products must be handled in a safe and competent manner to prevent fires or explosions.

40 CFR Part 280, Subpart D (applicable) sets forth requirements for release detection.

40 CFR 280.43 (relevant) specifies groundwater monitoring requirements for underground storage tanks and requires continuous monitoring devices or manual methods used to detect the presence of at least 1/8 of an inch of free product on top of the groundwater in the monitoring wells.

The Montana regulations regarding underground storage tanks include similar requirements.

ARM Title 17, Chapter 56, Sub-Chapter 4 (applicable) specifies release detection.

ARM 17.56.407 (applicable) specifies groundwater monitoring requirements for underground storage tanks and requires continuous monitoring devices or manual methods used to detect the presence of at least 1/8 of an inch of free product on top of the groundwater in the monitoring wells.

ARM Title 17, Chapter 56, Sub-Chapter 6 (applicable) specifies release response and corrective action for tanks containing petroleum or hazardous substances.

ARM 17.56.602 through 605 (applicable) requires certain mitigation measures including removal of as much of the regulated substance from the system as is necessary to prevent further release into the environment and prevention of further migration of the released substance into surrounding soil and groundwater. In particular, ARM 17.56.602(1)(c) (applicable requires that after a release from an underground storage tank system is identified in any manner, owners and operators must investigate to determine the possible presence of free product, begin free product removal as soon as practicable, conduct free product removal in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges or disposes of recovery byproducts in compliance with applicable local, state and federal regulations. This regulation also provides that abatement of free product migration is a minimum objective for the design of the free product removal system and provides that any flammable products must be handled in a safe and competent manner to prevent fires or explosions.

ARM 17.56.607 (relevant) specifies that all free product must be removed to the maximum extent practicable before a release may be considered resolved.

ARM 17.56.702 (applicable) requires that all tanks and connecting piping which are taken out of service permanently must be removed from the ground. This applies if any remaining underground piping is encountered during remedial activities.

Model VCP Compliance: All underground storage tanks have been removed from the facility previously in compliance with these ERCLs. Also, there is no detectable free product in any groundwater well. Therefore, the proposed remedy meets the requirements of these ERCLs.

1.9 Reclamation and Revegetation Requirements

Certain portions of the Montana Strip and Underground Mining Reclamation Act and Montana Metal Mining Act as well as the Mine and Smelter Waste Remediation provisions as outlined below are relevant requirements for activities at the facility. While no mining activities are occurring at the facility, these requirements are relevant for the management and reclamation of areas disturbed by excavation, grading, or similar actions.

ARM 17.24.501 (relevant) gives general backfilling and final grading requirements.

ARM 17.24.631(1), (2), (3)(a) and (b): Disturbances to the prevailing hydrologic balance will be minimized. Changes in water quality and quantity, in the depth to groundwater and in the location of surface water drainage channels will be minimized, to the extent consistent with the selected remedial action. Other pollution minimization devices must be used if appropriate, including stabilizing disturbed areas through land shaping, diverting runoff, planting quickly germinating and growing stands of temporary vegetation, regulating channel velocity of water, lining drainage channels with rock or vegetation, mulching, and control of acid-forming, and toxic-forming waste materials.

ARM 17.24.633 (relevant) states that all surface drainage from a disturbed area must be treated by the best technology currently available (BTCA). Treatment must continue until the area is stabilized.

ARM 17.24.635 through 17.24.637 (relevant) set forth requirements for temporary and permanent diversions.

ARM 17.24.638 (relevant) specifies sediment control measures to be implemented during operations.

ARM 17.24.640 (relevant) provides that discharge from diversions must be controlled to reduce erosion and minimize disturbance of the hydrologic balance.

ARM 17.24.641(relevant) indicates that practices to prevent drainage from acid or toxic forming spoil material into groundwater and surface water will be employed.

ARM 17.24.643 through 17.24.646 (relevant) provide provisions for groundwater protection, groundwater recharge protection, and groundwater and surface water monitoring.

ARM 17.24.701 and 702 (relevant) provide requirements for redistributing and stockpiling of soil for reclamation. Also outline practices to prevent compaction, slippage, erosion, and deterioration of biological properties of soil.

ARM 17.24.703 (relevant) require that when using materials other than, or along with, soil for final surfacing in reclamation, the operator must demonstrate that the material (1) is at least as capable as the soil of supporting the approved vegetation and subsequent land use, and (2) the medium must be the best available in the area to support vegetation. Such substitutes must be

used in a manner consistent with the requirements for redistribution of soil in ARM 17.24.701 and 702.

ARM 17.24.711 (relevant) requires that a diverse, effective and permanent vegetative cover of the same seasonal variety and utility as the vegetation native to the area of land to be affected must be established. This provision would not be relevant and appropriate in certain instances, for example, where there is dedicated development.

ARM 17.24.713 (relevant) provides that seeding and planting of disturbed areas must be conducted during the first appropriate period for favorable planting after final seedbed preparation, but may not be more than ninety days after soil has been replaced.

ARM 17.24.714 (relevant) requires use of a mulch or cover crop or both until an adequate permanent cover can be established. Use of mulching and temporary cover may be suspended under certain conditions.

ARM 17.24.716 (relevant) establishes the required method of revegetation.

ARM 17.24.717 (relevant) relates to the planting of trees and other woody species if necessary, as provided in § 82-4-233, MCA, to establish a diverse, effective, and permanent vegetative cover.

ARM 17.24.718 (relevant) requires soil amendments if necessary to establish a permanent vegetative cover.

ARM 17.24.721 (relevant) specifies that rills and gullies must be stabilized and the area reseeded and replanted if the rills and gullies are disrupting the reestablishment of the vegetative cover.

ARM 17.24.723 (relevant) requires periodic monitoring of vegetation, soils, water, and wildlife.

ARM 17.24.724 (relevant) specifies how revegetation success is measured.

ARM 17.24.726 (relevant) sets the required methods for measuring vegetative success.

ARM 17.24.731 (relevant) provides if toxicity to plants or animals is suspected, comparative chemical analyses may be required.

Section 75-10-1404, MCA (relevant) provides that lands where waste has been removed must be revegetated using plant species native to the area and must achieve a vegetative cover equal to 85 percent of the vegetative cover of adjacent lands that were not previously disturbed within three years of the initial seeding.

Model VCP Compliance: The excavation will be backfilled with clean fill and regraded to slopes appropriate for its usage. Surface water controls will be implemented during construction to prevent runoff from contaminated soil. Final surfacing will use appropriate soil material. Seeding and planting of disturbed areas will be conducted within ninety days after the soil has

been replaced. A mulch cover will be used until an adequate cover is established. The disturbed areas will be revegetated consistent with these requirements. Surface water run-on and runoff measures will be implemented to prevent the spread of contamination into areas where it could degrade fish and wildlife habitat. Dust control measures will be used during excavation and backfilling areas. Thus, the proposed remedy meets the requirements of these ERCLs.

1.10 Noxious Weed Requirements

Sections 7-22-2101 *et seq*., MCA (Applicable) establishes and authorizes weed control at the local level. Section 7-22-2101(8)(a), MCA defines "noxious weeds." Designated noxious weeds are listed in ARM 4.5.201 and 4.5.206 through 4.5.209 and must be managed consistent with weed management criteria developed under § 7-22-2109(2)(b), MCA and in compliance with § 7-22-2152, MCA (Applicable). In addition, ARM 4.5.210 identifies regulated plants that may not be used for revegetation.

Model VCP Compliance: As specified in Section 5.1, the county weed board will be notified of the impending cleanup activity and provided with a copy of the VCP if requested. A revegetation plan meeting the requirements specified in Section 5.1 and any other specific requirements of the board will be submitted to the board at least 15 days prior to initiation of the cleanup. A copy of the revegetation and approval letter will be provided to DEQ when available. Therefore, the proposed remedy meets the requirements of these ERCLs.

2.0 CONTAMINANT-SPECIFIC ERCLs

2.1 Groundwater Standards

2.1.1 Safe Drinking Water Act – 42 U.S.C. § 300f *et seq*. and the National Primary Drinking Water Regulations (40 CFR Part 141) (applicable) establishes MCLs and maximum contaminant level goals (MCLGs) for contaminants in drinking water distributed in public water systems. The requirements were evaluated in this ERCLs analysis in conjunction with the groundwater classification standards promulgated by the State of Montana. The MCLs are identified because the groundwater at the facility is a source of drinking water.

EPA's guidance on Remedial Action for Contaminated Groundwater at Superfund Sites states that MCLs developed under the Safe Drinking Water Act generally are Applicable or Relevant and Appropriate Requirements [ARARs; the federal equivalent of ERCLs] for current or potential drinking water sources. EPA has also established MCLGs for contaminants in drinking water distributed in public water systems. MCLGs that are above zero are relevant under the same conditions (55 Fed.Reg. 8750-8752, March 8, 1990). See also, State of Ohio v. EPA, 997 F.2d 1520 (D.C. Cir. 1993), which upholds EPA's application of MCLs and non-zero MCLGs as ARARs for groundwater which is a potential drinking water source.

MCLS for the primary contaminants of concern in groundwater are listed below. However, compliance with all MCLs is required and remedial actions must meet the MCLs for all contaminants at the facility, including any breakdown products generated during remedial actions.

Chemical	MCL (in micrograms per liter; µg/L)
Arsenic	10 µg/L
Benzene	5 µg/L
Dioxins/furans	.00003 µg/L
Ethylbenzene	700 µg/L
Pentachlorophenol	1 µg/L
Toluene	1,000 µg/L

In addition, the Secondary Maximum Contaminant Levels (SMCLS) specified in 40 CFR Part 143.3 are relevant requirements which are ultimately to be attained by the remedy for the facility. This regulation contains standards for iron, manganese, sulfate, color, odor, and corrosivity that are relevant to the remedial actions.

2.1.2 The Montana Water Quality Act, §§ 75-5-101, *et seq.,* MCA (applicable) and regulations.

The Montana Water Quality Act, § 75-5-605, MCA (applicable) provides that it is unlawful to cause pollution of any state waters and § 75-6-112, MCA (applicable) provides that is unlawful to violate the Montana Water Quality Act. Section 75-5-605, MCA (applicable) also states that it is unlawful to place or cause to be placed any wastes where they will cause pollution of any state waters. Section 75-5-303, MCA (applicable) states that existing uses of state waters and the level of water quality necessary to protect the uses must be maintained and protected.

ARM 17.30.1006 (Applicable) classifies groundwater into Classes I through IV based upon its specific conductance and establishes the groundwater quality standards applicable with respect to each groundwater classification. Class I is the highest quality class; Class IV the lowest. Class I groundwater has a specific conductance of less than 1,000 microSiemens per centimeter (µS/cm) at 25 degrees Celsius. As discussed in the Environmental Assessment, the specific conductance of groundwater ranged from 52 µS/cm to 134 µS/cm. The lowest measured specific conductance generally dictates its classification and, based on its specific conductance, groundwater at the facility is Class 1 groundwater. Concentrations of substances in groundwater within Class 1 may not exceed the human health standards for groundwater listed in Circular DEQ-7, Montana Numeric Water Quality Standards, October 2012 (DEQ-7) (applicable). In addition, no increase of a parameter may violate the non-degradation policy found in § 75-5-303, MCA (applicable). For concentrations of parameters for which human health standards are not listed in DEQ-7, ARM 17.30.1006 allows no increase of a parameter to a level that renders the waters harmful, detrimental or injurious to the beneficial uses listed for that class of water.

DEQ-7 human health standards for the primary contaminants of concern in groundwater are listed below. Compliance with all DEQ-7 standards is required and remedial actions must meet the DEQ-7 standards for all contaminants at the facility, including any breakdown products generated during remedial actions.

Chemical	DEQ-7 Standard for Groundwater
tetrachloroethene (PCE)	5 µg/L
trichloroethene (TCE)	5 µg/L

trans-1,2 dichloroethene	100 µg/L
cis-1,2 dichloroethene	70 µg/L
vinyl chloride	0.2 µg/L

ARM 17.30.1011 (applicable) provides that any ground water whose existing quality is higher than the standard for its classification must be maintained at that high quality unless degradation may be allowed under the principles established in § 75-5-303, MCA, and the non-degradation rules at ARM 17.30.701 *et seq.*

Model VCP Compliance: No public drinking water supply sources are located near the facility. As described in Section 3.8.3 of this VCP, the impacted soil is not leaching COPCs to the groundwater at concentrations above human health standards or risk based screening levels. Groundwater at the facility would be classified as Class I based on specific conductivity less than 1,000 µS/cm. Groundwater at the facility does not exceed the standards listed in DEQ-7 or the MCLs. The proposed remedy will not create additional groundwater degradation, which will be verified through groundwater monitoring. Therefore, the proposed remedy meets the requirements of these ERCLs.

2.2 Surface Water Quality Standards

The Montana Water Quality Act, §§ 75-5-101 *et seq.*, MCA, (applicable) establishes requirements for restoring and maintaining the quality of surface and ground waters and the federal Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, establishes requirements for restoring and maintaining the quality of surface waters. Under these Acts the state has authority to adopt water quality standards designed to protect beneficial uses of each water body and to designate uses for each water body. Montana's regulations classify state waters according to quality, place restrictions on the discharge of pollutants to state waters and prohibit the degradation of state waters.

ARM 17.30.606-617 ((applicable) provides that the waters of the [insert river name] River drainage from [insert stretch description] are classified "B-3" for water use.

The "B-3" classification standards are contained in ARM 17.30.625 (applicable) of the Montana water quality regulations. This section provides the beneficial uses for the B-3 classification, and provides that concentrations of toxic, carcinogenic, or harmful parameters in the waters may not exceed DEQ-7 standards. The section also provides the specific water quality standards for water classified as B-3.

For the primary contaminants of concern, the DEQ-7 levels are listed below. DEQ-7 provides that "whenever both Aquatic Life Standards and Human Health Standards exist for the same analyte, the more restrictive of these values will be used as the numeric Surface Water Quality Standard."

Chemical	DEQ-7 Standard for Surface Water
tetrachloroethene (PCE)	5 µg/L
trichloroethene (TCE)	5 µg/L

trans-1,2 dichloroethene	100 μg/L
cis-1,2 dichloroethene	70 μg/L
vinyl chloride	0.25 μg/L

ARM 17.30.625 provides that concentrations of carcinogenic, bioconcentrating, toxic or harmful parameters which would remain in the water after conventional water treatment may not exceed the applicable standards set forth in DEQ-7.

The B-3 classification standards at ARM 17.30.625 also include the following criteria: 1) dissolved oxygen concentration must not be reduced below the levels given in department circular DEQ-7; 2) hydrogen ion concentration (pH) must be maintained within the range of 6.5 to 9.0; 3) the maximum allowable increase above naturally occurring turbidity is 5 nephelometric turbidity units; 4) temperature increases must be kept within prescribed limits; 5) no increase are allowed above naturally occurring concentrations of sediment, settleable solids, oils, floating solids, which will or is likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish or other wildlife; and 6) true color must be kept within specified limits.

ARM 17.30.637 (applicable) prohibits discharges containing substances that will: (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines; (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter (mg/L)) or globules of grease or other floating materials; (c) produce odors, colors or other conditions which create a nuisance or render undesirable tastes to fish flesh or make fish inedible; (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; (e) create conditions which produce undesirable aquatic life.

ARM 17.30.637 (Applicable) also provides that leaching pads, tailing ponds, or water, waste or product holding facilities must be located, constructed, operated and maintained to prevent any discharge, seepage, drainage, infiltration, or flow which may result in pollution of state waters, and a monitoring system may be required to ensure such compliance. No pollutants may be discharged and no activities may be conducted which, either alone or in combination with other wastes or activities, result in the total dissolved gas pressure relative to the water surface exceeding 110 percent of saturation.

ARM 17.30.641 (applicable) provides standards for sampling and analysis of water to determine quality.

ARM 17.30.646 (applicable) requires that bioassay tolerance concentrations be determined in a specified manner.

ARM 17.30.705 (Applicable) provides that for any surface water, existing and anticipated uses and the water quality necessary to protect these uses must be maintained and protected unless degradation is allowed under the non-degradation rules at ARM 17.30.708.

Model VCP Compliance: As described in Section 5.1 of this VCP, remedial actions at the facility include relocation of the stream and will result in remediation of the surface water and sediment in the stream. The remedial actions will be conducted in accordance with applicable permits to minimize the discharge of any material to surface water at the facility. Following the remediation, surface water at the facility will not exceed the standards listed in DEQ-7. Therefore, the VCP meets the requirements of these ERCLs.

2.3 Air Standards

The Clean Air Act (42 U.S.C. §§ 7401 *et seq.*) (applicable) provides limitations on air emissions resulting from cleanup activities or emissions resulting from wind erosion of exposed hazardous substances. Some of these ERCLs, identified as action-specific requirements could also be identified here as contaminant specific requirements but will not be repeated.

The National Emission Standards for Hazardous Air Pollutants (NESHAPS), 40 CFR Part 61 (applicable) establishes emission standards for specific air pollutants.

Sections 75-2-101, *et seq.*, MCA, (applicable) provides that state emission standards are enforceable under the Montana Clean Air Act.

ARM 17.74 Subchapter 3 (applicable) addresses requirements related to persons or entities engaged in asbestos related occupations, in charge of asbestos projects, or engaged in facility demolition or renovation activities. Training requirements for persons engaged in asbestos-type occupations are specified.

The Asbestos Control Act (§§ 75-2-501 *et seq.*, MCA) (applicable) establishes requirements for asbestos projects including permitting and inspection requirements. Section 75-2-502, MCA, defines an asbestos project to exclude a project that involves less than ten square feet in surface area or three linear feet of pipe.

ARM 17.8.220 (applicable) provides that no person shall cause or contribute to concentrations of particulate matter in the ambient air such that the mass of settled particulate matter exceeds a 30-day average of 10 grams per square meter (gm/m^2). A measurement method is also provided.

ARM 17.8.221 (applicable) provides concentrations of particulate matter in ambient air shall not exceed annual average scattering coeffient of 3×10^{-5} per meter.

40 CFR 50.12 and ARM 17.8.222 (applicable) provides ambient air quality standards for lead. Lead concentrations in air shall not exceed the following 90-day average: 1.5 micrograms per cubic meter ($\mu g/m^3$) of air.

ARM 17.8.223 (applicable) provides PM-10 concentrations in ambient air shall not exceed a 24-hour average of 150 $\mu g/m^3$ of air and an annual average of 50 $\mu g/m^3$ of air.

Ambient air standards under section 109 of the Clean Air Act are also promulgated for carbon monoxide, hydrogen sulfide, nitrogen dioxide, sulfur dioxide, and ozone. If emissions of these

compounds were to occur at the facility in connection with any cleanup action, these standards would also be applicable. *See* ARM 17.8.210, 17.8.211, 17.8.212, 17.8.213, and 17.8.214.

Model VCP Compliance: The proposed remedy involves handling impacted soil and prevent the release of dust, including asbestos fibers. All persons conducting remedial actions will be accredited by DEQ as provided for in ARM 17.74.362, the applicant will obtain an asbestos project permit as required by ARM 17.74.355, and all the sampling required by ARM 17.74.357 will be conducted. As described in Section 5.1 of this VCP, remedial actions at the facility will include wetting and other dust control measures. The air monitoring program plan, presented in Section 5.1.3 of this VCP, details the air monitoring program and procedures. Asbestos will be used as an indicator of fugitive dust control. Remedial actions will be halted if significant dust is generated and will not resume until adequate dust control measures are in place. Any unpaved roads used for waste hauling will be treated with a binder to reduce dust emissions. Therefore, the VCP meets the requirements of these ERCLs.

2.4 Natural Streambed and Land Preservation Act

Section 75-7-111, MCA, (applicable) provides that a person planning to engage in any activity that will physically alter or modify the bed or banks of a stream must give written notice to the Board of Supervisors of a Conservation District, the Directors of a Grass Conservation District, or the Board of County Commissioners if the proposed project is not within a district, and must submit a "310 Permit" application to one of those entities.

ARM 36.2.404 (applicable) establishes minimum standards which would be applicable if a remedial action alters or affects a streambed, including any channel change, new diversion, riprap or other streambank protection project, jetty, new dam or reservoir or other commercial, industrial or residential development. No such project may be approved unless reasonable efforts will be made consistent with the purpose of the project to minimize the amount of stream channel alteration, insure that the project will be as permanent a solution as possible and will create a reasonably permanent and stable situation, insure that the project will pass anticipated water flows without creating harmful erosion upstream or downstream, minimize turbidity, effects on fish and aquatic habitat, and adverse effects on the natural beauty of the area and insure that streambed gravels will not be used in the project unless there is no reasonable alternative. Soils erosion and sedimentation must be kept to a minimum. Such projects must also protect the use of water for any useful or beneficial purpose. See § 75-7-102, MCA.

Model VCP Compliance: As described in Section 5.1 of this VCP, these permits will be obtained before streambank relocation is conducted at the facility. All conditions of the permits will be met during the remedial activity. Therefore, the VCP meets the requirements of these ERCLs.

2.5 Methane

ARM 17.50.1106 (relevant) specifies the concentration of methane gas generated by a solid waste facility cannot exceed 25 percent of the lower explosive limit (LEL) for methane in facility structures.

Model VCP Compliance: As described in this VCP, methane concentrations at the facility do not exceed 25 percent of the LEL and monitoring will be conducted during implementation of the remedy to ensure that level is not exceeded during cleanup. Therefore, the VCP meets the requirements of these ERCLs.

3.0 LOCATION-SPECIFIC ERCLS

3.1 Endangered Species

3.1.1. The Endangered Species Act (relevant). This statute and implementing regulations (16 U.S.C. § 1531 *et seq.*, 50 CFR Part 402, 40 CFR 6.302(h), and 40 CFR 257.3-2) require that any federal activity or federally authorized activity may not jeopardize the continued existence of any threatened or endangered species or destroy or adversely modify a critical habitat. Compliance with this requirement involves consultation with the U.S. Fish and Wildlife Service (USFWS) and a determination of whether there are listed or proposed species or critical habitats present at the facility, and, if so, whether any proposed activities will impact such wildlife or habitat.

3.1.2 Montana Nongame and Endangered Species Act, §§ 87-5-101 *et seq.* (applicable): Endangered species should be protected in order to maintain and to the extent possible enhance their numbers. These sections list endangered species, prohibited acts and penalties. *See also*, § 87-5-201, MCA, (applicable) concerning protection of wild birds, nests and eggs; and ARM 12.5.201 (applicable) prohibiting certain activities with respect to specified endangered species.

Model VCP Compliance: Based on information obtained from the Montana Natural Heritage Program (Appendix G of the Remediation Proposal), endangered species have not been identified at the facility. Thus, the proposed remedy meets the requirements of this ERCL.

3.2 Migratory Bird Treaty Act

This requirement (16 USC §§ 703 *et seq*.) (relevant) establishes a federal responsibility for the protection of the international migratory bird resource and requires continued consultation with the appropriate program within the USFWS during remedial design and remedial construction to ensure that the cleanup of the facility does not unnecessarily impact migratory birds.

Model VCP Compliance: Migratory birds are present near the facility. However, the facility does not provide the majority of habitat for these species relative to the surrounding area. There are no features of the facility that are particularly attractive to these species. Therefore, remedial actions at the facility are not expected to impact migratory birds. Thus, the proposed remedy meets the requirements of this ERCL.

3.3 Bald Eagle Protection Act

This requirement (16 USC §§ 668 *et seq.*) (relevant) establishes a federal responsibility for protection of bald and golden eagles, and requires continued consultation with the appropriate program within the USFWS during remedial design and remedial construction to ensure that any cleanup of the facility does not unnecessarily adversely affect the bald and golden eagle.

Model VCP Compliance: Bald and golden eagles have not been observed at the facility. In addition, the facility does not provide the majority of habitat for these species relative to the surrounding area. There are no features of the facility that are particularly attractive to these species. Therefore, remedial actions at the facility are not expected to impact these species. Thus, the proposed remedy meets the requirements of this ERCL.

3.4 Historic Sites, Buildings, Objects and Antiquities Act

These requirements, found at 16 USC 461 *et seq.*, (relevant) provide that, in conducting an environmental review of a proposed action, the responsible official shall consider the existence and location of natural landmarks using information provided by the National Park Service pursuant to 36 CFR § 62.6(d) to avoid undesirable impacts upon such landmarks.

Model VCP Compliance: Current data indicate that no landmarks are present on the facility. Thus, the proposed remedy meets the requirements of this ERCL.

3.5 Montana Greater Sage-Grouse Stewardship Act

The Montana Greater Sage-Grouse Stewardship Act, §§ 2-15-243 and 76-22-101, *et seq*., MCA, and related Executive Orders 10-2014, 12-2015, and 21-2015 (applicable, substantive provisions only) establishes a map of sage-grouse Core Areas, Connectivity Areas, and General Habitat (Executive Order 21-2015 at https://sagegrouse.mt.gov/images/exec_order_map.jpg), a Montana sage-grouse oversight team, and a Sage Grouse Habitat Conservation program. If a remedial action will occur within one of the designated areas on the map, consultation is required with the Sage Grouse Habitat Conservation program, which is housed within the Department of Natural Resources and Conservation (https://sagegrouse.mt.gov/). Certain activities are prohibited or limited within the designated areas on the map. See the Core Area Stipulations, General Habitat Stipulations, and Connectivity Habitat Stipulations in Attachment D of Executive Order 10-2014, as amended by Executive Order 12-2015, including requirements/restrictions on surface disturbance; surface occupancy; seasonal use limitations; transportation limitations; pipelines; overhead power lines and communications towers; noise; vegetation removal; sagebrush eradication; wildfire and prescribed burns; monitoring; reclamation; conifer expansion; and rangelands. The industry-specific stipulations (for oil and gas, mining, coal mining, and wind energy industries) within Core Areas in Attachment D may be relevant, depending upon the type of facility and activities required for remedial action. A waiver of the various requirements is allowed through creation of a Special Management Area where a planned land use or activities associated with "valid rights" cannot be implemented. "Valid rights" are defined as "legal 'rights' or interest that are associated with land or mineral estate and that cannot be divested from the estate until that interest expires, is relinquished, or acquired." (Executive Order 10-2014, Attachment H). The procedures for Special Management Areas are outlined in Attachment E to Executive Order 10-2014, as amended by Executive Order 12-2015. Certain activities outlined in Attachment F of Executive Order 10-2014, as amended by Executive Order 12-2015, are exempt from these requirements.

Model VCP Compliance: Based on a review of designated areas on the sage grouse map, the facility is not with a sage grouse core area, connectivity area, or general habitat. Thus, the proposed remedy meets the requirements of this ERCL.

3.6 Resource Conservation and Recovery Act

40 CFR 264.18 (relevant) provides location requirements for owners and operators of hazardous waste management units. Portions of new management units must not be located within 200 feet of a fault which has had displacement in Holocene time and management units in or near a 100-year floodplain must be designed, constructed, operated, and maintained to avoid washout.

Model VCP Compliance: All hazardous waste will be removed from the facility and no management units will be created. Thus, the proposed remedy meets the requirements of this ERCL.

3.7 Fish and Wildlife Coordination Act

These standards are found at 16 USC § 661 *et seq.* and 40 CFR 6.302(g) (relevant) and require that federally funded or authorized projects ensure that any modification of any stream or other water body affected by a funded or authorized action provide for adequate protection of fish and wildlife resources.

Model VCP Compliance: As stated in section 5.1 of the VCP, the proposed remedy includes rerouting of the stream channel. Any fish caught in pools after the stream diversion will be collected and relocated into the active stream channel. No other wildlife species reside primarily at the facility and the proposed remedy is not expected to impact any other species. Therefore, the proposed remedy meets the requirements of these ERCLs.

3.8 Floodplain Management Order

Executive Order 11988 (relevant) requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. Implementing regulations for this executive order are found at 40 CFR 6. The executive order and regulations are relevant because a portion of the facility is in a floodplain; however, no federal action is anticipated at the facility. In addition, application of the Montana floodplain requirements (see below) addresses protection of the floodplain.

Model VCP Compliance: No federal action is anticipated at the facility. Also, as stated in section 5.1 of the VCP, the proposed remedy includes reconstruction of a 100-year floodplain along the new stream channel which will comply with Montana's floodplain requirements. Therefore, the proposed remedy will not result in adverse impacts to the floodplain and will meet the requirements of this ERCL.

3.9 Protection of Wetlands Order

This requirement (40 CFR Part 6, Appendix A, Executive Order No. 11,990) (relevant) mandates that federal agencies and potentially responsible parties avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands if a practicable alternative exists.

Section 404(b)(1), 33 U.S.C. § 1344(b)(1) (relevant) also prohibits the discharge of dredged or fill material into waters of the United States. Together, these requirements create a "no net loss" of wetlands standard.

Model VCP Compliance: There is one small designated wetland present at the facility. The VCP provides a detailed pre-construction drawing that reflects the location of this wetland. It is not anticipated that the excavation conducted under the VCP will impact the wetland. However, if the wetland is disturbed by the proposed remedy, this habitat will be re-established by reseeding with appropriate vegetation and ensuring the reconstructed stream channel will continue to support a wetland. Therefore, the proposed remedy will meet the requirements of this ERCL.

3.10 Solid Waste Management Requirements

Regulations promulgated under the Solid Waste Management Act, §§ 75-10-201 *et seq.*, MCA, (applicable) specify requirements that apply to the location of any solid waste management facility.

ARM 17.50.1004 (applicable) specifies a solid waste facility located within the 100-year floodplain may not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste that poses a hazard to human health or the environment. *See also* ARM 17.50.1009(1)(h) (applicable).

ARM 17.50.1005 (applicable) specifies a solid waste facility may not be located in a wetland, unless there is no demonstrable practicable alternative.

ARM 17.50.1006 (applicable) specifies a solid waste facility cannot be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time without demonstration that an alternative setback will prevent damage to the structural integrity of the solid waste facility and will be protective of human health and the environment.

ARM 17.50.1007 (applicable) specifies a solid waste facility may not be located in a seismic impact zone without demonstration, by a Montana licensed engineer, that the solid waste structure is designed to resist the maximum horizontal acceleration in lithified earth material for the site.

ARM 17.50.1008 (applicable) specifies a solid waste facility may not be located in an unstable area (determined by consideration of local soil conditions, local geographic or geomorphologic features, and local artificial features or events, both surface and subsurface) without

demonstration, by a Montana licensed engineer, that the solid waste facility is designed to ensure that the integrity of the structural components will not be disrupted.

ARM 17.50.1009 (applicable) requires that Class II landfills be designed, constructed, and maintained with a run-on and run-off control system to address 25-year storm events.

ARM 17.50.1110 (applicable) prohibits a Class II landfill from causing a discharge of a pollutant into state waters, including wetlands.

ARM 17.50.1116 (applicable) requires that a solid waste management facility be designed, constructed, and operated in a manner to prevent harm to human health and the environment.

ARM 17.50.1204(1)(b) (applicable) requires that a Class II landfill be constructed utilizing a composite liner and leachate collection and removal system that is designed and constructed to maintain less than a 30-centimeter depth of leachate over the liner.

ARM 17.50.1205(3) (applicable) requires that the leachate system provide for accurate monitoring of the leachate level and provide a minimum slop at the base of the overlying leachate collection layer equal to at least two percent.

ARM 17.50.1303 (applicable) identifies requirements for groundwater monitoring.

ARM 17.50.1312 (applicable) identifies requirements for monitoring well abandonment.

ARM 17.50.1403 (applicable) sets forth the closure requirements for Class II landfills. This includes the requirement that the cap be a minimum of 24 inches thick and other criteria, as follows:

1. install a cover that is designed to minimize infiltration and erosion;
2. design and construct the final cover system to minimize infiltration through the closed unit by the use of an infiltration layer that contains a minimum 18 inches of earthen material and has a permeability less than or equal to the permeability of any bottom liner, barrier layer, or natural subsoils or a permeability no greater than $1x10^{-5}$ cm/sec, whichever is less; and
3. minimize erosion of the final cover by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant.

ARM 17.50.1404 (applicable) sets forth post closure care requirements for Class II landfills. Post closure care requires maintenance of the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the cover and comply with the groundwater monitoring requirements found at ARM Title 17, chapter 50, subchapter 13.

Section 75-10-212, MCA (applicable) prohibits dumping or leaving any debris or refuse upon or within 200 yards of any highway, road, street, or alley of the State or other public property, or on privately owned property where hunting, fishing, or other recreation is permitted. However, the restriction relating to privately owned property does not apply to the owner, his agents, or those disposing of debris or refuse with the owner's consent.

Model VCP Compliance: All solid waste at the facility will be removed, transported, and properly disposed of at [insert the name of the facility], an appropriate permitted disposal facility. Therefore, the proposed remedy meets the requirements of these ERCLs.

3.11 Floodplain and Floodway Management Act and Requirements

The following standards are included here to indicate the restrictions on any related activities that might occur in or affect the floodway or floodplain.

Section 76-5-401, MCA and ARM 36.15.601 (applicable) provide that residential, certain agricultural, industrial-commercial, recreational and other uses are permissible within the designated floodway, provided they do not require structures other than portable structures, fill or permanent storage of materials or equipment.

Section 76-5-402, MCA and ARM 36.15.701 (applicable) provide that in the flood fringe (i.e., within the floodplain but outside the floodway), residential, commercial, industrial, and other structures may be permitted subject to certain conditions relating to placement of fill, roads, and floodproofing.

ARM 36.15.602(6) (applicable) provides that domestic water supply wells may be permitted, even within the floodway, provided the well casing and well meets certain conditions.

ARM 36.15.602(5), 36.15.605, and 36.15.703 (applicable) provide that solid and hazardous waste disposal and storage of toxic, flammable, hazardous, or explosive materials are prohibited anywhere in floodways or floodplains.

Section 76-5-402, MCA (applicable) states that the following are prohibited in a floodway: buildings for living purposes or place of assembly or permanent use by human beings; any structure or excavation that will cause water to be diverted from the established floodway, cause erosion, obstruct the natural flow of water, or reduce the carrying capacity of the floodway; and the construction or permanent storage of an object subject to flotation or movement during flood level periods.

Section 76-5-406, MCA and ARM 36.15.216 (applicable) contain substantive factors that address obstruction or use within the floodway or floodplain.

ARM 36.15.604 (increase in upstream elevation or significantly increase flood velocities), ARM 36.15.602(1) (excavation of material from pits or pools), and ARM 36.15.603 (water diversions or changes in place of diversion) (applicable) provide further conditions or restrictions that generally apply to specific activities within the floodway or floodplain.

ARM 36.15.701(3)(c) (applicable) requires that roads, streets, highways and rail lines must be designed to minimize increases in flood heights.

ARM 36.15.701(3)(d) (applicable) provides that structures and facilities for liquid or solid waste treatment and disposal must be floodproofed to ensure that no pollutants enter flood waters and may be allowed and approved only in accordance with DEQ regulations, which include certain additional prohibitions on such disposal.

ARM 36.15.702(2) (applicable) provides the standards applied to residential, commercial or industrial structures.

ARM 36.15.606 (applicable) provides that flood control works comply with safety standards for levees, floodwalls, and riprap.

ARM 36.15.901 (applicable) requires electrical systems to be flood-proofed.

Model VCP Compliance: As stated in section 5.1 of the VCP, the proposed remedy includes reconstruction of a 100-year floodplain along the new stream channel. No development, structures or other features will be constructed in the floodplain. Therefore, the proposed remedy meets the requirements of these ERCLs.