



Voluntary Cleanup and Redevelopment Act Application Guide

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LIST OF ACRONYMS

AAI – All Appropriate Inquiry
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 – Soil Screening Level
VCRA – Voluntary Cleanup and Redevelopment Act

BACKGROUND

The State of Montana has many facilities where soils, surface waters, 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 Site Response Section (SRS).
- 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 SRS.

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).

In 2009, the Montana Legislature modified VCRA and divided a Voluntary Cleanup Plan (VCP) into two components:

- 1) The Environmental Assessment – When conducting the Environmental Assessment, all facility and operational history must be investigated. 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 adequately investigate and identify the nature and extent of contamination, which is not limited to property boundaries. 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 requirements 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 www.deq.state.mt.us/StateSuperfund/vcraguide.mcp 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 applicant may provide an explanation as to why specifically required information is not applicable.

Helpful Information

In the past, DEQ has determined many VCPs incomplete because of a lack of detail in the plan. 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 <http://deq.mt.gov/StateSuperfund/vcra.asp>, 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 in order 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. The checklist is provided in Appendix A.
- **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/StateSuperfund/FrequentlyAskedQuestions.mcpx>. Topics addressed range from soil sampling requirements to examples of restrictive covenants.

Submittals

DEQ requires that the applicant submit three hard copies and a compiled PDF version of each VCP component.

All Appropriate Inquiry for Brownfields

On November 1, 2005 the U.S. Environmental Protection Agency (EPA) finalized the regulations implementing Subtitle B of Title II of the Brownfields Amendments to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) section 101(35), which clarifies the requirements necessary to establish protection from CERCLA liability for innocent landowners, bona fide prospective purchasers, and contiguous property owners. Among other requirements, persons claiming the liability protections must perform an All Appropriate Inquiry (AAI) on or before the date on which the person acquired the property. The Brownfields amendments also require that parties receiving a federal Brownfields grant awarded under CERCLA section 104(k)(2)(B) must also perform site characterizations that fulfill the requirements for AAI. Please note that while performing an AAI may provide protection from CERCLA liability, it does not provide protection from liability under CECRA.

Additional information regarding Brownfields’ AAI requirements can be found on EPA’s All Appropriate Inquiry webpage at the following link: <http://www.epa.gov/brownfields/aa/>. For a complete explanation of all AAI requirements please reference [40 CFR Part 312](#).

VCRA Registry

DEQ maintains a registry of VCRA facilities. This registry includes facilities for which a VCP has been submitted. In addition, the registry includes facilities for which DEQ has received a written indication of an applicant’s intent to conduct a voluntary cleanup under VCRA. The registry is available upon request and on DEQ’s website at <http://deq.mt.gov/stateSuperfund/PDFs/Registry.pdf>.

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 and regulations under that act; or
- e) A facility that is the subject of pending action under this part 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, 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 soil). 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, addresses subsequent phases of remediation, the applicant may rely on that assessment when submitting VCPs for subsequent phases of remediation.

1.7 "No Further Action" VCPs

Generally, a VCP is submitted and DEQ approval of the cleanup plan is obtained prior to the 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 closure letter (and delisting from the CECRA Priority List, if applicable) from DEQ:

- 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 (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 just as a VCP requiring action; however, some requirements may not be as extensive (e.g., alternatives analysis). In particular, the public participation requirements of VCRA apply (i.e. a public comment period is still required).

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 these remedial action costs. 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. "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 (3) take action to recover the outstanding remedial action costs (Section [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 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. 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.

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 notice and a brief summary of the VCP in a daily newspaper of general circulation in the area affected and 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. 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, DEQ shall conduct a public meeting at or near the facility regarding the proposed VCP. 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](#)(6), 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. Except for the period necessary for the O&M of the approved remediation proposal, DEQ may not approve a VCP that would take longer than 60 months after DEQ approval to complete. Once DEQ approves of 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 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, provides that if DEQ does not approve a VCP, DEQ shall promptly provide the applicant with a written statement of the reasons for denial. The denial may be appealed to the Board of Environmental Review in accordance with the provisions of § [75-10-732](#)(4), MCA, or the VCP may be revised to address the reasons for its denial and resubmitted.

1.14 VCP Modification

Section [75-10-736](#)(9), MCA, provides for amendment of approved VCPs. This section states that if during implementation of a VCP, conditions that were not identified in the Environmental Assessment are discovered, affect the risk to public health, welfare, and safety and of the environment, and change the scope of the approved plan, the applicant shall notify DEQ within ten days of discovery. 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) outlines certain conditions that may result in DEQ voiding its approval of the VCP. Failure of the applicant or the applicant's agents to materially comply with the VCP approved by DEQ renders the approval void. Submission of materially misleading information by the applicant or the applicant's agents in the application or during implementation of the VCP also renders DEQ's approval void. Finally, failure to report to DEQ within ten days any new information regarding releases or threatened releases of hazardous or deleterious substances discovered during the application

process or implementation of the VCP renders the approval of the VCP void. Examples of conditions that must be reported to DEQ and that may require a VCP amendment include but are not limited to; the discovery of additional contaminated media; the discovery of additional contaminated areas; the discovery of a much greater volume of contaminated material than anticipated; a change in the remedy or disposal facility; or 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, including 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, 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 accept/review construction completion reports for partially completed VCPs.

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 shall 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 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 maintenance 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 2.10 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. 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, the 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 type and source 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 description of the facility and a map of the facility identifying the location and size of the facility and relevant features of the facility, such as property boundaries, surface topography, surface and subsurface structures, and utility lines. This section of the VCP should include comprehensive maps drawn to scale that show relevant features of the facility. 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 $\frac{1}{4}$, $\frac{1}{4}$, $\frac{1}{4}$ of the section, and
- Latitude and longitude in decimal degrees World Geodetic System 1984 (WGS 84).

In addition to the legal descriptions of all property within the facility, the VCP should contain copies of these property deeds as an appendix.

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 for both the

Environmental Assessment and the Remediation Proposal of the VCP as well as access to the facility by the applicant and its agents and DEQ. This includes consent for implementation of 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 property boundaries and owners, it is necessary to obtain this written consent from all 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. An example of a consent form for both the Environmental Assessment and the Remediation Proposal is provided as Attachment B of this guide.

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, including the location of any surface water bodies and groundwater aquifers. This section of the VCP should also include a map drawn to scale showing areas contiguous to the facility with an accompanying narrative providing additional description. The following are examples of physical characteristics that could be discussed in this section of VCP and drawn on a map, 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 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/rem/interactivemaps.asp>

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 and a description of the use of those wells. 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 impacted. 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, from the Montana Bureau of Mines and Geology Groundwater Information Center (406-496-4336; <http://mbmgwic.mtech.edu>), the Montana Department of Natural Resources and Conservation, and any other sources that identify 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 these 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 (i.e., door-to-door inspection). 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; and
- 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 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 streams 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 μ Siemens/cm	1050 μ Siemens/cm
950 μ Siemens/cm	1100 μ Siemens/cm
The groundwater is Class I because the lowest specific conductivity is less than or equal to 1000 μ Siemens/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. If any water bodies located on or near the facility are determined to be on the list, the VCP should include a description of any contribution the current condition of the facility or the proposed remediation of the facility will have on the total maximum daily load for the water body.

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, including ownership, and the current use of the facility, including any readily available aerial photographs from within the state of Montana.

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 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.

2.8 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, CERCLA, RCRA, WQA, CWA,) 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.

2.9 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 showing general areas and concentrations of hazardous or deleterious substances. Investigations should characterize the entire facility including surface soils, subsurface soils, sediment, air, vapor intrusion, groundwater, and surface water, as applicable. The facility characterization will delineate the areas and the extent of contamination at 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 on the facility. Sample results

should be summarized in the text of the VCP and provided in summary tables. Lab 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 (<http://deq.mt.gov/StateSuperfund/PDFs/DataValidationReport.pdf>). 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 or list of contaminants indicating which media are contaminated and the estimated vertical and areal extent of contamination in each medium;
- A data summary discussion and table of the contamination present at the facility separated out by impacted media, including all of the samples collected in that media and the extent of contamination present in each media. The 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;
- 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, discharge point, drain, or leakage point (if 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 and estimated rate of groundwater movement across the facility using a minimum of three measuring points and depicting high and low water seasonal variations;
- A discussion of all hydraulic tests performed at the facility or nearby to characterize the hydrogeologic properties of any facility aquifers and 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) and lithologic logs;
 - 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 the analytical methods. 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 remedial actions already performed at the facility (especially important for “no further action” VCPs), including:
 - a description and figure showing the location of contaminants of concern (COCs);
 - a description and figure showing 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;
 - 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 remedial action.

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).

2.9.2.1 Groundwater/Drinking water/Surface water

Screen surface water and groundwater concentrations against the standards provided in the Montana Numeric Water Quality Standards Circular DEQ-7 ([DEQ-7](#)).

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 [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 [EPA Regional Screening Levels for Chemical Contaminants at Superfund Sites \(RSLs\)](#).

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 found in Attachment C. DEQ's Soil Screening Process flowchart examines both direct contact and leaching to groundwater risks and contains the following screening levels:

- DEQ's Remediation Division, Action Level for Arsenic in Surface Soil.
- Soil RBSLs for petroleum compounds provided in the RBCA Guidance.
- All other soils are screened using EPA RSLs, adjusted as follows:
 - (i) Non-carcinogenic contaminant screening levels found in the RSL table 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 ten. This ensures that when multiple contaminants are found at a facility that may have the same health effects, cumulative potential health effects are considered.
 - (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. DEQ currently uses the EPA RSLs of 400 mg/kg for lead in residential soils and 800 mg/kg for lead in industrial soils; check DEQ's website to ensure that the most current version of these screening levels is used.
 - (iii) The protection of groundwater soil screening levels (SSLs) found in the 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 Attachment C 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 ten.

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 ten 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 at the following link:

<http://deq.mt.gov/StateSuperfund/FrequentlyAskedQuestions.mcp#4>.

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 D; note that Attachment D 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 D) 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 source, facility-specific screening level (if appropriate) and source, if the chemical is a COC, and the rationale for this decision. The ODSCOPC table can be found at the following link:
http://www.epa.gov/oswer/riskassessment/ragsd/pdf/exampletable2_1.pdf.

When evaluating current and future exposure, DEQ considers the top 0 – 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 soils from 2 – 10 feet below ground surface as short-term excavation or construction worker exposures. DEQ has developed guidance related to soil sampling that can be found at the following link:
<http://deq.mt.gov/StateSuperfund/FrequentlyAskedQuestions.mcp#2>

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.

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 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.

Evaluation of the soil to groundwater pathway is also necessary as all soil cleanup levels must be protective of groundwater. Soils 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.

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/StateSuperfund/viguide.mcp> 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.

2.11 Summary of Maps, Figures, and Photographs

Where appropriate, please include the following maps, figures, or photographs in the Environmental Assessment. These maps 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**
 - Isoconcentration map depicting soil analytical data. Include at least three labeled isoconcentrations 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 isoconcentrations 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 isoconcentrations 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 s for each separate phase product (one identifying the edge of measurable product thickness; then as many isoconcentrations 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. The previously-provided access, via written consent of the current owners of the facility or property for the VCP, must also be in place so that access to the facility by the applicant and its agents and DEQ is still current. The written consent provided with the Environmental Assessment can be used in the Remediation Proposal provided that the consent is current and continues to allow for the implementation of the VCP as described in section 2.2.1.

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 remedial actions have occurred since completion of the Environmental Assessment, include a detailed description those actions completed prior to the submittal of the Remediation Proposal.

3.1.2 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 note the phytotoxicity of metals must also be considered in determining appropriate cleanup levels.

- 1) Background levels:** Attainment of DEQ-approved facility-specific background levels based on samples collected from unimpacted areas representative of conditions at the facility for compounds such as metals. DEQ has developed an action level for arsenic in surface soil (0-2' deep) of 40 ppm. Established literature values for background concentrations may also be proposed (including those found on DEQ's website <http://deq.mt.gov/StateSuperfund/PDFs/BackgroundConcentrationsForInorganicInSoil.pdf>). In some cases, background concentrations may exceed screening levels and may be used in place of screening levels. However, background concentrations that exceed ERCLs may necessitate that a facility remain on the CECRA Priority List regardless of the status of a VCP.
- 2) Established generic screening levels:** The screening levels described in Section 2.9.2 above and found in ARM 17.55.109 at the following link: www.deq.mt.gov/dir/legal/Chapters/CH55-01.pdf may be appropriate as cleanup levels.
- 3) Facility-specific adjusted screening levels:** The generic screening levels described above may be adjusted based on the number of compounds present at an individual facility. For carcinogens, the cumulative risk for all of the contaminants at the facility must not exceed the DEQ-accepted cumulative cancer risk of 1×10^{-5} . For non-carcinogens, the cumulative potential health effects must not exceed a total hazard index equal to 1. For example, in the RSL table, RSLs for carcinogenic compounds are based on a 1×10^{-6} cumulative risk, while DEQ will accept a cumulative risk of 1×10^{-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 can 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 1×10^{-5} for carcinogens or a total hazard index less than or equal to 1 for non-carcinogens. Ecological risks must also be evaluated and acceptable risk determinations are made on a facility-specific basis. All exposure assumptions must be acceptable to DEQ and are best determined in consultation with DEQ. Additional information can be found on DEQ's FAQ webpage.
- 5) Facility-specific leaching to groundwater cleanup levels:** The applicant can 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 at the following link: <http://deq.mt.gov/StateSuperfund/PDFs/DeqRemFateTransportGuideSept2008.pdf>.

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.

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 the each alternative to each of the criteria. Attachment E 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).

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 F.

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 more brief 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 must also include a brief alternatives analysis to balance the need for remediation with the risk analysis.

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 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 these 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. A sample ERCLs analysis is included as Attachment G.

"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 to remove volatile organic compounds from soil. These remedies may be preferable to excavation and land disposal. A proposed remedy may not meet this criteria, 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](#). 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 60-month 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 Resource Conservation and Recovery Act (RCRA) and the Montana Hazardous Waste Act and the regulations adopted pursuant to it. The Remediation Proposal should include a discussion of whether or not 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.

3.4.2.1 Confirmation Sampling

A confirmation sampling plan needs 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 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 methods 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 the following: a complete data validation checklist/report, copies of all laboratory results, and a completed chain of custody with the laboratory’s sample receipt checklist. Please ensure that all QA/QC issues in the validation checklist/report will be clearly identified and discussed.

DEQ typically requires that a 5-point composite confirmation be collected from 25 feet by 25 feet sampling grids. Confirmation samples should be collected from the excavation floor as well as along all side-walls. If sampling along a narrow corridor, a 5-point composite sample should be collected over an area of 625 ft sq. 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 at the following link: <http://deq.mt.gov/StateSuperfund/FrequentlyAskedQuestions.mcp#5>.

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 must include the search results in DEQ's electronic databases for known contaminated facilities to determine if the proposed backfill source is in the database or is adjacent to a facility listed in the database. 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. See the [Montana DEQ Digital Atlas/Online Query Service](#) to search for facilities in DEQ's database. In addition to contaminants present in known sources of contamination on or adjacent to the backfill source area, the samples must also be analyzed for the following metals: arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury.
- 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 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/StateSuperfund/VCRA_Guide/ss_flowchart.pdf). This discussion must include a summary table with both the analytical results and all appropriate cleanup or screening levels.
- 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. All QA/QC issues in the validation checklist/report must be clearly identified and discussed.

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;
- 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, seed sources, seeding rates, seeding techniques, seeding times, and transplants;
- Reference area delineation or description of vegetation typical of the surrounding area (see below); and
- Monitoring, including monitoring and reporting frequency, and sampling methods.

Success of revegetation must be determined by comparison with uncontaminated reference areas or by comparison with technical standards. Reference areas and standards must be representative of vegetation and related site characteristics and must occur on lands exhibiting good ecological integrity. DEQ will approve the reference areas, technical standards, and methods of comparison.

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.

Production, cover, and density shall be considered equal to the approved success standard when they are equal to or greater than 90% of the standard. 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 receive approval of their revegetation plan from the County Weed Control Board should the applicant submit a construction completion report.

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 SPECIFICATIONS		
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 must 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, 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 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.

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 shall 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 2011a. DEQ SRS Frequently Asked Questions:

<http://deq.mt.gov/StateSuperfund/FrequentlyAskedQuestions.mcp>x

DEQ 2011b. Montana Vapor Intrusion Guide, April 2011.

DEQ 2010. Circular DEQ-7, Montana Numeric Water Quality Standards, August 2010.

DEQ 2009. Montana Tier 1 Risk-Based Corrective Action Guidance for Petroleum Releases, September 2009.

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

DEQ 2005. Montana Department of Environmental Quality, Remediation Division, Action Level for Arsenic in Surface Soil, April 2005

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 12/90.

EPA 2011. EPA Regional Screening Levels, November 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 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 2002. OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance), November 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 2000a. Draft Ecological Soil Screening Level Guidance, July 2000.

EPA 1999. Supplemental Guidance to Risk Assessment Guidance for Superfund, Volume I,

- Human Health Evaluation Manual: Dermal Risk Assessment Interim Guidance, March 1999.
- EPA 1998. Guidelines for Ecological Risk Assessment: EPA/630/R-95/002F, April 1998.
- EPA 1997a. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, June 1997.
- EPA 1997b. Exposure Factors Handbook, Volumes I-III, EPA/600/P-95/002Fa-c, August 1997.
- EPA 1996. Soil Screening Guidance, EPA/540/R-94/101, April 1996. Note: Accompanying documents include Soil Screening Guidance: Technical Background Document: EPA/540/R-95/128 and Soil Screening Guidance: User's Guide, EPA/540/R-96/018.
- EPA 1992. Supplemental Guidance to RAGS: Calculating the Concentration Term, Publication 9285.7-081, May 1992.
- EPA 1991a. Supplemental Guidance to RAGS: Default Exposure Factors, March 1991, OSWER Directive 9285.6-03.
- EPA 1991b. RAGS, Volume I, Human Health Evaluation Manual Part B, Development of Risk-based Preliminary Remediation Goals: EPA 540/R-92/003, December 1991.
- EPA 1991c. RAGS, Volume I, Human Health Evaluation Manual Part C, Risk Evaluation of Remedial Alternatives: EPA/540/R-92/004, December 1991.
- EPA 1989. RAGS, Volume I, Human Health Evaluation Manual Part A: EPA/540/1-89/002, December 1989.
- NE&W 1999. Final Phase Remedial Investigation Report for the Bozeman Solvent Site. DEQ file No. 20-06-06. September 1999.