



Petroleum Tank Cleanup Section (PTCS)

PTCS Resource Tools

**Guidance Documents Updated
in 2017-2018**

Consultants Meeting, October 2018

Montana Laws & Rules

MCA Title 75. Environmental Protection
Chapter 11. Underground Storage Tanks

&

ARM 17.56.6

Release Response and Corrective Action for Tanks
Containing Petroleum or Hazardous Substances

PTCS Resource Tools

Guidance Documents – updated 2017-2018

- Remedial Investigation (RI) Guidance – October 2017
- Release Closure Plan (RCP) – March 2018
- Remedial Alternatives Analysis (RAA) Guidance – April 2018

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Remedial Investigation (RI) Guidance – October 2017

- Extensive Update:
 - RI goal - single Work Plan and single Report
 - Work Plan & Report Requirements

- Added:
 - Examples of maps, well/boring logs, and tables
 - Release Closure Plan (RCP)

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Release Closure Plan (RCP) – March 2018

- Originally in RAA
 - RCP replaced the RA Matrix Evaluation in the RAA Guidance

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Release Closure Plan (RCP) – March 2018

- Originally in RAA
 - RCP replaced the RA Matrix Evaluation in the RAA Guidance

- RCP includes:
 - RI & Site Summary (Part 1)
 - Conceptual Site Model (Part 2)
 - Evaluation of Cleanup Alternatives (Parts 3 & 4)

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Release Closure Plan (RCP) – March 2018

- Originally in RAA
 - RCP replaced the RA Matrix Evaluation in the RAA Guidance

- RCP includes:
 - RI & Site Summary (Part 1)
 - Conceptual Site Model (Part 2)
 - Evaluation of Cleanup Alternatives (Parts 3 & 4)

- Creates a remediation plan from the beginning with closure in mind
 - RCP updated & included in all successive Reports

Part 1: Site Summary & Remedial Investigation (RI) Results

reference: MT DEQ Remedial Investigation (RI) Guidance for Petroleum Releases

Consultant:			Date:		DEQ PM:	
Facility Name / Address:						
Facility ID:			Release:		WP ID:	
Site Information	Release Cause, Source(s) & Petroleum Types:					
	other releases onsite and nearby:					
	Site Use(s) -- Former, Current & Planned:					
	Surface Conditions & Access:					
	former Petroleum Tank Systems:					
	current Petroleum Tank Systems:					
	Other:					
Subsurface	Stratigraphic sequence - layers & thicknesses:					
	Stratigraphic Continuity - Lateral Variation(s):					
	Groundwater Depth & Flow Direction(s):					
	Aquifer(s) unconfined, confined, perched:					
	Receptor Depth/Location (basements, utilities):					
	Other:					
Extent & Magnitude	Petroleum Types, Age & NAPL Mobility:					
	Surface Soil Impacts (0 to 2 ft bgs):					
	Vadose-Zone Soil Impacts:					
	Smear-Zone Soil Impacts:					
	Groundwater Impacts:					
	Surface Water Impacts:					
	Petroleum Vapor Impacts:					
	Other:					
Reports	RI and Monitoring Reports & Dates:					
	Pilot Tests & Results:					
	Results from Cleanup(s):					
	Other:					
What currently prevents Release Closure?						
additional information required for PMZ Closure:						
Information & Data Gaps:						
Recommendations and comments:						

for the Investigation, Cleanup, Monitoring & Closure of Petroleum Releases

Part 2: Conceptual Site Model (CSM) - Evaluation of Exposure Pathways

reference: MT DEQ Risked-Based Corrective Action (RBCA) Guidance for Petroleum Releases

Consultant: 0 Date: 1/0/1900 DEQ PM: 0

Facility Name: 0

Facility ID: 0 Release: 0 W/P ID: 0

					Complete Description for All Receptors Describe why each Receptor is not-threatened, threatened, or impacted.
Petroleum Source(s)	Affected Medium	Exposure Medium / Point	Exposure Route	Receptor	
→	Surface Soil (0 - 2 ft bgs)	→ Soil →	Ingestion Dermal →	Resident and/or Worker	
		→ Soil →	Leaching →	Groundwater	
		→ Dust and/or Vapors →	Inhalation →	Resident and/or Worker	
		→ Surface Erosion to Surface Water and/or Sediment →	Ingestion Dermal →	Recreator, Ecological Receptor ¹	
→	Sub-Surface Soil (> 2 ft bgs)	→ Soil →	Ingestion Dermal →	Construction Worker ²	
		→ Soil →	Leaching →	Groundwater	
		→ Indoor Air →	Inhalation →	Commercial or Residential Indoor Air	
		→ Dust and/or Vapors →	Inhalation →	Construction Worker	
		→ Buried Water Line →	Ingestion Dermal →	Resident and/or Worker	
		→ Buried Utility Line →	Inhalation of Indoor Air →	Indoor Resident and/or Worker	
→	Groundwater	→ Groundwater →	→ →	State water ³	
		→ Indoor Air ⁴ →	Inhalation of Indoor Air →	Resident and/or Worker	
		→ Groundwater and/or Vapors →	Ingestion Dermal Inhalation →	Construction Worker ²	
		→ Drinking Water →	Ingestion Dermal →	Resident and/or Worker	
		→ Surface Water and/or Sediment →	Ingestion Dermal Inhalation →	Recreator, Ecological Receptor	
		→ Buried Water Line →	Ingestion Dermal →	Resident and/or Worker	
		→ Buried Utility Line →	Inhalation of Indoor Air →	Indoor Resident and/or Worker	
		→ →	→ →	→ →	

Complete Description for All Receptors
Describe why each Receptor is not-threatened, threatened, or impacted.

Data Gaps: _____
Recommendations: _____

Footnote:
 1. Ecological Receptors (e.g. plants and animals) can be added as a separate line associated with surface soil but it is not common for PTC sites.
 2. Construction worker covers excavations conducted for building construction, utility installation and repair, as well as residents planting trees, etc.
 3. Standard or RBSL exceedance are a complete pathway to a receptor, which is state water (or groundwater).
 4. Indoor Air is the exposure medium for a potential or known vapor intrusion setting where a resident or an employee of a business may breathe petroleum vapor from the release.

for the Investigation, Cleanup, Monitoring & Closure of Petroleum Releases

Part 3: Evaluation of Cleanup Alternatives reference: MT DEQ Remedial Alternatives Analysis (RAA) Guidance for Petroleum Releases

Consultant:	0	Date:	1/0/1900	DEQ PM:	0
Facility Name / Address:	0				
Facility ID:	0	Release:	0	WP ID:	0

Administrative Rules of Montana 17.56.605(3) requires screening and selection of cleanup methods to develop a matrix evaluation of cleanup alternatives. A cleanup plan requires information on all alternatives and an explanation why any alternative was selected.		Enter appropriate site-specific Cleanup Methods that are based on RI results & CSM						
		No Action*	e.g. Excavation	e.g. Excavation & ORC	e.g. SVE & AS	fill-in as needed or leave blank	fill-in as needed or leave blank	fill-in as needed or leave blank
Evaluation Criteria	Performance	Estimated Costs						
		Protective of Human Health & Environment (e.g. residences, utilities, water supply, future use)						
		Method-specific regulatory requirements (e.g. disposal of impacted soil & water, access agreements)						
		Method-specific feasibility requirements (e.g. pilot tests, treatability studies)						
		Contaminant-specific requirements (e.g. method achieves soil & GW RBSLs & DEQ-7 standards)						
		Location-specific requirements (e.g. potential historical, cultural, or ecological significance, or site near wetlands, floodplains, surface water, endangered species / migratory bird habitat)						
		Reliability -- Short Term						
		Reliability -- Long Term						
		Implementation Issues & Limitations						
		Safety Issues						
		Effects on Public Health and Environment (includes Receptors)						
		Other site-specific criteria & issues:						
		Advantages of Cleanup Method:						
		Disadvantages of Cleanup Method:						
		Est. Years to Complete Cleanup Method:						
	Cleanup Recommendations:							
	Information & Data Gaps:							
	Recommendations and comments:							

* Note: Cleanup technologies may be removed or added as appropriate for each Release; however, the 'No Action' alternative must be evaluated for comparison at every Release.

Part 4: Compliance Monitoring reference: MT DEQ Remedial Alternatives Analysis (RAA) Guidance for Petroleum Releases

Consultant: 0 Date: 1/0/1900 DEQ PM: 0

Facility Name / Address: 0

Facility ID: 0 Release: 0 WP ID: 0

Compliance & Operation Monitoring Methods to Evaluate Effectiveness of each Cleanup Alternative Listed in Part 3

Administrative Rules of Montana 17.56.605(6) requires the cleanup plan to include a plan and schedule for compliance monitoring to evaluate the effectiveness of cleanup activities.

	No Action*	e.g. Excavation	e.g. Excavation & ORC	e.g. SVE & AS	fill-in as needed or leave blank	fill-in as needed or leave blank	fill-in as needed or leave blank
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Evaluation of Cleanup	Confirmation Sampling						
	Borings/ Monitoring Wells (MWs)						
	GW Monitoring (freq., wells, years)						
	System O/M (frequency & years)						
	Petroleum Vapor Monitoring (freq., locations, years)						
	Receptor Monitoring						
	Waste Management						
	Other site-specific monitoring:						
	Method(s) to Evaluate Interim Results and Optimize Cleanup:						
	Est. Years to Complete all Monitoring:						
Estimated costs for O/M & monitoring:							
Closure	Estimated Total Years to Closure:						
	Natural Attenuation Trends:						
	What currently prevents Closure?						
	Is this a PMZ Closure Candidate?						
Other:							
Information & Data Gaps:							
Recommendations and comments:							

* Note: Cleanup technologies may be removed or added as appropriate for each Release; however, the 'No Action' alternative must be evaluated for comparison at every Release.

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Remedial Alternatives Analysis (RAA) – April 2018

- RAA can be a separate report *or* part of the RI report

- RAA Process
 - RCP
 - RI Report including RAA
 - RAA Report (stand alone)

RAA Document Review Timeline

2018

- RAA link sent to Consultants: April
- Presentation at Consultants Meeting: April
- Consultants Review: October
- Review and finalize RAA Guidance: December

<http://deq.mt.gov> ← 1



Land

DEQ works to protect the land from contamination in order to provide Montanans with a clean and healthy state. Our mining and waste permitting programs minimize impacts to the environment. Where contamination is discovered, our remediation programs provide the oversight and support services to conduct effective cleanup activities.

Mines	Tanks
Clean Up	Waste
Data and Info Resources	

Tanks

- Petroleum Tank Cleanup
- Underground Storage Tanks
- Petroleum Tank Release Compensation Board

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DIVISIONS

CONTACTS



Waste Management & Remediation Division

Resources

Abandoned Mine Lands

Federal Superfund & Construction

Contaminated Site Clean-Up

Waste & Underground Tank Management

Petroleum Tank Cleanup Section



Section Overview

- Information
 - NEW UPDATES
 - Approved Work Plans
 - Resources**
 - Related Links
 - Contacts
- Webinars and Trainings

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Forms

[Petroleum Tank Release Compensation Board Forms and Worksheets](#)

[Enforcement Spill Report](#)

[DEQ UST Montana Certificate of Financial Responsibility Form](#)

[Financial Data Request Form for Individuals](#)

[Financial Data Request Form for Businesses](#)

[Work Plan and Report Templates](#)

[Release Closure Plan \(PDF not Fillable\)](#)

[Release Closure Plan \(Excel\)](#)

Guidance

[Electronic Submittals: File Transfer Service for Corrective Action Plans \(CAP\) and Reports](#)

[Technical Guidance Documents](#)

[Petroleum Brownfields Guidance](#)

[RBCA Guidance Documents](#)

RAA & RI

RCP

RAA & RI

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Guidance Documents – updated 2017-2018

- Remedial Investigation (RI) Guidance – October 2017
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Questions or Comments

The End