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THIRD FIVE-YEAR REVIEW REPORT FOR MILLTOWN RESERVOIR SEDIMENTS/CLARK FORK RIVER SUPERFUND SITE MISSOULA, GRANITE, POWELL AND DEER LODGE COUNTIES, MONTANA

Prepared by

U.S. Environmental Protection Agency
Region 8
Denver, Colorado

BETSY SMIDINGER

Digitally signed by BETSY SMIDINGER
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Betsy Smidinger, Director
Superfund and Emergency Management Division

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LIST OF ABBREVIATIONS AND ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
ARCO	Atlantic Richfield Company
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, as amended
CFR	Code of Federal Regulations
CFROU	Clark Fork River Operable Unit
COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
IC	Institutional Control
MCL	Maximum Contaminant Level
MDEQ	Montana Department of Environmental Quality
mg/kg	milligrams per kilogram
µg/L	micrograms per liter
mg/L	milligrams per liter
MRSOU	Milltown River Sediments Operable Unit
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
OU	Operable Unit
O&M	Operation and Maintenance
PEC	Probable Effect Concentration
PRP	Potentially Responsible Party
RI/FS	Remedial Investigation and Feasibility Study
RipES	Riparian Evaluation System
ROD	Record of Decision
RPM	Remedial Project Manager
SAA	Sediment Accumulation Area
USGS	United States Geological Survey
UU/UE	Unlimited Use and Unrestricted Exposure

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 Code of Federal Regulations (CFR) Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the third FYR for the Milltown Reservoir Sediments/Clark Fork River Superfund site (Site). The triggering action for this statutory review is the completion date of the previous FYR. The FYR has been prepared because hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of two operable units (OUs), both of which are addressed in this FYR. OU1 (the Milltown Drinking Water Supply OU) is now part of OU2. OU2 is the Milltown Reservoir Sediments OU (MRSOU), including the area encompassed by the former Milltown dam and reservoir. OU3 is the Clark Fork River OU (CFROU); it is upstream of the MRSOU and downstream of the Silver Bow Creek/Butte Area site and the Anaconda Smelter site.

EPA remedial project manager (RPM) Ken Champagne led the FYR. Participants included Joel Chavez and Tim Riley (Montana Department of Environmental Quality [MDEQ]); Doug Martin, Brian Bartkowiak and Bo Downing (Montana Natural Resource Damage Program); Jeffrey Johnson (National Park Service Grant-Kohrs Ranch National Historic Site); Michael Kustudia (Milltown State Park); Don Booth, Kris Cook and Michael Langguth (potentially responsible party [PRP] contractors); and Hagai Nassau, Treat Suomi and Kirby Webster (Skeo, the EPA's FYR contractor). The PRPs were notified of the initiation of the FYR. The review began on 5/26/2020.

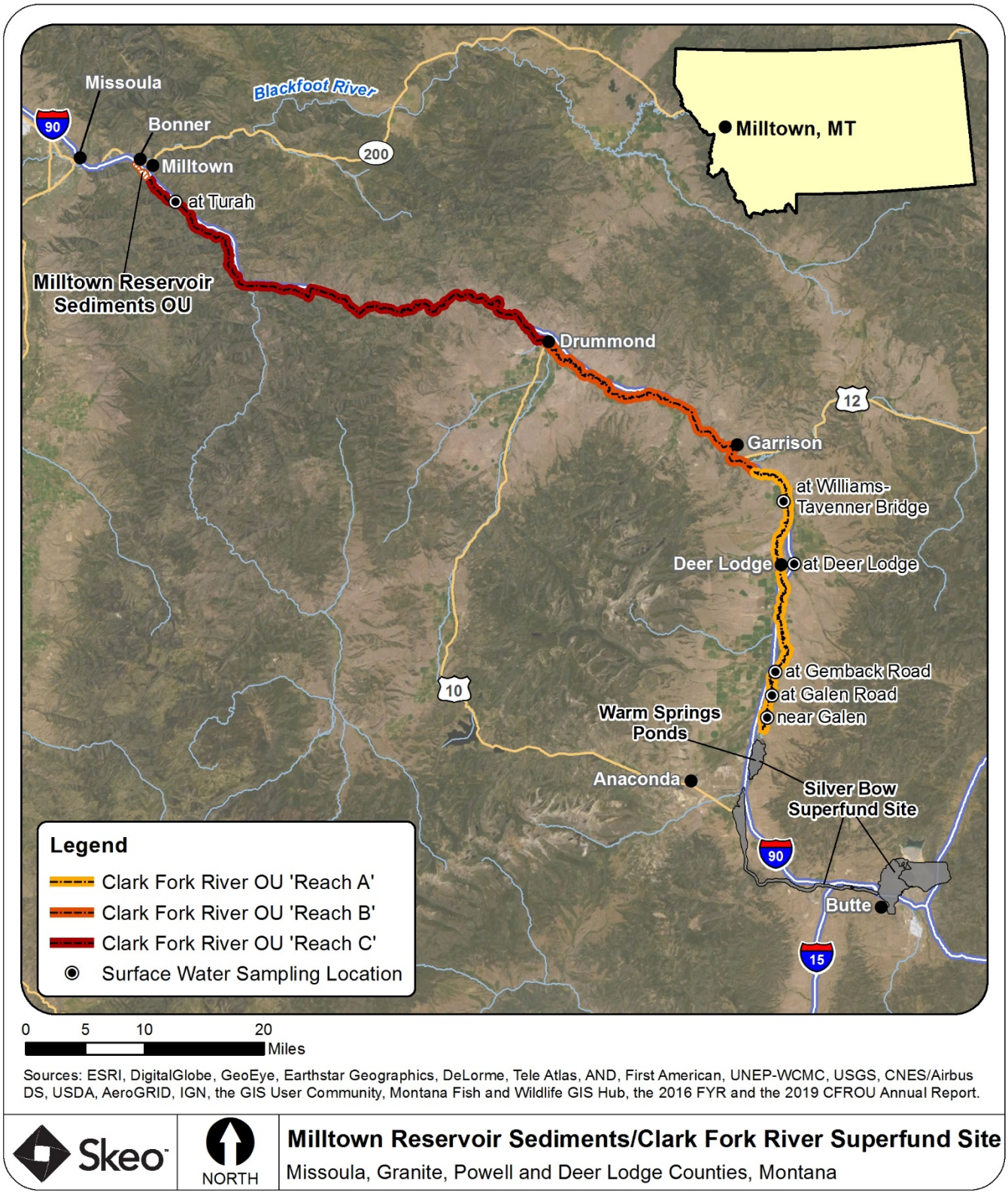
The EPA has determined that the cleanup at the Milltown Reservoir Sediments part of the Superfund site is currently protective of human health and the environment and allows for recreational reuse. Safe drinking water is provided by public and private water supply wells. The local health department tests these wells to make sure the arsenic levels meet applicable safe drinking water standards. The EPA, Montana and the Site's responsible parties will determine whether additional groundwater cleanup is needed and whether additional groundwater use restrictions are needed.

Cleanup is underway at the Clark Fork River part of the Site, and the remedy will be protective of human health and the environment upon completion. Sections of the Clark Fork River site area are suitable for residential, recreational, commercial and agricultural reuse. County regulations include restrictions on well installation and land use for parts of the Site.

Site Background

The Clark Fork Basin Superfund complex is made up of four contiguous Superfund sites: the Silver Bow Creek/Butte Area site, the Montana Pole and Treating site, the Anaconda Co. Smelter site and Milltown Reservoir Sediments/Clark Fork River site. The EPA added the Milltown Reservoir Sediments/Clark Fork River Site to the National Priorities List (NPL) in 1983. Figure 1 is a map of the Site.

Figure 1: Site Vicinity Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

The MRSOU, also known as OU2, includes about 540 acres in the Clark Fork River and Blackfoot River floodplain (Figure 4). The MRSOU consists of the area encompassed by the former Milltown dam and reservoir (outlined in red on Figures 3, 4 and 6), including on-Site disposal areas, and the associated groundwater contamination. The alluvial aquifer under and downstream of the former reservoir became contaminated with arsenic, primarily coming from contaminated reservoir sediments. OU1, an interim remedy, is now part of the MRSOU. OU1 focused on providing a safe water supply to Milltown area residents through the establishment of a public water supply system in Milltown, Montana, as an alternative to the use of private, domestic wells previously used in the Milltown area for drinking water. The PRPs for the MRSOU are the Atlantic Richfield Company (ARCO) and NorthWestern Corporation.

The CFROU, also known as OU3, is upstream of the MRSOU and downstream of the Silver Bow Creek/Butte Area site and the Anaconda Co. Smelter site (Figure 1). The CFROU consists of about 120 river miles of the Clark Fork River, including surface water, groundwater, soils, in-stream sediments, and sediment deposition and contaminated property located within and adjacent to the 100-year historic floodplain of the Clark Fork River. The EPA divided the CFROU into three reaches (see Figure 1). Reach A, which is the farthest upstream reach, flows north for approximately 43 river miles past the towns of Galen and Deer Lodge. Reach B then flows 31 river miles from upstream of Garrison to downstream of Drummond. Reach C then flows 47 river miles to the Milltown Reservoir near Bonner. Land use in the CFROU consists of residential, agricultural and recreational uses. About 12,000 people live in the area of the CFROU according to 2019 U.S. Census data. The PRP for the CFROU is ARCO.

The city of Missoula (population 76,000) is located about 7 river miles downstream of Milltown, Montana, and Bonner, Montana, is located northeast of the Site. The town of Deer Lodge is located within and adjacent to the CFROU.

In the upstream Butte, Montana, area, mining companies routinely disposed of mining and milling wastes containing various amounts of unrecovered metals and arsenic into local creeks in the headwaters of the Clark Fork River Basin from the late 1860s to well into the 20th century. These streams conveyed the mining and milling wastes downstream to the Clark Fork River. In 1908, a major flood mobilized large quantities of metals and arsenic from the Butte and Anaconda, Montana areas into the upper Clark Fork River channel and floodplain and transported large quantities of waste to the recently constructed Milltown Reservoir.

Environmental damages to the upper Clark Fork River occurred due to heavy metals found in the transported mining waste originating from historic mining, milling and smelting processes associated with operations in Butte and Anaconda. Metal contaminants accumulated in the Clark Fork River streambanks and floodplain over a period of at least 100 years. In addition to fluvial deposition of metals-contaminated sediments in the historic 100-year floodplain, agricultural fields were irrigated with water from the Clark Fork River that at times contained elevated concentrations of metals in dissolved form and as suspended sediment. In some instances, irrigation ditches overflowed or were breached, flooding and contaminating fields adjacent to the ditches with river water.

The MRSOU is located at the confluence of the Clark Fork and Blackfoot rivers in Missoula County, Montana. The Milltown Dam (which has been removed as part of the Site's cleanup) was owned and operated as a hydroelectric generating facility by NorthWestern Corporation. The community of Milltown is located a half-mile east of the former dam and powerhouse. About 1,500 people live in the area of Milltown and Bonner, according to 2019 U.S. Census data. A new public water supply was developed for Milltown under OU1. The Clark Fork River in the vicinity of the MRSOU is used for recreational rafting, kayaking and fishing.

Assisted by an EPA Superfund Redevelopment Initiative pilot grant and EPA support, communities near the MRSOU developed a reuse plan for the MRSOU. The plan called for the creation of a state park with trails, river access, wildlife habitat and interpretive areas celebrating the region's history and heritage. In 2010, the state of Montana acquired portions of the MRSOU and established a new state park for much of the MRSOU area. Milltown State Park opened in 2018.

Refer to Appendix A for additional resources and to Appendix B for the Site's chronology of events.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Milltown Reservoir Sediments/Clark Fork River		
EPA ID: MTD980717565		
Region: 8	**State:** MT	**City/County:** Milltown; Missoula, Granite, Powell and Deer Lodge Counties
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the Site achieved construction completion?** No	
REVIEW STATUS		
Lead agency: EPA		
Author name: Ken Champagne, with contractor support provided by Skeo		
Author affiliation: EPA Region 8 and Skeo		
Review period: 5/26/2020 - 9/29/2021		
Date of site inspection: Sept. 21-22, 2020		
Type of review: Statutory		
Review number: 3		
Triggering action date: 9/29/2016		
Due date *(five years after triggering action date)*: 9/29/2021		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

In 1981, local public health authorities found arsenic in drinking water wells in the Milltown area at concentrations exceeding the federal drinking water standard, which was 50 micrograms per liter (µg/L) at that time.

MRSOU

In 1991, the EPA issued an Administrative Order on Consent to ARCO initiating the remedial investigation and feasibility study (RI/FS) process for the MRSOU. The EPA, in consultation with MDEQ, provided oversight of the MRSOU RI/FS activities conducted by ARCO. The 1993 baseline human health risk assessment for the MRSOU assessed potential risks at the MRSOU using standard EPA health risk assessment methods for residential and recreational uses. The EPA determined that the cancer and non-cancer risks associated with consuming groundwater contaminated with arsenic were unacceptable. Other exposure pathways for humans –

including residential use of existing homes near the reservoir and recreational use of land surrounding the reservoir – were considered not significant. The risk assessment found that if new homes were to be built immediately surrounding the reservoir, it would pose an unacceptable risk.

The ecological risk assessment determined the water quality at the MRSOU exceeded the water quality criteria, and that copper in the water column caused an unacceptable, acute risk to aquatic life. Additionally, the ecological risk assessment determined that normal high-flow events may pose an intermittent, low-level chronic risk to fish because of the combined impacts of copper and other metals in the water column and copper in ingested macroinvertebrates.

CFROU

In 1994, the EPA issued an Administrative Order on Consent to ARCO initiating the RI/FS process for the CFROU. The CFROU 1998 human health risk assessment identified arsenic in soil and tailings as the contaminant of concern (COC) for potential human health risks. The risk assessment concluded that risks may be unacceptable on historically irrigated lands where residential development has occurred or where it may occur in the future.

The CFROU ecological risk assessment found unacceptable risks from the metals contamination to plants and aquatic life in the Clark Fork River. Soils and vegetation areas most clearly show the impacts from these risks. In addition, United States Geological Survey (USGS) studies found excessive rates of erosion along streambanks in the upper reaches of the CFROU. The studies also identified the possibility of severe erosion of the upper river in large floods that would cause large inputs of contaminants and sediment into the river.

Response Actions

After an initial, fund lead RI/FS, the EPA issued an interim Record of Decision (ROD) for OU1 in 1984 and issued an amendment to that ROD in 1985. A resulting fund-lead response action in 1984-1985 installed a new drinking water system for Milltown (a water supply well, replacement of household water supply appurtenances and ongoing sampling of individual residences). OU1 was later combined with the MRSOU.

The Montana Power Company, a predecessor of the NorthWestern Corporation, improved the Milltown spillway and dam from 1986 through 1990, and 14,500 cubic yards of reservoir sediments and debris were transported and encapsulated in the Upland Disposal site (Figure 6).

The EPA issued a time-critical removal action memorandum in 2000 to address immediate human health risks for residents of Eastside Road in Deer Lodge. This area is within the CFROU. Site investigations had identified 120 acres of historically irrigated land that had lower vegetation cover, impacted vegetation communities, and metals- and arsenic-enriched soils that were generally acidic. Portions of the 120 acres had been subdivided into 5-acre residential lots with homes. Pursuant to a Unilateral Administrative Order issued the same year, ARCO removed contaminated soil from around the homes and transported it to an off-site disposal repository, or in some cases re-incorporated it into pasture soils, and the residential sites were backfilled with clean soils and revegetated. In addition, the vegetation and soils on properties adjacent to the residential areas (used primarily as pastures), which were also impacted by metals levels and low pH, were remediated by in-situ methods.

MRSOU

In December 2004, the EPA signed the final ROD for the MRSOU. The ROD identified the following remedial action objectives:

Groundwater

- Return contaminated groundwater to its beneficial use within a reasonable timeframe and prevent ingestion until drinking water standards are achieved.
- Comply with state groundwater standards, including non-degradation standards.
- Prevent groundwater discharge containing arsenic and metals that would degrade surface waters.

Surface Water

- Achieve compliance with surface water standards unless a waiver is justified.
- Prevent ingestion of or direct contact with water posing an unacceptable human health risk.
- Achieve acute and chronic federal Ambient Water Quality Criteria, as well as state water quality standards.

The selected remedy for the MRSOU consists of the following measures:

- Initiating the process of progressively dewatering Milltown Reservoir Sediment Accumulation Area (SAA) I sediments by lowering reservoir surface water levels through use of the existing radial gate and spillway with panels removed (see Figures C-1 and C-2 in Appendix C for maps of SAAs).
- Isolating SAA I sediments from flowing surface water by creating a bypass channel through SAA I and armoring the existing embankment along the Blackfoot River boundary of SAA I, and converting powerhouse inlets to low level outlets removing the spillway section of the Milltown Dam.
- Removing the radial gate, powerhouse, dividing block, shop and right abutment gravity wall sections of Milltown Dam as part of integration with the Montana Natural Resource Damage Program Trustee Restoration Plan for Milltown.
- After a period of dewatering and consolidation, remove down to a predetermined contour surface the sediments in SAA I through the use of mechanical excavation techniques, hauling the waste (approximately 90 miles via rail cars), and placing that waste in the Opportunity Ponds at the Anaconda Co. Smelter site.[1]
- Reconstructing the Blackfoot River and Clark Fork River channels and banks, including protection of certain infrastructure and regrading/revegetating the Clark Fork River/Blackfoot River floodplain to provide stability.
- Replacement of any drinking water supply that exceeds the drinking water standard for arsenic of 10 µg/L due to remedial action implementation (if appropriate, a temporary controlled groundwater area may be established until the Milltown aquifer recovers using monitored natural attenuation).
- Replacement or retrofitting of domestic wells that become unusable because of the lowering of the groundwater table.
- Conducting long-term operation, maintenance and monitoring of the areas identified as the dam rehabilitation sediment/debris repositories established by the Montana Power Company, the portions of the new Interstate 90 embankment outside the Montana Department of Transportation's right-of-way, and the area in the lower Clark Fork River channel (SAA III-b) where sediments with elevated concentrations of arsenic and metals will remain after the remedial action and any other on-site repositories established during the remedial action on site.
- Bridge stability mitigation for certain bridges near the MRSOU.
- Monitoring and maintenance of borrow and staging areas revegetated during remedial action.
- Surface water and groundwater monitoring.
- Implementation of additional, best-management practices or engineering controls as detailed in a contingency plan to be approved by the EPA or as otherwise required by the EPA, in consultation with MDEQ, if temporary construction-related surface water quality standards are exceeded.

[1] Consistent with the ROD and Consent Decree, contaminated sediments were left in place beneath portions of the I-90 embankment and toe road because they were protected from erosion and could not be removed without destabilizing or closing the I-90 roadway.

- Taking measures to reduce harm to fish, wildlife and wetlands due to cleanup construction in consultation with the United States Fish and Wildlife Service.

The MRSOU ROD identified the need for the following institutional controls:

- Continue funding for maintaining the existing replacement water supply for Milltown residents (installed under the OU1 remedy).
- Make contingency funds available to reconfigure, expand or update replacement water supplies.
- If needed, establish a controlled groundwater area to ban future wells within or immediately adjacent to the arsenic plume.
- Prevent residential use of the MRSOU and disturbance of on-site remedial elements such as disposal units.

The MRSOU December 2004 ROD indicated that groundwater standards were expected to be met within 4 to 10 years following completion of dam and sediment removal. Tables 1 and 2 list the cleanup goals for the MRSOU.

Table 1: MRSOU Groundwater COC Performance Standards

Groundwater COC	ROD Performance Standard (µg/L)
Arsenic	10
Cadmium	5
Copper	1,300
Lead	15
Zinc	2,000
Note: Source: Section 12.7.1 of the December 2004 ROD. Appendix A of the ROD shows that these standards are equivalent to the more stringent of either the federal Maximum Contaminant Level (MCL) or the state WQB-7 human health standard.	

Table 2: MRSOU Surface Water COC Performance Standards[a]

Surface Water COC	Aquatic Life (µg/L)		Human Health (µg/L)
	Acute	Chronic	
Arsenic	340	150	10 (federal) 18 (state)
Cadmium	2.10	0.27	5
Copper	13	9	1,300[b]
Lead	81	3.2	15
Zinc	119	119	2,000

Notes:
Source: Exhibit 2-34 of the December 2004 ROD
a) Based on water hardness of 100 milligrams per liter (mg/L).
b) The MRSOU ROD stated that EPA waived the state standard for copper in the CFROU and allowed for consideration of upstream input into the MRSOU in determining compliance with the copper standard.

CFROU

In April 2004, the EPA signed the final ROD for the CFROU. The ROD identified the following remedial action objectives:

Floodplain Tailings and Impacted Soils

- Prevent or inhibit ingestion of arsenic-contaminated soils/tailings where ingestion or contact would pose an unacceptable health risk.
- Prevent or reduce unacceptable risk to ecological (including agricultural, aquatic and terrestrial) systems degraded by contaminated soils/tailings.

Groundwater

- Return contaminated shallow groundwater to its beneficial use within a reasonable period.
- Comply with state groundwater standards, including nondegradation standards.
- Prevent groundwater discharge containing arsenic and metals that would degrade surface waters.

Surface Water

- Reduce or eliminate "pulses" of metals to the river, including those caused by snowmelt and thunderstorm events.
- Achieve compliance with surface water standards unless a waiver is justified.
- Prevent ingestion of, or direct contact with, water posing an unacceptable human health risk.
- Achieve trout toxicity reference values and acute and chronic federal Ambient Water Quality Criteria in affected surface water.
- Comply with stormwater ARARs (applicable or relevant and appropriate requirements).

Specific components of the remedy, as described in the 2004 ROD, include:

- In most instances, impacted soils and vegetation, also referred to as impacted areas, were to be treated in place by mixing lime and other amendments into the soil and revegetating.
- Some impacted areas will be removed, where depth of contamination prevents adequate and effective treatment in place, where saturated conditions make in-situ treatment unimplementable, or where post-treatment arsenic levels, after one retreatment attempt, remain above the human health cleanup level for the current or reasonably anticipated land use. Severely impacted soils, also known as slickens, will be removed and revegetated.
- Residential soils above residential action levels will be removed and replaced with clean backfill.
- The Riparian Evaluation System (RipES) process will be used in remedial design to identify severely impacted areas, impacted areas, and areas where the exceptions to removal or in-situ treatment will apply.
- Streambanks will be stabilized primarily by "soft" engineering (with limited hard engineering where conditions warrant) for those areas classified and an approximate, flexible 50-foot riparian buffer zone will be established on both sides of the river.
- Opportunity Ponds will be used for disposal of all removed contaminated materials.
- Weed control for in-situ treatment, streambank stabilization, and removal areas is required.
- Best management practices by local landowners throughout Reach A and in limited areas of Reach B are required to protect the remedy and ensure land use practices are compatible with the long-term protection of the selected remedy.
- Institutional controls and additional sampling, maintenance and possible removal or in-situ treatment of contamination in residential or heavily used recreational areas, including the Trestle Area, will be required to protect human health.
- Monitoring during construction, construction best management practices and post-construction environmental monitoring are required.

- The remedy is also modified and expanded for the Grant-Kohrs Ranch National Historic Site, located in Reach A to comply with ARARs specifically associated with property owned and managed by the U.S. Park Service, which the ranch is.

A review of post-ROD sampling of the CFROU compared to the results of the EPA's 2007 RipES mapping for the floodplain tailings and soils component of the remedy led MDEQ, with approval from the EPA, to issue an Explanation of Significant Differences (ESD) for the CFROU in 2015. The original ROD provided for the use of the RipES process as a tool in development of the remedial design. However, sampling and field observations relating to vegetation health and other factors (groundwater, riparian vegetation, contaminant sampling, ownership, infrastructure, land use and site-specific remedy requirements), showed that use of RipES determination alone would not lead to implementation of ROD requirements or fully meet remedial action objectives. The ESD changed the scope of the floodplain tailings and soils component of the remedy described in the ROD by adding other factors to be considered during remedial design to determine whether removal, in-situ treatment or other remediation (e.g., best-management practices, institutional controls) is appropriate for a given area.

The selected remedy will be implemented along the erosive streambanks and the historic 100-year floodplain of all of Reach A and small, localized areas of Reach B. The remedy for Reach C is no action.

Tables 3, 4 and 5 list the cleanup goals for the CFROU.

Table 3: CFROU Groundwater COC Performance Standards

Groundwater COC	ROD Performance Standard (µg/L)
Arsenic	10
Cadmium	5
Copper	1,300
Iron	300
Lead	15
Zinc	2,000
Note: Source: Section 13.11.2 of the April 2004 ROD	

Table 4: CFROU Surface Water COC Performance Standards[a]

Surface Water COC	Aquatic Life (µg/L)		Human Health (µg/L)
	Acute	Chronic	
Arsenic	340	150	10 (federal) 18 (state)
Cadmium	2	0.25	5
Copper (dissolved)	13	9	1,300
Lead	81	3.2	15
Zinc	119	119	2,000
Notes: Source: Exhibit 2-29 of the April 2004 ROD. A waiver for in stream copper water quality standards from the state's total recoverable standard to the federal dissolved water quality criteria is contained in the ROD. a) Based on water hardness of 100 mg/L.			

Table 5: CFROU Arsenic Soil Cleanup Goals

Land Use	ROD Cleanup Goal (milligrams per kilogram (mg/kg))[a]
Residential	150
Recreational	680 for children at Arrowstone Park and other recreational scenarios
	1,600 for fishermen, swimmers and tubers along the river
Rancher/Farmer	620
Notes: Source: April 2004 ROD (Exhibit 2-11 and page 2-50) a) These goals are for arsenic concentrations in soils, as averaged over exposure units.	

Status of Implementation

MRSOU

The remedial action construction for the MRSOU was completed in June 2012.

Milltown Water Supply

The EPA funded the replacement of a complete public water supply system used by Milltown residents and initially provided funding for maintenance of this water supply well. The PRPs eventually provided permanent maintenance funding to the Milltown Water User's Association for this system. The EPA also funded the Missoula City-County Health Department to distribute arsenic test kits to interested residents who wanted to test their private well water. If tests showed exceedance of standards, the PRPs provided for the hookup of these residences to the replacement water supply. The 2004 MRSOU ROD required continued funding for maintenance of the existing replacement water supply for Milltown residents and made contingency funds available to reconfigure, expand or update replacement water supplies.

Reservoir Drawdown and Dam Removal

Remedial design began in July 2005. In August 2005, the PRPs signed a Consent Decree, allowing the project to move out of the planning phase and into remedial action. Remedial action began in February 2006. The initial remedial activity was to lower the water level in the reservoir to dewater the SAA I sediments, facilitate dam removal and ultimately enable the use of mechanical excavation techniques for sediment removal. Removal of the Milltown Dam spillway and ultimate removal of the rest of the dam took place concurrently with reservoir drawdown. The PRPs completed final dam removal in March 2009.

Dam removal lowered the groundwater table in the Milltown area, which raised the possibility that shallow water supply wells in the Milltown and Bonner area could go dry. Therefore, the EPA, using funding provided by the PRPs, managed a well-replacement program as part of the remedial action starting in 2006. Based on the modeling results, the EPA replaced 82 private and small public water supply wells in the Milltown area and reconfigured numerous additional wells.

Sediment Dewatering, Removal and Relocation

The RI/FS phase of the project evaluated metals contaminant concentrations in sediments in the Milltown reservoir. During the performance of the remedial action, only those sediments shown to be contributing directly to existing groundwater degradation (sediments with the highest pore water contaminant concentrations) and with the potential to contribute to future surface water degradation were removed to meet remedial objectives. Reservoir sediments were divided into two sections: the upper and lower reservoir SAAs. These two reservoir sections were further divided into sub-areas based on sediment accumulation features. The lower reservoir consists of SAAs I, II and III. The upper reservoir encompasses SAAs IV and V. In 2007, sediments in SAA I were removed and isolated from the Clark Fork River channel.

To facilitate reservoir sediment removal, the EPA required a bypass channel for the Clark Fork River along the northern boundary of SAA I. Beginning in May 2007, approximately 584,000 cubic yards of reservoir sediment, 40,000 cubic yards of underlying soil material and 57,000 cubic yards of underlying alluvium were excavated to

form the bypass channel. Excavated reservoir sediment was relocated by rail transport to Opportunity Ponds at the Anaconda Co. Smelter site. The bypass channel was completed in early 2008. The excavation of SAA I sediments was finished in September 2009; a total of 2.3 million cubic yards of sediment were removed and disposed of at the Opportunity Ponds disposal area. The Clark Fork River was re-diverted to the reconstructed channel in December 2010.

Using funds from the PRPs, the EPA funded or performed bridge stability actions for three bridges, and a fourth bridge was addressed by its owner.

The PRPs constructed two repositories to contain debris from the demolition of the dam and SAA III-b and SAA IV sediments. One repository is located just downstream of the removed right abutment of the dam (the Right Bank Repository). The other repository is the Tunnel Pond Repository. Groundwater monitoring of the Tunnel Pond Repository includes sampling one well, located downgradient of the repository, at the same frequency and for the same analyte list as the other point of compliance wells. No groundwater monitoring is required for the Right Bank Repository.

In addition to the two constructed repositories, two other repositories were present prior to remedial action. Disposal Site No. 1 was removed as part of the work to place SAA III-b sediments in the Tunnel Pond Repository. At the second repository, the Upland Disposal site, the state of Montana built a new repository on top of the Upland Disposal site in which to store a portion of the sediment excavated during implementation of restoration actions from SAA IV and V. Maintenance and monitoring of disposal areas remains the responsibility of the PRPs, according to the 2013 long-term monitoring plan.

The PRPs monitor groundwater quality at compliance wells located within the current arsenic plume to track progress in restoring the Milltown alluvial aquifer. During remedy construction, the PRPs also monitored a series of early-warning wells located around the fringe of the plume and along the Clark Fork River downstream of the MRSOU to ensure that groundwater in drinking water wells was not unacceptably impacted by construction activities. From 2006 to 2014, the Missoula City-County Health Department monitored 19 public and private water supply wells in the Milltown area as public-health and early-warning wells. The Health Department's sampling found that dissolved arsenic never exceeded the Maximum Contaminant Level (MCL) (10 µg/L) in those wells. Total arsenic exceeded the MCL in two wells from 2006 to 2009; there were no exceedances after 2009. Because of the consistency of the sampling, it was discontinued with EPA approval. The United States Geological Survey conducts surface water sampling in the area. Conditions contained in a Biological Opinion issued by the U.S. Fish and Wildlife Service were also followed during remedial action implementation and criteria for fish passage contained in the Biological Opinion are currently met.

The state of Montana's Natural Resource Damage Program followed PRP construction activities with channel construction for the Clark Fork and Blackfoot Rivers, revegetation and reconstruction of the floodplain, and revegetation and development of wetlands. Operation and maintenance (O&M) of this work is ongoing. The 2018 Remedial Action Construction Completion Report for the MRSOU documents the steps taken to protect wetlands during the cleanup; this document is available on the EPA website at www.epa.gov/superfund/milltown-reservoir.

CFROU

Pursuant to a 2008 Consent Decree, MDEQ, as lead agency and in consultation with the EPA and the National Park Service, oversees, manages, coordinates, designs and implements remedial actions for the CFROU. MDEQ coordinates with the Montana Natural Resource Damage Program of the Montana Department of Justice for implementation and integration of restoration components to supplement the remedial actions. MDEQ coordinates with the National Park Service to implement remedial actions combined with restoration actions on the Grant-Kohrs Ranch.

The remedy is currently under construction. The majority of the CFROU remedial action is Reach A, a 43-mile stretch of the river flowing from Warm Springs in Anaconda/Deer Lodge County to just upstream of Garrison in

Powell County. In accordance with the 2004 ROD, and while Consent Decree discussions were in progress, the EPA performed RipES mapping in 2006 and 2007 for the floodplain tailings and soils component. MDEQ began its remedial design activities in 2008, following entry of the Consent Decree, which designated MDEQ as lead agency for remedy implementation and O&M using funds received from the PRP. MDEQ focused its first remedial actions on immediate human health and irrigated lands concerns and is now proceeding with geographically-defined phases (Figure 2).

Remedial actions in Reach A began in 2011 and are expected to take a total of 15 years or more to complete. While the general approach is to work from the headwaters downstream, the EPA and MDEQ believe remediation can be done more quickly and effectively and with less threat to river stability by working on discontinuous stretches of the river. Thus, properties will be engaged in a discontinuous manner to prevent jeopardizing the integrity of the floodplain, should a flood event greater than the annual flood occur during the 15 year plus remedial action period. Affected landowners will be involved in setting these schedules and clearly informed of the sequencing of the work.

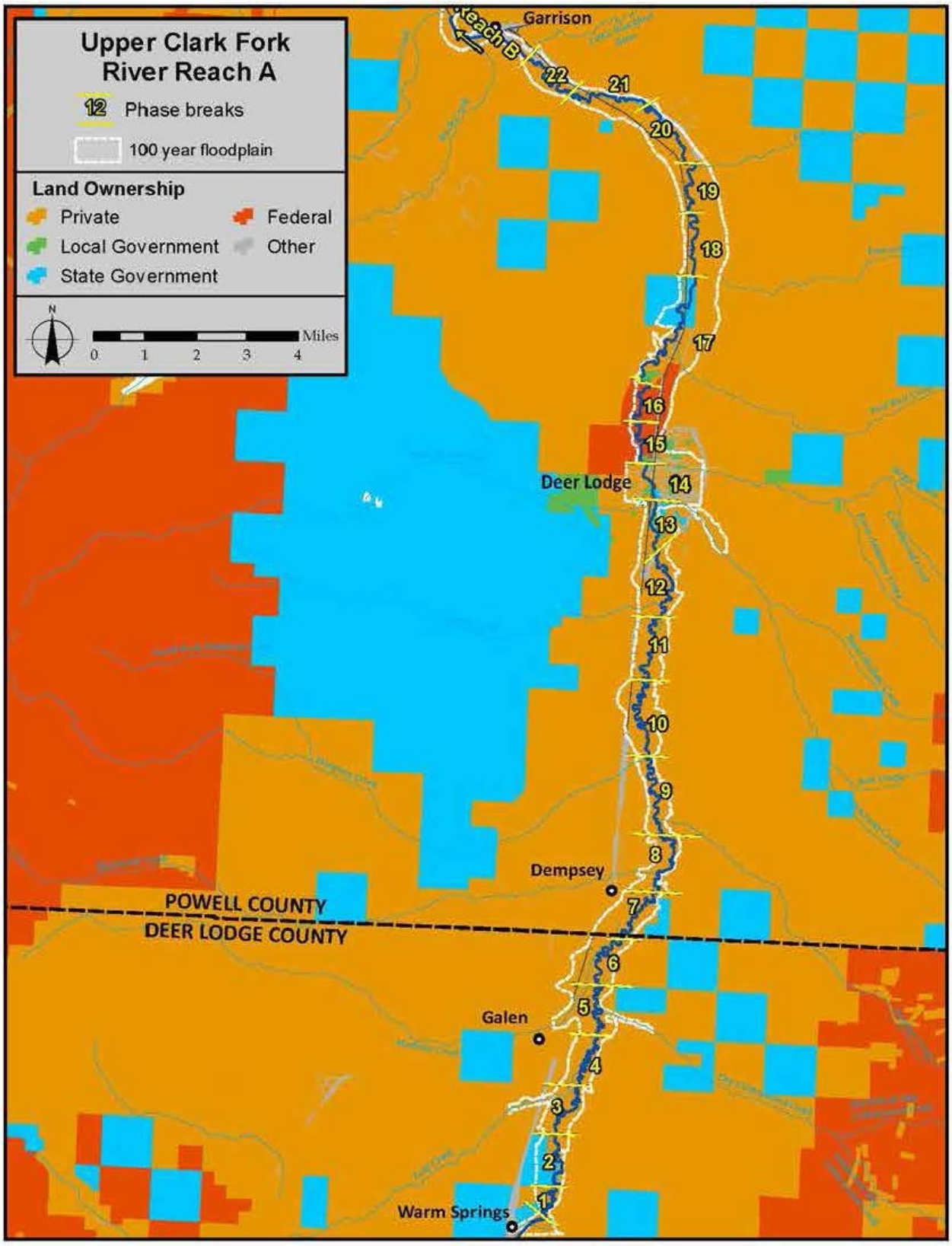
In 2020, the Montana NRD program assisted DEQ with the implementation of best-management practices, which included emergency berm work and placement of straw wattles, to reduce the flow of salts from the slickens carrying heavy metals into the river.

The following bullets summarize the cleanup status of the phases in Reach A:

- Phase 1: Cleanup began in 2013 and was completed in spring 2014. About 330,000 cubic yards of contaminated material were removed from a 60-acre project area. Revegetation was completed in fall 2014.
- Phase 2: Cleanup began in summer 2015 and was completed in 2016. About 403,000 cubic yards of contaminated material were removed. Revegetation was completed in 2016.
- Phases 3 and 4: Cleanup is being designed. Cleanup on portions of Phase 3 began on April 20, 2021.
- Phases 5 and 6: Cleanup began in summer 2014. Cleanup and revegetation were completed in 2016.
- Phase 7: Cleanup is being designed.
- Phases 8 and 9: Cleanup is in the sampling and site characterization phase.
- Eastside Road pasture areas (adjacent to Phases 12 and 13): Cleanup occurred in 2012 and 2015. Contaminated material was removed from pastures in an area of about 100 acres that had been flood irrigated with contaminated water from the Clark Fork River. Ongoing monitoring of vegetation establishment and weed control is being conducted.
- Arrowstone Park area (in Deer Lodge) (part of Phases 13 and 14): Cleanup is in the sampling and site characterization phase.
- Trestle area and residential yards in Deer Lodge (part of Phase 14): Cleanup was completed in 2011. About 10,000 cubic yards of contaminated soils were removed from residential yards and a recreational area along the Clark Fork River.
- Phases 15 and 16 (part of Grant-Kohrs Ranch National Historic Site): Cleanup began in 2019 and is almost complete. About 400,000 cubic yards of contaminated material will have been removed when completed.

After cleanup is complete in Reach A, remedial design work on Reach B will begin. As noted above, the EPA determined that Reach C requires no further action.

Figure 2: CFROU Reach A Phase Breaks



Institutional Control (IC) Review

Table 6 summarizes the institutional controls at the Site.

MRSOU
The ROD stated that institutional controls were required at the Site, dealing primarily with groundwater but also addressing residential use and protection of waste repositories.

In August 2017, MDEQ, Montana Natural Resource Damage Program and the Montana Department of Fish, Wildlife and Parks recorded an Institutional Controls Agreement for property owned by the state at the Site. Figure D-2 in Appendix D provides a copy of the Agreement. Figure 3 shows the areas subject to the 2017 Institutional Controls Agreement. The Agreement prohibits disturbing the Right Bank Repository, the Tunnel Pond Repository, the Staging Area Repository, the Upland Disposal Site Repository and the Interstate 90 Buttress. The Agreement also states that if the state conveys any part of the property to another party, residential use will be prohibited unless it is shown that residential use would not pose an unacceptable risk. The Agreement also prohibits installing new wells to supply drinking water for people in areas where the groundwater standard for arsenic is exceeded. Most of the MRSOU is now part of Milltown State Park.

The southwestern portion of the MRSOU is not subject to the 2017 ICs Agreement (see Figure 3). However, the majority of the southwestern portion of the MRSOU is designated by the county as "Zone AE (100 Year Floodway)" or "Zone AE (100 Year Floodplain - With Elevations)" (see Figure 4). Residential use is prevented in that area by state laws prohibiting/restricting residential development in floodways and floodplains. State law prohibits all new residential construction within the floodway. State law also prohibits new septic systems within 100 feet of the floodplain, which restricts development of floodplain properties that do not have access to municipal sewer lines. The southwestern portion of the MRSOU does not have access to a municipal sewer line. In addition, the Missoula County subdivision regulations prohibit new subdivisions within the floodplain.

The Missoula Valley Water Quality Ordinance (13.26.090, see Figure D-1 in Appendix D) prohibits installation of new public water wells in the vicinity of the MRSOU arsenic plume. However, this ordinance does not preclude private well installation in the plume area (Figure 6). No known use of groundwater wells for domestic purposes is occurring. Additional institutional controls may be needed to control private well installation in areas of the arsenic plume that are not included in the 2017 ICs Agreement (for example, see the monitoring wells with arsenic exceedances on Figure 3). A controlled groundwater area or similar institutional control has not been implemented; Site regulatory agencies are continuing to discuss the need for this institutional control.

CFROU
The April 2004 ROD stated that institutional controls for the CFROU would include county zoning regulations, deed restrictions, permanent funding for Arrowstone Park to ensure that it is maintained and dedicated for use as a recreational area, and groundwater sampling and use controls. An Institutional Control Implementation and Assurance Plan will also be developed for the CFROU by MDEQ as part of the larger control program for Reach A.

Powell County has established a Superfund Overlay District to ensure that future land use is compatible with the remedy and any remaining contamination (Figure 5). Figure D-3 in Appendix D provides a copy of the section of the ordinance that describes the Superfund Overlay District.[2] Requirements of the Superfund Overlay District include:

- Property Development: All use changes and development in the Superfund Overlay Zone are subject to the securing of a Conditional Use Permit. Where no remedial structures exist on a site, the application materials shall include arsenic tests, as required by Powell County, and detailed plans (if necessary) for

[2] Powell County Zoning & Development Regulations, Chapter VI-F, http://www.powellcountymt.gov/wp-content/uploads/2019/03/ZoneDevRegs20170203_1486156447.pdf

achieving compliance with the maximum arsenic level allowed for the proposed use.

- Groundwater Wells: A development certificate shall be required to drill or dig a well in the Superfund Overlay Zone. Prior to the issuance of a completion certificate of any well in this overlay district, the well is required to be tested for coliform bacteria, arsenic, barium, cadmium, chromium, copper, lead, mercury and nitrate, and the results of the tests submitted to Powell County. No certificate of compliance shall be issued for any well in which the water exceeds state water quality standards for the proposed use.
- Notice to Purchasers: Before any parcel or any interest in any parcel in the Superfund Overlay Zone is conveyed, the following statement shall be placed on the deed, contract for sale or other instrument of conveyance: "This parcel is within a Superfund site. A permit must be obtained before any development or construction covered by these regulations is initiated."

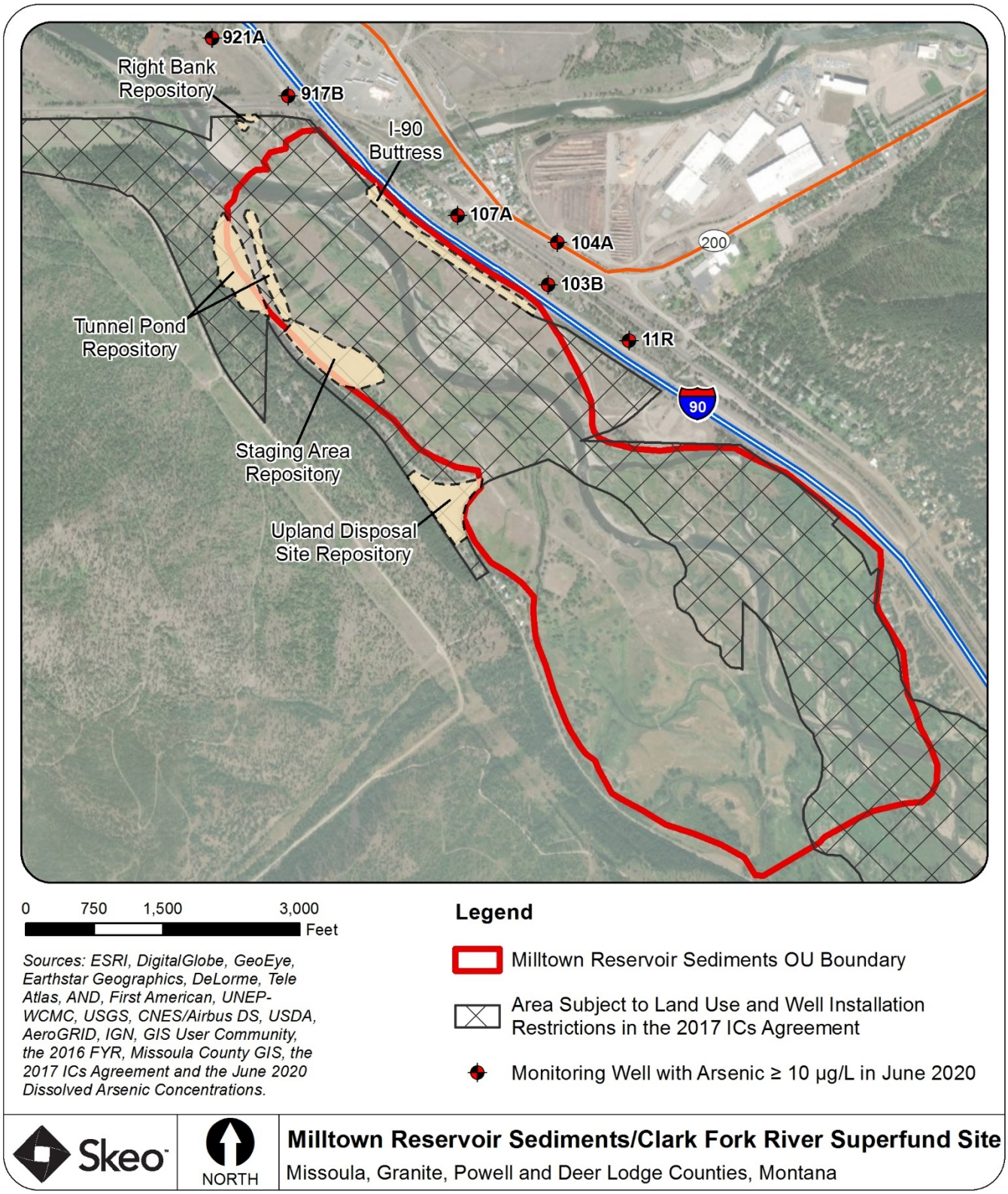
The stretch of river that has been cleaned up or will be cleaned up (Reaches A and B) lies mostly within Powell County. Institutional controls need to be implemented for the stretches of the CFROU that are in counties other than Powell County. Phases 1 through 6 of Reach A are in Deer Lodge County. About one third of Reach B (the downstream segment) is in Granite County. Additional institutional controls may also be needed; as stated in the ROD, these could include deed restrictions, permanent funding for Arrowstone Park, and groundwater sampling and use controls. MDEQ is working with the counties to implement institutional controls.

Table 6: Summary of Planned and/or Implemented Institutional Controls (ICs)

Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcels	IC Objective	Title of IC Instrument Implemented and Date (or planned)
MRSOU Groundwater	Yes	Yes	Area of arsenic plume	Prevent consumption of contaminated groundwater.	2017 ICs Agreement restricts potable well installation on state-owned property. Missoula Valley Water Quality Ordinance prohibits installing new public water wells in the vicinity of the arsenic plume. Additional ICs may be needed to prohibit private well installation in areas of the plume not included in the 2017 ICs Agreement (see monitoring wells with arsenic exceedances on Figure 3).
MRSOU Soil	Yes	Yes	Repository	Prevent activities that could affect the integrity of the remedy. Prevent residential use.	Most of the MRSOU is now part of Milltown State Park. 2017 ICs Agreement prohibits residential use (unless shown to be safe) and prohibits disturbing the repositories. The southwestern portion of the MRSOU is not subject to the 2017 ICs Agreement (see Figure 3). Residential use is prevented in that area by state laws prohibiting/restricting residential development in floodways and floodplains (see Figure 4).

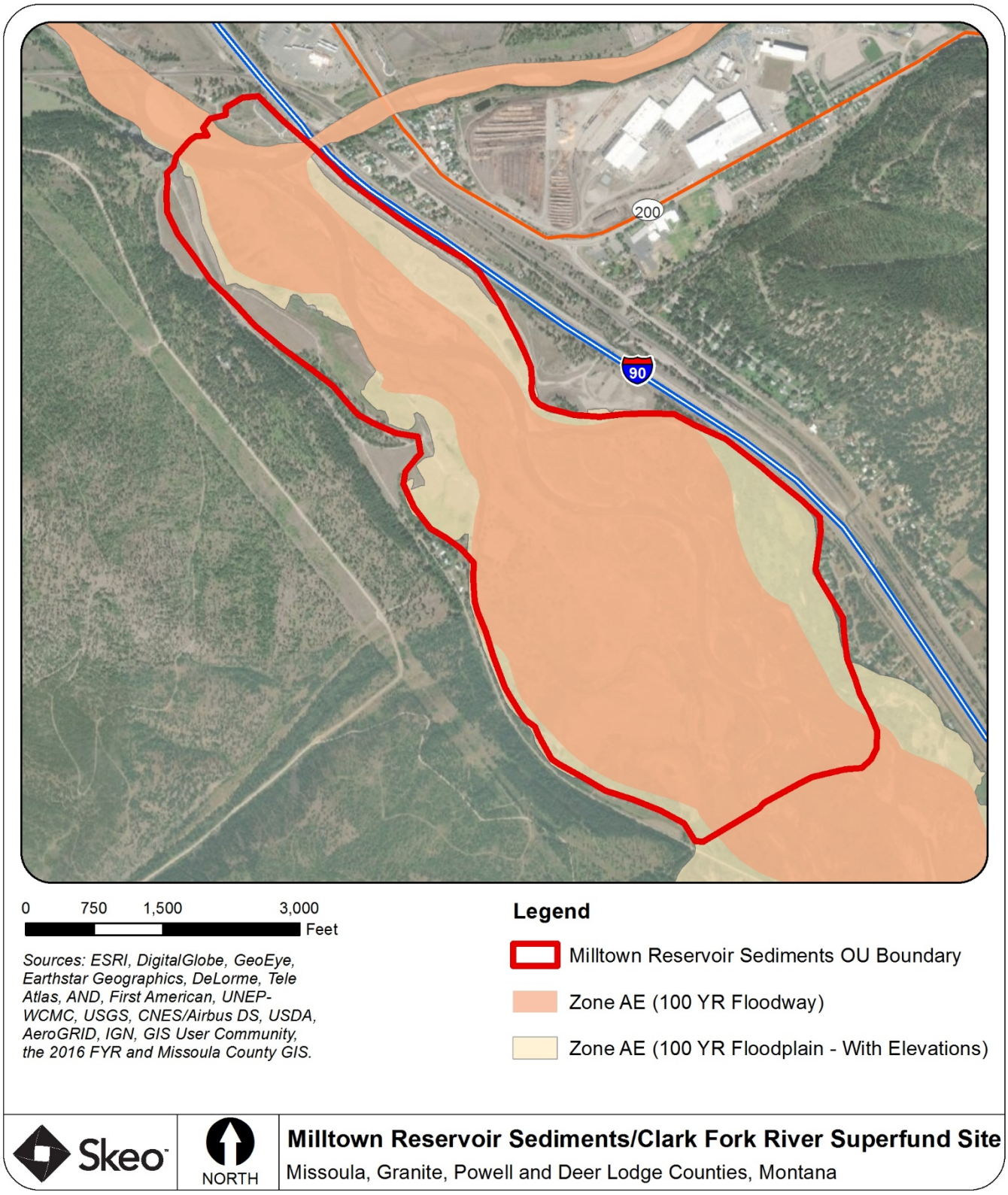
Media, Engineered Controls, and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcels	IC Objective	Title of IC Instrument Implemented and Date (or planned)
CFROU Groundwater	Yes	Yes	To be determined during each phase	Prevent consumption of contaminated groundwater, if necessary.	Powell County Superfund Overlay District restricts installation of wells. Additional ICs are needed for other counties.
CFROU Soil	Yes	Yes	To be determined during each phase	Prevent activities that could affect the integrity of the remedy or cause unacceptable human health exposures.	Powell County Overlay District requires permits for land use changes. ICs need to be implemented for other counties. Additional ICs may also be needed; as stated in the ROD, these could include deed restrictions and permanent funding for Arrowstone Park.

Figure 3: MRSOU Institutional Control Map



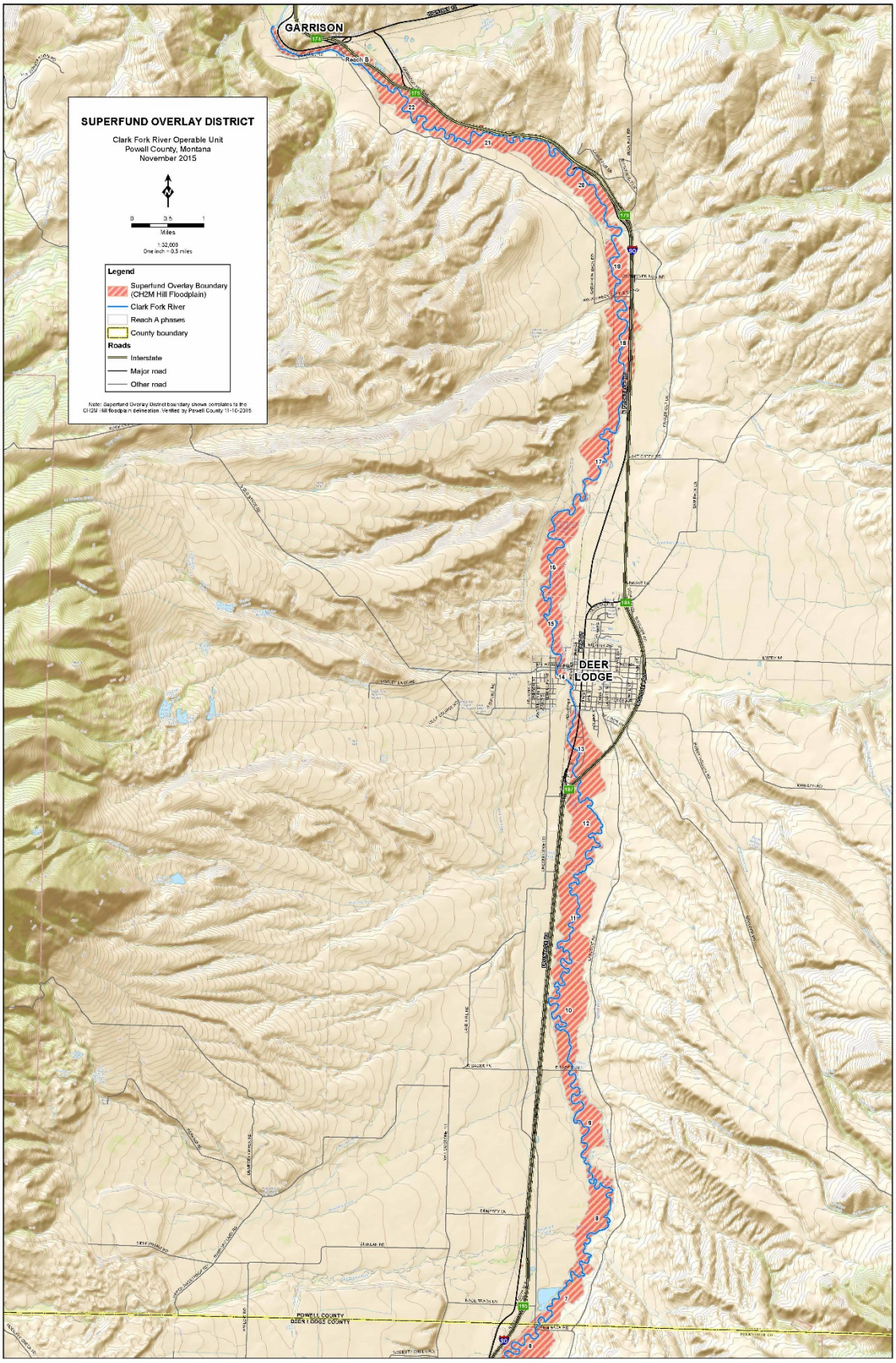
Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Figure 4: MRSOU Flood Zone Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Figure 5: Powell County Superfund Overlay District (CFROU)



Systems Operations/Operation and Maintenance (O&M)

MRSOU

The 2013 Long-Term Post Remedial Action Construction Monitoring Plan, which is the MRSOU O&M plan, outlines the groundwater and surface water monitoring requirements as well as the long-term maintenance and monitoring for the constructed repositories and buttress areas. The PRPs sample groundwater twice each year, during high and low flow. Surface water monitoring data show that the post-remedial action surface water performance standards are being met. The USGS continues to monitor surface water upstream and downstream of the Site.

Vegetation Inspection and Maintenance

The PRPs have conducted post-cleanup vegetation monitoring annually since 2013 in accordance with the Long-Term Post Remedial Action Construction Monitoring Plan. The performance standard for vegetation is to establish on the reclaimed areas a "diverse, effective and permanent vegetative cover of the same seasonal variety native to the area of land to be affected and capable of self-regeneration and plant succession at least equal in extent of cover to the natural vegetation of the area except that introduced species may be used in the revegetation process where desirable and necessary to achieve the approved post-mining land use plan. Vegetative cover must be capable of:

- Regenerating under the natural conditions prevailing at the site, including occasional drought, heavy snowfalls and strong winds.
- Preventing soil erosion to the extent achieved prior to the operation."

Another performance standard for vegetation is to control noxious weeds consistent with defined criteria.

The EPA determined that the performance standards for vegetation establishment were met for those areas reclaimed during remedial action. Therefore, post-2015 vegetation inspection and maintenance have focused on weed control and assessment/monitoring of vegetation cover as it relates to cap integrity/stormwater system functioning at the repositories and Interstate 90 buttress.

In August 2019 the PRPs, the EPA and MDEQ inspected vegetation cover on the repositories and buttresses and observed it to be in good condition except for:

- The Tunnel Pond Repository buttress top where vegetation is improving with time but is less than 30 percent total cover.
- An area on the east railgrade slope above the Tunnel Pond Repository buttress where exposed sediment may have limited vegetation establishment.
    - In May 2020, the PRPs placed topsoil on the bare area on the east railgrade slope of the Tunnel Pond Repository and seeded the area. Future monitoring is needed to ensure that the vegetation becomes established.
- An area on the Interstate 90 buttress used by the state restoration program for equipment access.
    - Doug Martin of the State of Montana's Restoration Program confirmed that the state will reclaim this area after it is no longer needed for equipment access.
- Various areas where additional weed control is required.

Repository Inspection and Maintenance

The PRPs are responsible for annual maintenance and monitoring of two repositories (Tunnel Pond and Right Bank). Annual monitoring and maintenance of the buttress and railroad berm adjacent to the Tunnel Pond Repository and the Interstate 90 slope and buttress are also the responsibility of the PRPs.

The PRPs visually inspected the Tunnel Pond Repository stormwater conveyance system in April 2019. The inspection found that the system was functioning appropriately but noted some sediment buildup in the east drop inlet that should be removed. In August 2019, the PRPs, the EPA and MDEQ visually inspected both repositories, the buttress and railroad berm adjacent to the Tunnel Pond Repository, the Tunnel Pond Repository stormwater management system, and the Interstate 90 buttress. The inspections found that the stormwater conveyance systems were generally clean and functioning and the build-up of sediment in the Tunnel Pond Repository east drop inlet had been removed, but some small trees and bushes had started to colonize the ditches and should be removed. The inspections also found that the repository caps and the Tunnel Pond Repository and Interstate 90 buttresses were in good condition with no visible evidence of settlement, subsidence or erosion. The small subsidence holes in the Tunnel Pond Repository railgrade and buttress slope, noted in the 2017 inspection, were repaired in the summer of 2018 and had not reappeared.

To support this FYR, the PRPs surveyed the settlement monuments in the crest and toe of the Tunnel Pond Repository embankment in July 2020 to identify any lateral movement in the embankment. The 2020 measurements were compared against the 2014 measurements. Comparison between the 2014 and 2020 survey results showed the maximum displacement in any direction was -0.08 feet (-0.96 inches) at point M5, which is below the 1-inch trigger for initiating additional review identified in the Milltown Tunnel Pond Settlement Monuments Construction Completion Report.

CFROU

The Interim Comprehensive Long-Term Monitoring Plan for the CFROU established monitoring activities for sediment, surface water and groundwater that will determine the environmental effectiveness of remediation and restoration actions within the CFROU as they are implemented. Monitoring under the Interim Comprehensive Long-Term Plan began in the spring of 2010 at six Clark Fork monitoring stations; this was prior to initiation of any remediation and restoration actions within the CFROU. This plan has been updated yearly.

The CFROU is not yet in the O&M phase. A long-term O&M plan will be developed and implemented by MDEQ. MDEQ will develop best management practice ranch plans on a parcel-specific basis as the cleanup proceeds.

III. PROGRESS SINCE THE PREVIOUS REVIEW

This section includes the protectiveness determinations and statements from the 2016 FYR as well as the recommendations from the 2016 FYR and the status of those recommendations.

Table 7: Protectiveness Determinations/Statements from the 2016 FYR

OU #	Protectiveness Determination	Protectiveness Statement
2	Short-term Protective	The remedy at MRSOU (OU2) currently protects human health and the environment because potential exposure to contaminated groundwater, surface water and sediment is controlled. For the remedy to be protective over the long term, the following actions need to be taken: implement institutional controls for the MRSOU comprehensive institutional control plan and its components; determine if additional measures are needed to reduce arsenic concentrations below the cleanup goals; and continue monitoring groundwater for at least six more years and tracking the arsenic trends to see if concentrations are going down per the discussion in the ROD.
3	Will be Protective	The remedy at CFROU (OU3) is expected to be protective of human health and the environment upon completion of the remedial action. In the interim, exposure pathways that could result in unacceptable risks are being controlled.

Table 8: Status of Recommendations from the 2016 FYR

OU #	Issue	Recommendation	Current Status	Current Implementation Status Description	Completion Date
2	Institutional controls for MRSOU are not yet implemented for areas where waste has been left in place and areas where groundwater contamination is above ROD standards.	Implement institutional controls for the MRSOU comprehensive institutional control plan and its components.	Addressed in Next FYR	Most of the MRSOU is now part of Milltown State Park. 2017 Institutional Controls Agreement for state-owned property prohibits disturbing the repositories and the Interstate 90 Buttress, restricts residential use, and prohibits installing drinking water wells if the arsenic standard is exceeded. Missoula Valley Water Quality Ordinance prohibits installing public water wells in the vicinity of the arsenic plume. Additional institutional controls may be needed for areas not included in the 2017 Institutional Controls Agreement (see Figure 3) to prohibit private well installation.	N/A
2	Groundwater concentrations at MRSOU continue to exceed arsenic cleanup goals and do not appear to be declining.	Determine if additional measures are needed to reduce arsenic concentrations below the cleanup goals.	Addressed in Next FYR	Groundwater monitoring continues. The EPA will evaluate the data to determine if additional measures are needed to reduce arsenic concentrations below the cleanup goal or if a waiver of certain groundwater standards is appropriate under CERCLA law.	N/A

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Community Involvement and Site Interviews

A public notice was made available by newspaper postings in the *Missoulian* and the *Silver State Post* on 10/7/2020 (Appendix E). It stated that the FYR was underway and invited the public to submit any comments to the EPA. The results of the review and the report will be made available at the Site's information repositories: Grant-Kohrs Ranch National Historic Site, located at 266 Warren Lane, Deer Lodge, Montana 59722, and at the Missoula City/County Library, located at 301 East Main Street, Missoula, Montana 59802. Site information is also available online at www.epa.gov/superfund/milltown-reservoir.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy implemented to date. The interviews are included in Appendix F and summarized below.

Interviewees were generally satisfied, and many were impressed by the cleanup activities that have occurred at the MRSOU. They highlighted the positive impacts from the development of Milltown State Park and the rich and complex habitat that is now reestablished. One noted that Milltown State Park is fast becoming a hub for public recreation, as well as river stewardship and nearby light industry. Some voiced concerns about the I-90 bridges and when the bridge piers will be removed from the Blackfoot River.[3] There is also some concern about the

[3] Removing the bridge piers is not a requirement under CERCLA authority, but could be done by the bridge owner, the Montana Department of Transportation.

inundation and congestion of the river from river recreationists during hot summer months. Respondents were generally comfortable with the status of the institutional controls and communications surrounding the MRSOU.

Respondents stated that the remedial action on the CFROU is progressing and has been successful to date. Recent activities to reduce the flow of salts from the slickens heavy metals into the river in 2020 have been well received. Interviewees are concerned about the cost of the cleanup and the slow progress. Many interviewees are concerned about how the entire cleanup will be funded and ensuring it is conducted appropriately for the entire river. Interviewees are concerned about current fish populations being at an all-time low and recognize the need to integrate restoration and remediation actions and prioritizing cleanup of high-risk areas. Interviewees voiced the need for more communication on the status of the CFROU cleanup, why downstream phases have been conducted prior to completing the upstream phases, and the plan for future phases after Phase 3 is conducted. One interviewee recommended a broader collaboration between stakeholders and agencies involved in all of the cleanups in this basin to share data and information collected and evaluate the watershed as a whole.

Data Review

MRSOU

Groundwater Monitoring

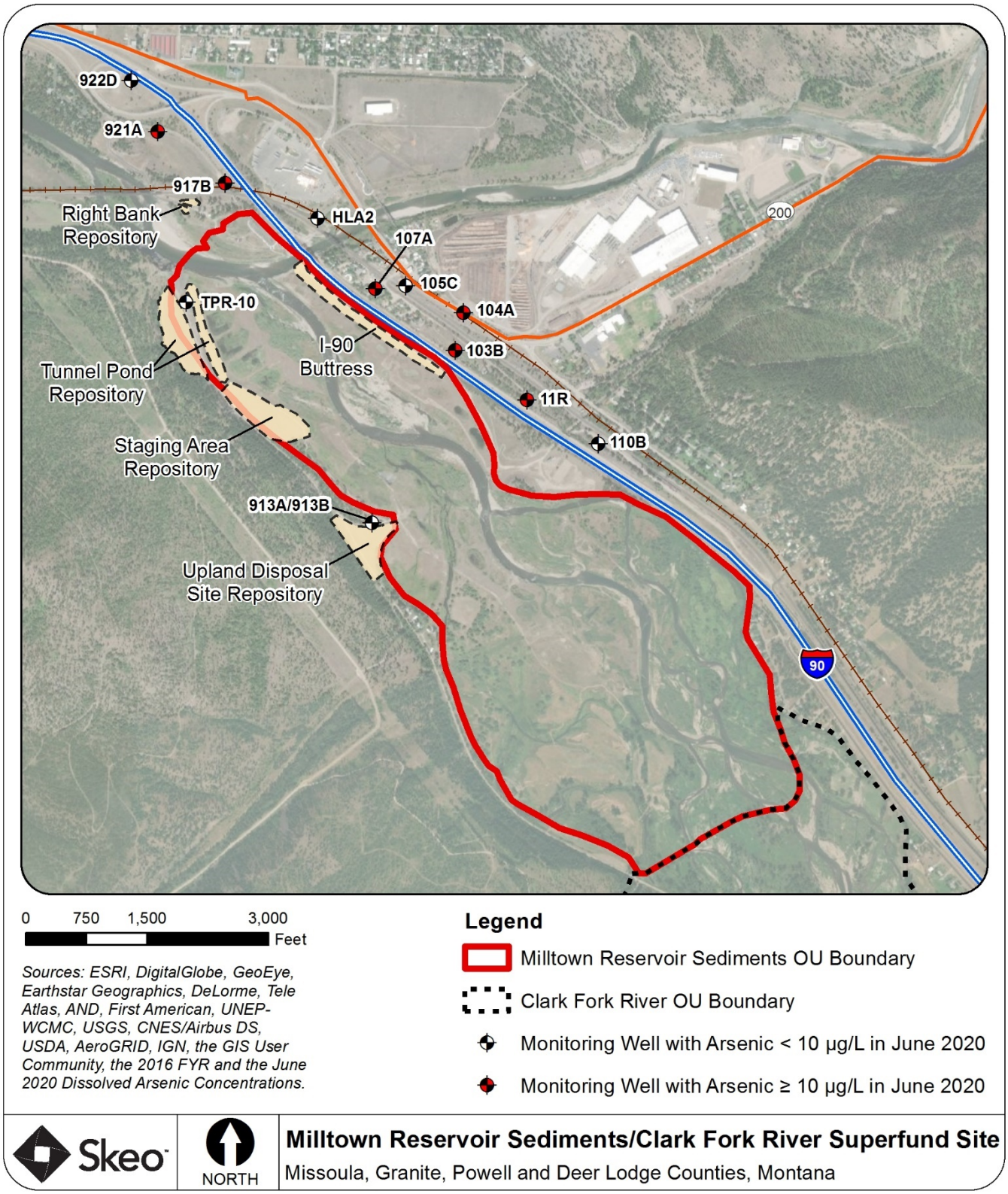
Groundwater monitoring at the MRSOU has three objectives: 1) evaluate the need for additional O&M activities; 2) ensure that the remedy is performing as designed; and 3) ensure that the remedy complies with the applicable performance standards. The groundwater performance standards will be deemed to have been met when the compliance monitoring wells have attained the water quality standards for a period of two years.

The PRPs sample the ten original compliance wells (104A, 921A, 917B, 922D, 105C, 107A, 110B, HLA2, 11R and 103B) plus the Upland Disposal Site monitoring well (913A) and the Tunnel Pond Repository monitoring well (TPR10) twice per year, during high flow conditions (summer) and low flow conditions (winter). Figure 6 depicts the locations of the monitoring wells. The EPA's April 20, 2015, correspondence approved discontinuing the analyses for all COCs except arsenic because two years of data showed compliance with state standards for the other COCs. Therefore, the well samples are analyzed for dissolved arsenic only.

Figures 7 through 9 present the dissolved arsenic concentrations in groundwater from 1996 through 2019; the figures group the monitoring wells by levels of arsenic concentration.[4] Arsenic concentrations in the compliance wells ranged from 1.26 µg/L to 35.4 µg/L in the 2019 samples, with seven (in June 2019) and six (in December 2019) of the 12 compliance wells exceeding the 10 µg/L groundwater standard. Overall, arsenic concentrations in all wells are much lower than historic levels but concentrations have not decreased significantly over the past five years. The ROD anticipated that the cleanup goals would be achieved about four to 10 years after completion of dam and sediment removal. It has now been about nine years since substantial construction was completed in 2012. Based on the concentration trends over the past five years, the EPA does not expect groundwater to achieve the arsenic standard within the timeframe anticipated in the ROD.

[4] The list of wells sampled has changed over the years as the monitoring plan has been revised and wells have been replaced or damaged.

Figure 6: Detailed Site Map



Disclaimer: This map and any boundary lines within the map are approximate and subject to change. The map is not a survey. The map is for informational purposes only regarding EPA's response actions at the Site.

Figure 7: Arsenic Concentrations in Group 1 Wells

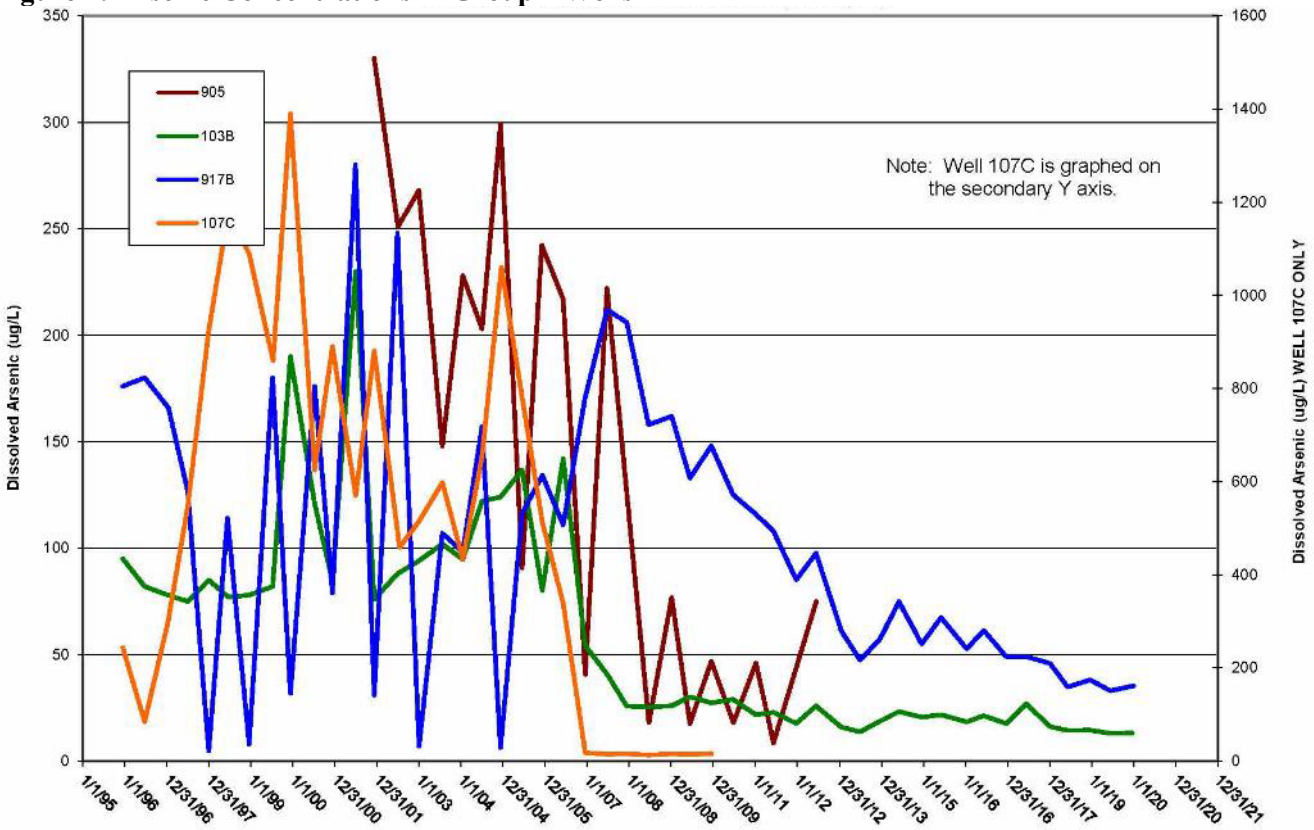


Figure 8: Arsenic Concentrations in Group 2 Wells

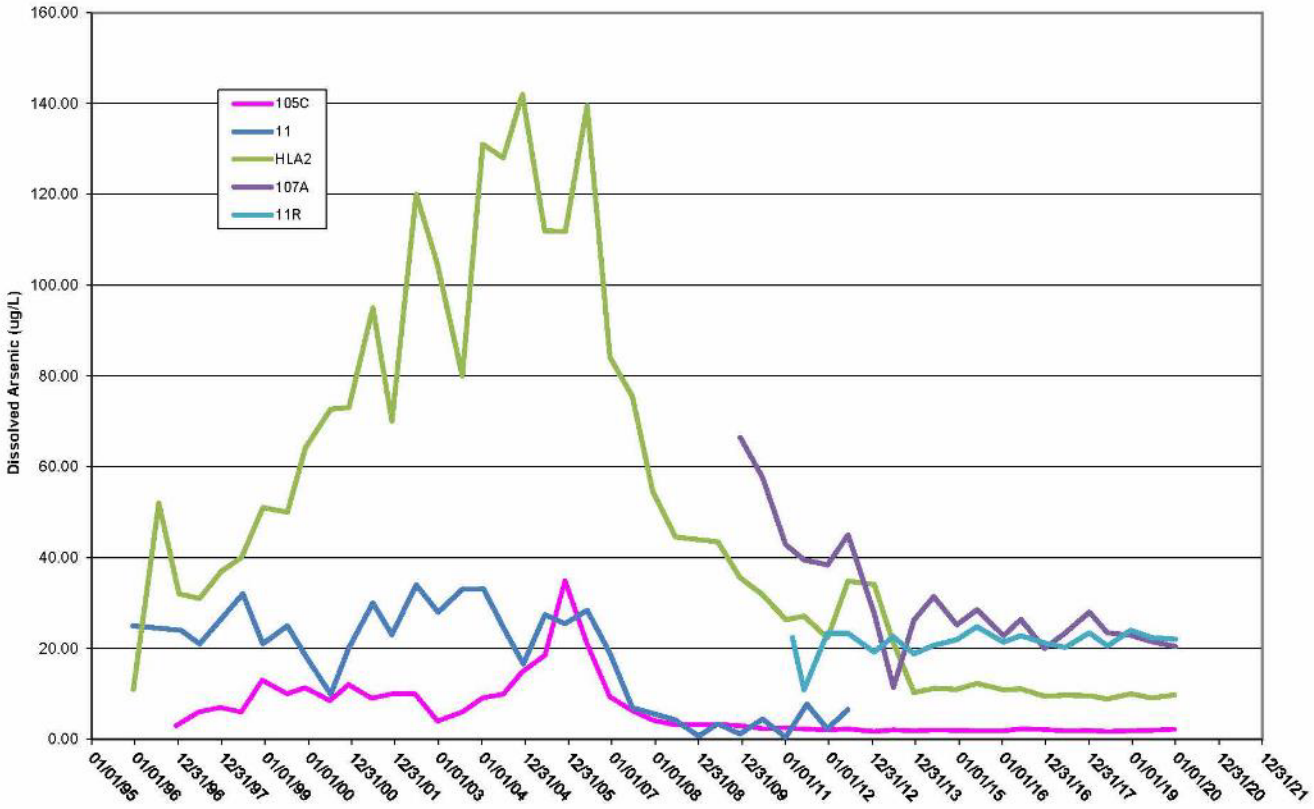
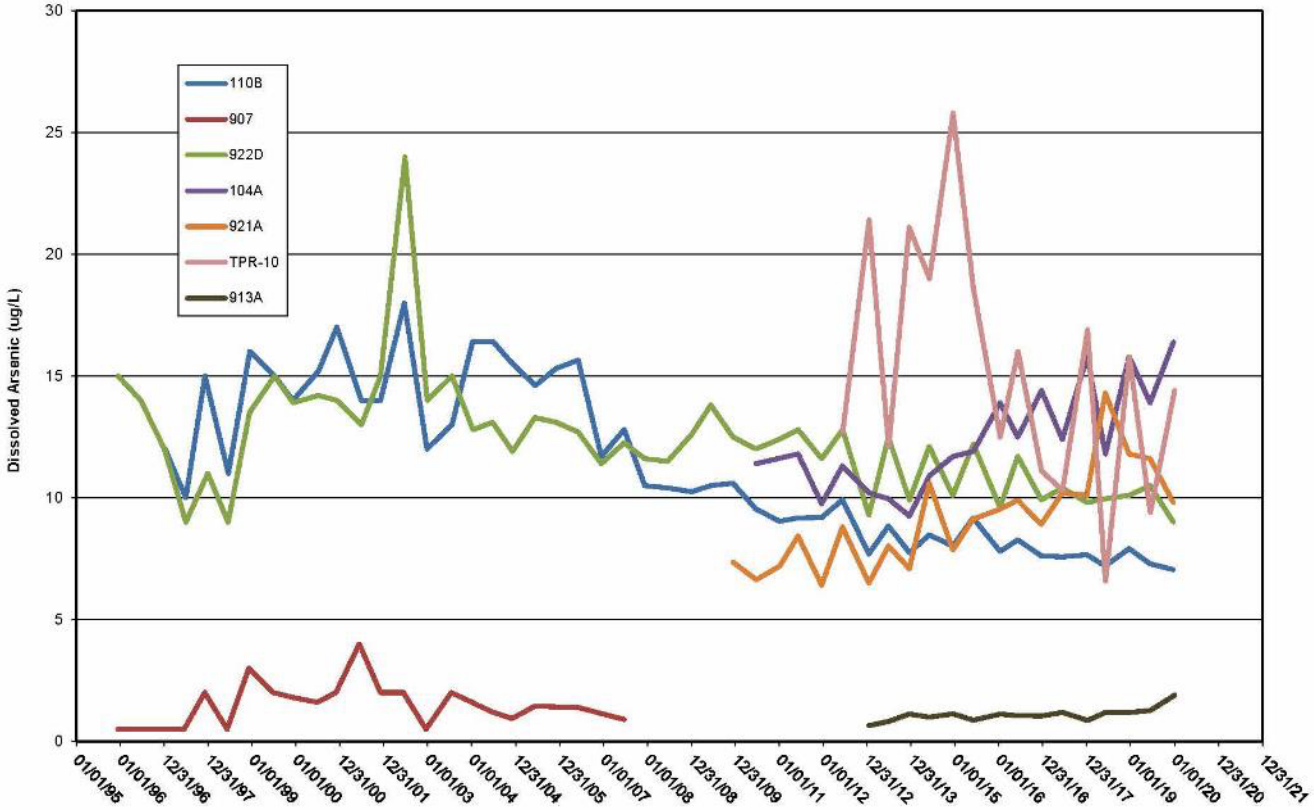


Figure 9: Arsenic Concentrations in Group 3 Wells



Surface Water Monitoring

The USGS conducted post-remedial action surface water monitoring in 2015 to assess the performance of the cleanup. This monitoring included sampling water quality eight times per year at the three stations that bracket the MRSOU (i.e., Clark Fork River at Turah Bridge near Bonner, Blackfoot River near Bonner, and Clark Fork River above Missoula) and comparing the concentrations against both Montana DEQ-7 and federal surface water quality criteria. There were no exceedances of federal standards at the downstream Clark Fork River above Missoula station, and only one exceedance of the state standards (for total recoverable copper). Per language in the 2004 Consent Decree, the ROD performance standard for copper is the federal water quality criteria, to be compared against the dissolved fraction. Therefore, the 2015 data showed post-remedial action surface water performance standards were met. The USGS continues to monitor surface water upstream and downstream of the Site. The CFROU section below provides additional surface water monitoring data.

<u>CFROU</u>

Cleanup is underway in the CFROU. Annual monitoring has been conducted since 2010 to assess groundwater, surface water and vegetation before, during and after cleanup. Additional monitoring efforts include streambed sediments, macroinvertebrates, periphyton, nutrients, fish and birds. The monitoring program has been coordinated with long-term monitoring by the USGS. The CFROU monitoring network in 2019 included 17 sample sites (7 mainstem sites and 10 tributary sites).

Surface Water

Surface water samples are analyzed for total and dissolved metals (arsenic, cadmium, copper, lead, zinc, mercury and methylmercury). In 2019, surface water COC concentrations in the mainstem exceeded performance goals for all COCs in at least one sample but were most frequent for arsenic (see Figure 10). Figure 1 shows the surface water sampling locations. Silver Bow Creek (downstream of the Warm Springs Ponds, OU4 of the Silver Bow

Creek site) and Mill-Willow Creek were sources of arsenic to the Clark Fork River. Arsenic concentrations in Silver Bow Creek entering the Warm Springs Ponds (at Frontage Road) were generally several times lower than the concentrations leaving the ponds (at Warm Springs), indicating that arsenic is likely remobilized in the ponds. In contrast, concentrations of the cationic contaminants of concern (cadmium, copper, lead and zinc), were generally much lower in samples collected downstream from the ponds.

In 2018 and 2019, streamflows in the Clark Fork River were very high throughout the spring runoff period and the remainder of the year due to strong mountain snowpack. The sustained high flows in the Clark Fork River mainstem almost certainly contributed to the relatively high total recoverable contaminant concentrations observed in the Clark Fork River in 2018 and 2019.

Sediment

In 2019, concentrations of arsenic, copper and zinc exceeded the probable effect concentration (PEC) in all Clark Fork River mainstem sediment samples (see Figure 11). Lead and cadmium exceeded the PEC in 75% and 42% of the mainstem samples, respectively. Despite the high rate of exceedances, all COC concentrations appeared to decline through time in the mainstem at the Williams-Tavenner Bridge site which is located downstream from Phases 15 and 16, where remedial actions are taking place. In other sampled tributaries (Mill-Willow Creek, Warm Springs Creek, Lost Creek, Racetrack Creek and the Little Blackfoot River), exceedances of the PECs were moderately rare.

Periphyton

In 2019, periphyton (benthic algae) monitoring indicated that all sites sampled had either “good” or “excellent” overall biological integrity. Specific stressors included nutrients, fine sediment and metals. The most consistent cause of impairment was sediment.

Macroinvertebrates

Macroinvertebrate samples collected in 2019 indicated that all sites were either slightly or moderately impaired. There was evidence of nutrient pollution at all but three sites (Warm Springs Creek, Clark Fork River at Turah and Little Blackfoot River). Habitat instability (e.g., dewatering or severe scouring) was a potential impairment in all sites except Warm Springs Creek, Silver Bow Creek below the Warm Springs Ponds, Clark Fork River at Turah and Little Blackfoot River.

Birds

Bird monitoring has been conducted annually since 2015. In 2019, birds were monitored in Phases 1 through 7 and Phase 15. Results suggest that the remedies, particularly in Phases 2, 5 and 6, have been beneficial for the abundance of riparian specialist bird species.

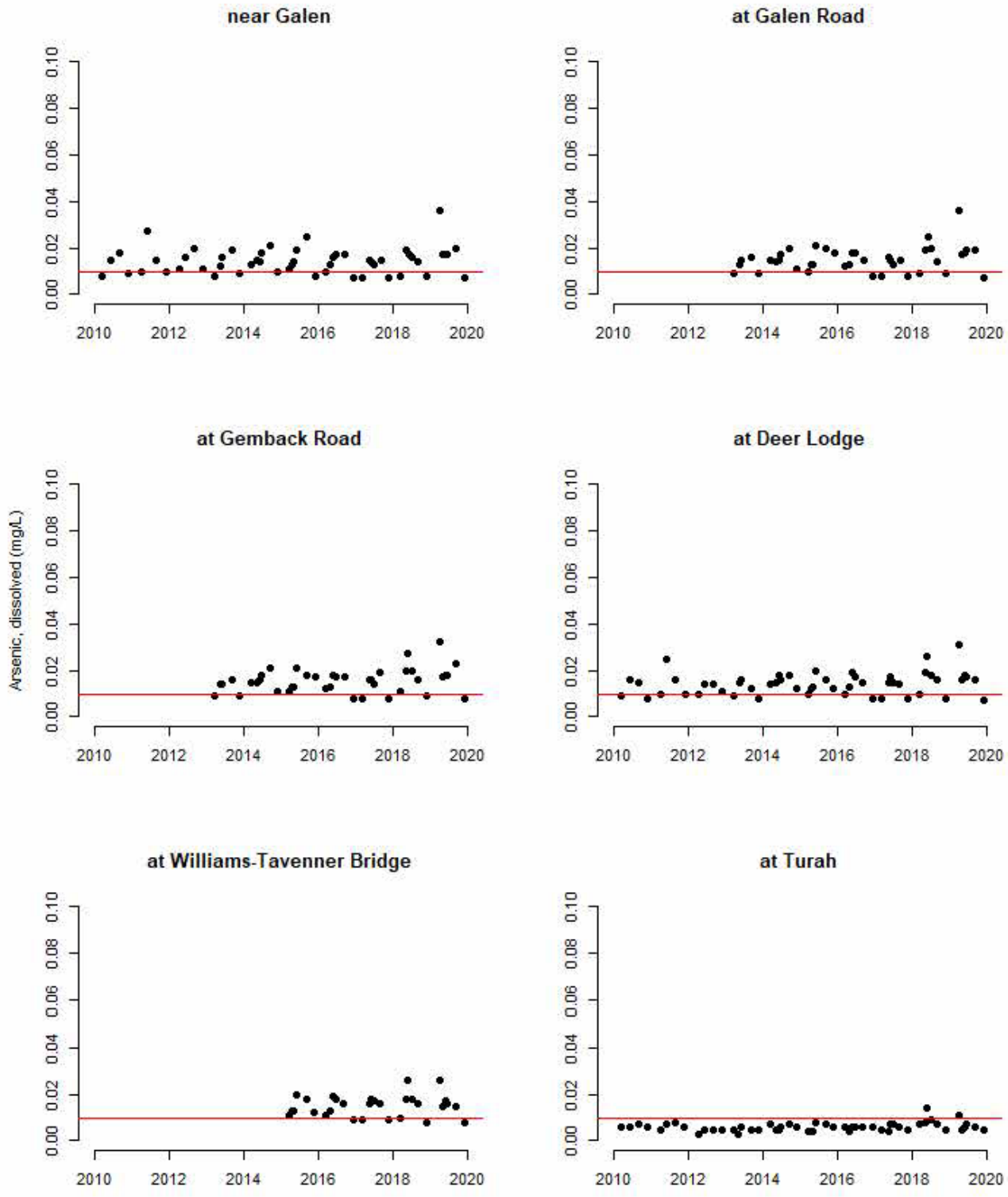
However, results in Phase 1, where the remedy was completed in 2015, have not followed this same pattern and richness of riparian specialist species there has declined through time. Results in Phases 3, 4, 7 and 15 have generally been mixed. With the exception of Phase 1, results suggest that displacement of disturbance-sensitive species by the remedy has been offset by effects of remedial actions that are beneficial, at least in the short-term.

Vegetation

Vegetation monitoring occurred in Phases 1, 2, 5 and 6 of the CFROU in 2019. Phases 2, 5 and 6 were in Year-3 post-remedy; the canopy cover did not meet the Year-3 performance targets, but the trend in each phase was positive. Phase 1 was in Year-5 post-remedy; the woody plant canopy cover and total canopy cover did not meet the performance targets (the temporal trends will be assessed during Year-7 monitoring in 2021). Noxious weeds were generally well controlled, particularly in Phases 2, 5 and 6. No noxious weeds were observed in any

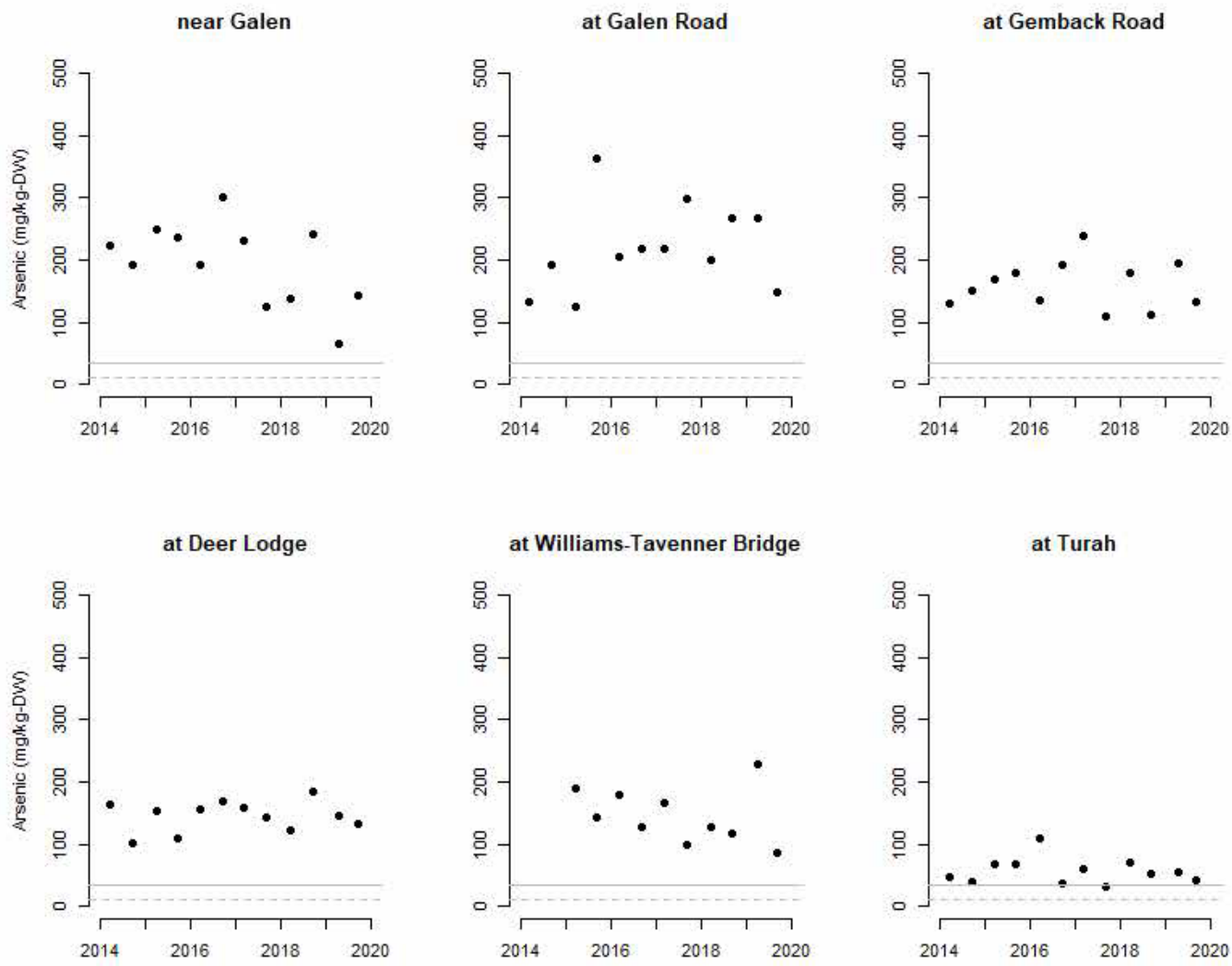
monitoring plots of those phases in 2019, although some weeds were observed during prior monitoring in 2017. These results indicate that ongoing treatments for weeds have been highly effective in those phases.

Figure 10: Dissolved Arsenic Concentrations (mg/L) in Surface Water[5]



[5] Horizontal red lines are the arsenic cleanup goal (10 µg/L).

Figure 11: Arsenic Concentrations (mg/kg) in Sediment[6]



Site Inspection

The site inspection took place on 9/21-22/2020. The purpose of the inspection was to assess the protectiveness of the remedy. Appendix G provides the site inspection checklists for the MRSOU and the CFROU. Appendix H provides photographs from the site inspection.

MRSOU

Participants for the MRSOU site inspection included Ken Champagne (EPA RPM), Doug Martin (Montana Natural Resource Damage Program), Michael Kustudia (Milltown State Park), Don Booth (PRP contractor), Kris Cook and Michael Langguth (PRP subcontractor), and Treat Suomi (Skeo, the EPA's FYR contractor).

The inspection began at the Milltown Bluff, providing an overall view of the MRSOU remedial components including the Tunnel Repository and associated embankment and buttress, railroad berm, the Right Bank Repository, the Interstate 90 Buttress and the former Bonner Development Group parcel. Participants observed

[6] Solid horizontal lines are the probable effect concentration (PEC) (33 mg/kg). Dashed horizontal lines are the threshold effect concentration (9.79 mg/kg).

that areas of subsidence and erosion on the Tunnel Pond Repository cap were recently repaired. There was a slough/slide recently on the hill above the Tunnel Pond Repository, due to heavy rain, causing soil and vegetation to start obstructing the stormwater diversion ditch (see Figure H-2 in Appendix H).

Participants visited Milltown State Park, which recently opened at the MRSOU and provides water access for recreation. Participants visited the Right Bank Repository. Participants walked along the Blackfoot River to observe the riprap stabilizing the banks of the river. The riprap was intact. Participants walked under the Interstate 90 bridge and viewed the area where work was recently conducted on piers under the bridge (see Figure H-10 in Appendix H). From here, the Interstate 90 Buttress was also observable (see Figure H-4 in Appendix H).

The participants visited the Bonner Development Group parcel, which was one of the Site's borrow areas. The parcel was recently transferred to the Montana Fish, Wildlife and Parks Department. The area appeared to have established vegetation. Vegetation was also established along the Clark Fork River southwest of the parcel.

CFROU

Participants for the CFROU site inspection included Ken Champagne (EPA RPM), Joel Chavez and Tim Riley (MDEQ), Brian Bartkowiak and Bo Downing (Montana Natural Resource Damage Program), Jeffrey Johnson (National Park Service at Grant-Kohrs Ranch National Historic Site), Don Booth (PRP contractor) and Treat Suomi (Skeo).

The inspection began immediately north of the town of Warm Springs below the Warm Springs Ponds at the beginning of the Clark Fork River Phase 1 remediation area. The riverbanks have been remediated and are vegetated. Participants continued throughout Reach A from Phase 1 to the Grant-Kohrs Area stopping at each of the phase breaks along the way and observing the large area of pastureland east of the Phase 13 and 14 areas historically irrigated by a ditch that brought water from the Clark Fork River to the area. The pastures were vegetated with grass.

Participants observed Arrowstone Park in the town of Deer Lodge. The park is owned by the city of Deer Lodge and leased to Powell County. The park is located in the Phase 13 and Phase 14 remediation areas. The park includes picnic areas and a walking trail system.

The site inspection continued in Deer Lodge where residential and streambank remediation of arsenic-contaminated areas were observed in the Trestle Area. Participants visited the Grant-Kohrs Ranch National Historic Site where current remedial work is in progress. In various parts of Reach A, fencing meant to keep wildlife away from newly planted vegetation has occasionally trapped wildlife, so CFROU managers have started to adjust the OU's fencing to fence off targeted exclusion areas rather than large areas. Participants observed some eroded riverbanks along Phase 3 where stabilization is planned (see Figure H-16 in Appendix H). Participants observed fishermen boating on the Clark Fork River (see Figure H-32 in Appendix H).

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

MRSOU

The MRSOU remedial action continues to function as designed. The primary objectives of the remedial action are to reduce or eliminate the groundwater arsenic plume and reduce or eliminate the threat to aquatic life below the dam from the release of contaminated sediments. The EPA constructed Milltown's public water supply system and provided or required permanent maintenance funding. Public and private water supply wells monitored by the local health department during 2006 to 2014 were consistently below the drinking water standard for dissolved arsenic; two water supply wells had total arsenic concentrations above the standard from 2006 to 2009, but there

were no exceedances after 2009. The Milltown Dam was removed, contaminated sediments were excavated or capped, and the Clark Fork River is flowing in the new channel with no sedimentation or erosion issues identified. Floodplain vegetation has achieved performance standards and monitoring continues. Contaminated sediments were excavated and placed in on-site repositories, which were then covered. The on-site repositories, Interstate 90 bank improvements, removal and re-grading of the Bypass Channel, bridge replacements and strengthening of the Interstate 90 Bridge abutments on the Blackfoot River are completed and functioning as designed.

Arsenic concentrations in groundwater have decreased significantly since the cleanup began, but still exceed the cleanup goal. Over the past five years, the arsenic concentration has decreased in the most highly contaminated well; other wells have had various trends in concentration (stable, increasing or decreasing). The ROD anticipated that the cleanup goals would be achieved about 4 to 10 years after completion of dam and sediment removal. It has now been about nine years since construction was completed in 2012. Based on the concentration trends over the past five years, EPA does not expect groundwater to achieve the arsenic standard within the timeframe anticipated in the ROD. Therefore, this FYR retains the recommendation from the 2016 FYR to determine whether additional measures are needed to reduce arsenic concentrations below the cleanup goal or if a waiver of certain groundwater standards is appropriate under the CERCLA law.

Vegetation performance standards have been met for all areas where the PRPs retained responsibility for revegetation. The PRPs monitor the vegetation for weed control and to ensure that the caps and stormwater systems continue to function at the repositories and Interstate 90 buttress. The 2019 vegetation inspection identified several items to address including weed control and reclaiming an area on the Interstate 90 buttress affected by heavy equipment. During the September 2020 FYR site inspection, participants observed a recent slough/slide on the hill above the Tunnel Pond Repository, due to heavy rain, causing soil and vegetation to start obstructing the stormwater diversion ditch. The PRP completed cleanup of the stormwater ditch on November 20, 2020. Resolution for the slough/slide on the hillside is ongoing with the PRP and state.

Some institutional controls are in place to protect the remedy and to prevent exposure to contaminated groundwater and soil. A 2017 Institutional Controls Agreement for state-owned property restricts residential use, repository disturbance, and the installation of drinking water wells. The 2017 Institutional Controls Agreement also prohibits disturbing the repositories. The southwestern portion of the MRSOU is not subject to the 2017 ICs Agreement; residential use is prevented in that area by state laws prohibiting/restricting residential development in floodways and floodplains. Most of the MRSOU is now part of Milltown State Park. The Missoula Valley Water Quality Ordinance prohibits installing public water wells in the vicinity of the arsenic plume. Additional institutional controls may be needed for areas of the MRSOU not included in the 2017 Institutional Controls Agreement to restrict private well installation in the Milltown area.

CFROU

Cleanup is underway in Reach A of the CFROU. Reach B will be cleaned up after cleanup is complete in Reach A. When completed, the remedy is expected to achieve remedial goals contained in the ROD. The EPA determined that Reach C requires no further action. Annual monitoring has been conducted since 2010 to assess groundwater, surface water and vegetation during and after cleanup. Additional monitoring efforts include streambed sediments, macroinvertebrates, periphyton, nutrients and fish populations. During the September 2020 FYR site inspection, participants observed some eroded riverbanks where stabilization is planned.

Powell County's Superfund Overlay District restricts installation of wells and requires permits for land use changes. Institutional controls are needed for segments of the CFROU that are in other counties. Additional institutional controls may also be needed; as stated in the ROD, these could include deed restrictions, permanent funding for Arrowstone Park to ensure that it is maintained and dedicated for use as a recreational area, and groundwater sampling and use controls.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and remedial action objectives used at the time of the remedy selection still valid?

The exposure assumptions, toxicity data, cleanup levels and remedial action objectives used at the time of remedy selection remain valid for both the MRSOU and the CFROU.

At the time of the 2004 RODs, the state of Montana's standards for arsenic were 18 µg/L for surface water quality based on human health and 20 µg/L for groundwater as a drinking water supply. The state standards for arsenic for surface water and groundwater are now both 10 µg/L, matching the federal standards. This revision to the state standards does not impact the Site's performance standards because the more stringent federal standards were established as performance standards in the 2004 RODs. The CFROU annual monitoring reports should be updated to include the current state standard. Other groundwater and surface water cleanup goals are based on federal and state standards that have not become more stringent since the 2004 RODs (see Appendix I).

The MRSOU remedy may not always be able to meet the state's surface water standard for copper because copper continues to enter the river from upstream. Therefore, the MRSOU ROD and Consent Decree stated that the waiver of the copper standard for the CFROU will also be applied to the MRSOU surface water. The Consent Decree also provides for the consideration of upstream contamination in determining surface water compliance.

The EPA developed risk-based soil cleanup goals for arsenic in the CFROU in its 1998 Human Health Risk Assessment. These cleanup goals were assessed by the Agency for Toxic Substances and Disease Registry in its 2001 Human Health Risk Assessment Addendum for Recreational Visitors at Arrowstone Park. The EPA's toxicity data for arsenic were last updated in 1991 (for non-cancer effects) and 1995 (for cancer effects). Therefore, the arsenic soil cleanup goals are still valid because arsenic's toxicity values have not changed since the EPA issued the ROD. Land use in affected areas has not changed in such a way as to affect the exposure assumptions applied in the development of these site-specific cleanup goals.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the FYR:
None

Issues and Recommendations Identified in the FYR:

OU: OU2 (MRSOU)	Issue Category: Remedy Performance			
	Issue: Arsenic concentrations in groundwater have decreased significantly since the cleanup began, but still exceed the cleanup goal.			
	Recommendation: Determine whether additional measures are needed to reduce arsenic groundwater concentrations below the cleanup goal or if a Technical Impracticability ARAR waiver is warranted.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	EPA/State	EPA/State	9/30/2023

OU: OU2 (MRSOU), OU3 (CFROU)	Issue Category: Institutional Controls			
	Issue: Additional institutional controls may need to be implemented to protect the remedy and to prevent exposure to contaminated groundwater and soil.			
	Recommendation: Consider what additional institutional controls are needed and implement them (for example, to restrict installation of private wells in the Milltown area and to control groundwater and land use in segments of the Clark Fork River that are in counties other than Powell County).			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date**
No	Yes	PRP, State	EPA/State	9/30/2023

OTHER FINDINGS

Two additional recommendations were identified during the FYR. These recommendations do not affect current and/or future protectiveness.

- The 2019 vegetation inspection and 2020 FYR site inspection identified several items to address including weed control, reclaiming an area on the Interstate 90 buttress affected by heavy equipment, addressing the slide above the Tunnel Pond Repository, and streambank stabilization.
- Consider providing more communication on the status of the CFROU cleanup and the remedial strategy to determine the order of the proposed cleanup actions.
- The CFROU annual monitoring reports should be updated to include the current state standard for arsenic in surface water and groundwater.

VII. PROTECTIVENESS STATEMENTS

Protectiveness Statement	
Operable Unit: 2 (MRSOU)	*Protectiveness Determination:* Short-term Protective
Protectiveness Statement: The remedy at MRSOU (OU2) currently protects human health and the environment because potential exposure to contaminated groundwater, surface water and sediment is controlled. For the remedy to be protective over the long term, the following actions need to be taken: • Determine whether additional measures are needed to reduce arsenic groundwater concentrations below the cleanup goal or if a Technical Impracticability ARAR waiver is warranted • Consider what additional institutional controls are needed and implement them (for example, to restrict installation of private wells in the Milltown area).	

Protectiveness Statement	
Operable Unit: 3 (CFROU)	*Protectiveness Determination:* Will be Protective
Protectiveness Statement: The remedy at CFROU (OU3) is expected to be protective of human health and the environment upon completion of the remedial action. In the interim, remedial actions completed to date have controlled exposure pathways that could result in unacceptable risks.	

VIII. NEXT REVIEW

The next FYR Report for the Milltown Reservoir Sediments Superfund site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

Record of Decision: Clark Fork River Operable Unit of the Milltown Reservoir/Clark Fork River Superfund Site. EPA Region 8. April 2004. https://semspub.epa.gov/src/document/08/497064

Record of Decision: Milltown Reservoir Sediments Operable Unit of the Milltown Reservoir/Clark Fork River Superfund Site. EPA Region 8. December 2004. https://semspub.epa.gov/src/document/08/1097885

Missoula Valley Water Quality Ordinance. Missoula County. 13.26.090: Protection of water supply wells. http://www.ci.missoula.mt.us/DocumentCenter/Home/View/1033#PublicServices_13_26_090

Powell County Zoning and Development Regulations. Chapter VI, Section VI-F (Superfund Overlay District). January 7, 2009. http://www.powellcountymt.gov/wp-content/uploads/2019/03/ZoneDevRegs20170203_1486156447.pdf

Domestic Public Health and Early Warning Well Final Monitoring Report: Milltown Reservoir Operable Unit. Submitted to EPA and MDEQ by Missoula City-County Health Department Water Quality District. September 2014.

Explanation of Significant Differences: Clark Fork River Operable Unit (OU #3), Milltown Reservoir/Clark Fork River Superfund Site. EPA Region 8. June 2015.

Second Five-Year Review Report for the Milltown Reservoir/Clark Fork River Superfund Site. EPA Region 8. September 29, 2016. https://semspub.epa.gov/src/document/08/1551844

Institutional Controls Agreement. Book 984, Page 482. Missoula County Clerk and Recorder. Recorded August 9, 2017.

Remedial Action Construction Completion Report: Milltown Reservoir Sediments Site. Prepared by Envirocon. December 5, 2018.

2015-2019 Monitoring and Maintenance Annual Reports: Milltown Reservoir Sediments Operable Unit. Prepared by Envirocon. Annually from March 2016 through March 2020.

Dissolved Arsenic Concentrations in Groundwater. RESPEC. June 2020.

Monitoring Reports for 2015-2019: Clark Fork River Operable Unit. Prepared for MDEQ and EPA by RESPEC. Annually from December 2016 through July 2020.

Tunnel Pond Monitoring, Milltown Montana, July 2020 Survey Report. DJ&A, P.C. August 12, 2020.

APPENDIX B – SITE CHRONOLOGY

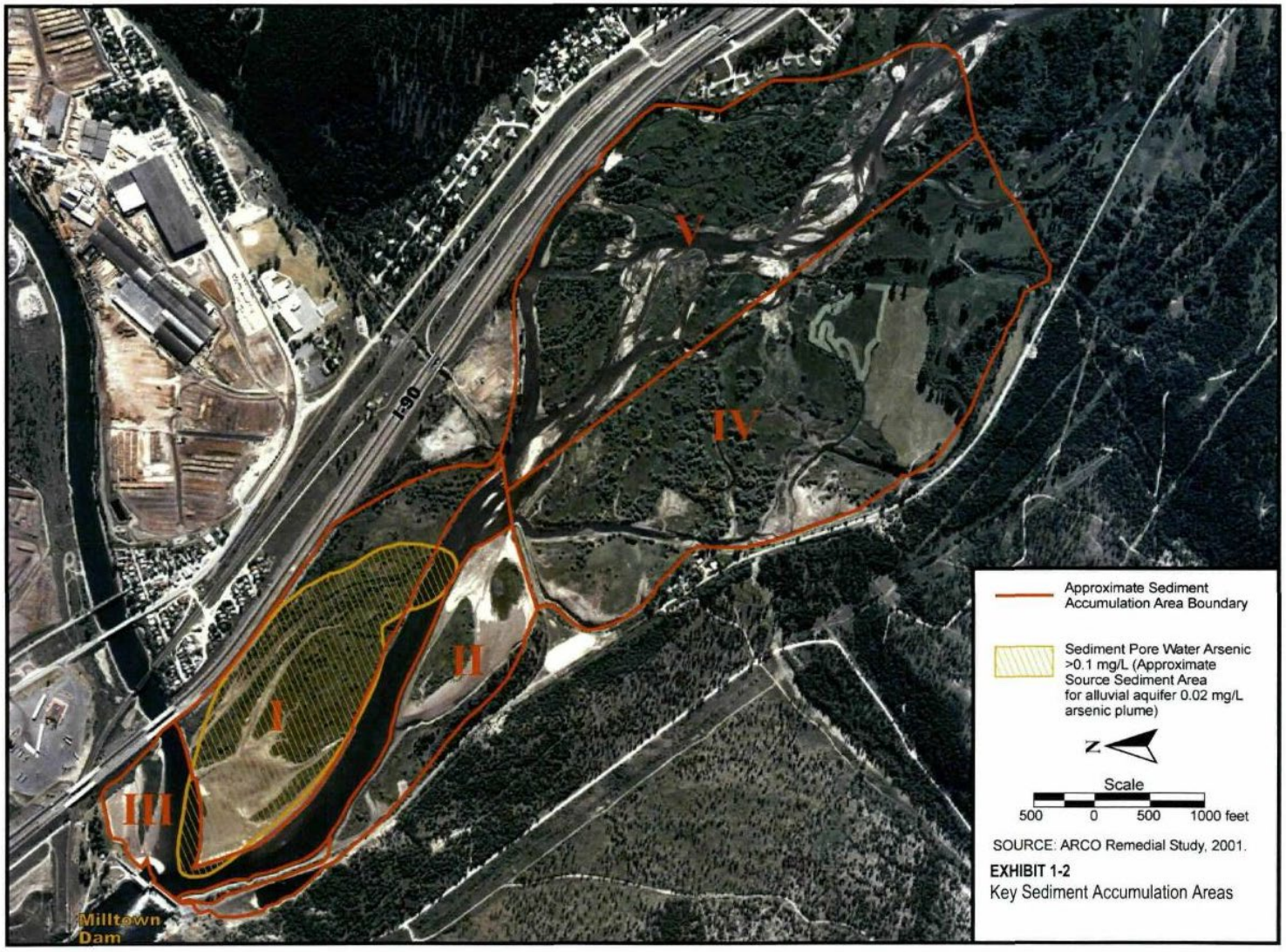
Table B-1: Site Chronology

Event	Date
Local public health authorities discovered arsenic contamination in drinking water wells in Milltown, Montana	1981
EPA added the Site to the NPL	September 8, 1983
EPA issued interim ROD for OU1, requiring construction of a deep well and water tank to serve as an alternative water supply for Milltown residents. This ROD was amended in 1985.	April 14, 1984
Remedial action construction for OU1 completed	1986
ARCO prepared major portions of the final CFROU RI/FS. RI/FS work continued for several years after 1987, including the preparation of a baseline human health and ecological risk assessment.	1987
EPA issued an Administrative Order on Consent to ARCO to conduct the RI/FS for MRSOU	1991
MRSOU RI and baseline human health, ecological and continued release risk assessments completed	September 16, 1993
PRPs complete RI Report for MRSOU	February 15, 1995
Draft FS for MRSOU groundwater released by ARCO. The same year, unforeseen climatic conditions caused ice scour event, which sent high levels of metals contamination down river; EPA expanded FS scope and conducted further risk assessments.	1996
EPA issued a time-critical removal action memorandum and a Unilateral Administrative Order to ARCO to address immediate human health risks for residents of Eastside Road in Deer Lodge.	2000
EPA issued CFROU ROD	April 29, 2004
MRSOU RI/FS completed; EPA issued MRSOU ROD	December 15, 2004
Consent Decree for PRP performance of MRSOU remedy and O&M entered by federal court; this includes requirements for PRP continued funding of water supply O&M activities. The Consent Decree also provided for the performance of natural resource damage actions by the state of Montana at the MRSOU, some of which are intended to fulfill remedial action requirements.	August 2005
Remedial action at MRSOU began	February 15, 2006
Initial reservoir drawdown (Stage 1) and start of MRSOU remedial action	June 1, 2006
Consent Decree for PRP cashout of CFROU remedy and O&M entered by federal court. This provided for the performance of the CFROU remedy and O&M by the MDEQ using the cashout money, and funding and performance of natural resource damage actions by the state of Montana Natural Resource Damage program.	August 21, 2008
EPA approved Draft Repository O&M Plan and changes to the Remedial Action Monitoring Plan for MRSOU	March 2010
MDEQ conducted cleanup of CFROU irrigated land, Deer Lodge residential area, and Trestle area	2010 to 2011
Transfer of reservoir property to state of Montana	December 2010
Clark Fork River bypass channel removal began	December 2010
EPA completed first FYR for MRSOU	September 2011
MRSOU remedial action construction activities were significantly completed	June 2012
MDEQ conducted cleanup at Eastside Road pasture areas (adjacent to Phases 12 and 13)	2012 and 2015
MDEQ conducted cleanup at CFROU Reach A, Phase 1	March 2013 to April 2014
MDEQ conducted cleanup at CFROU Phase 5 and 6	July 2014 to 2016

Event	Date
EPA and MDEQ released Explanation of Significant Differences for CFROU	June 12, 2015
MDEQ conducted cleanup at CFROU Phase 2	June 2015 to Fall 2016
EPA completed second FYR	September 29, 2016
Institutional Controls Agreement recorded for property owned by state of Montana at MRSOU	August 9, 2017
Remedial Action Construction Completion Report completed for MRSOU	December 5, 2018
MDEQ began cleanup at Phases 15 and 16 (part of Grant-Kohrs Ranch National Historic Site)	2019

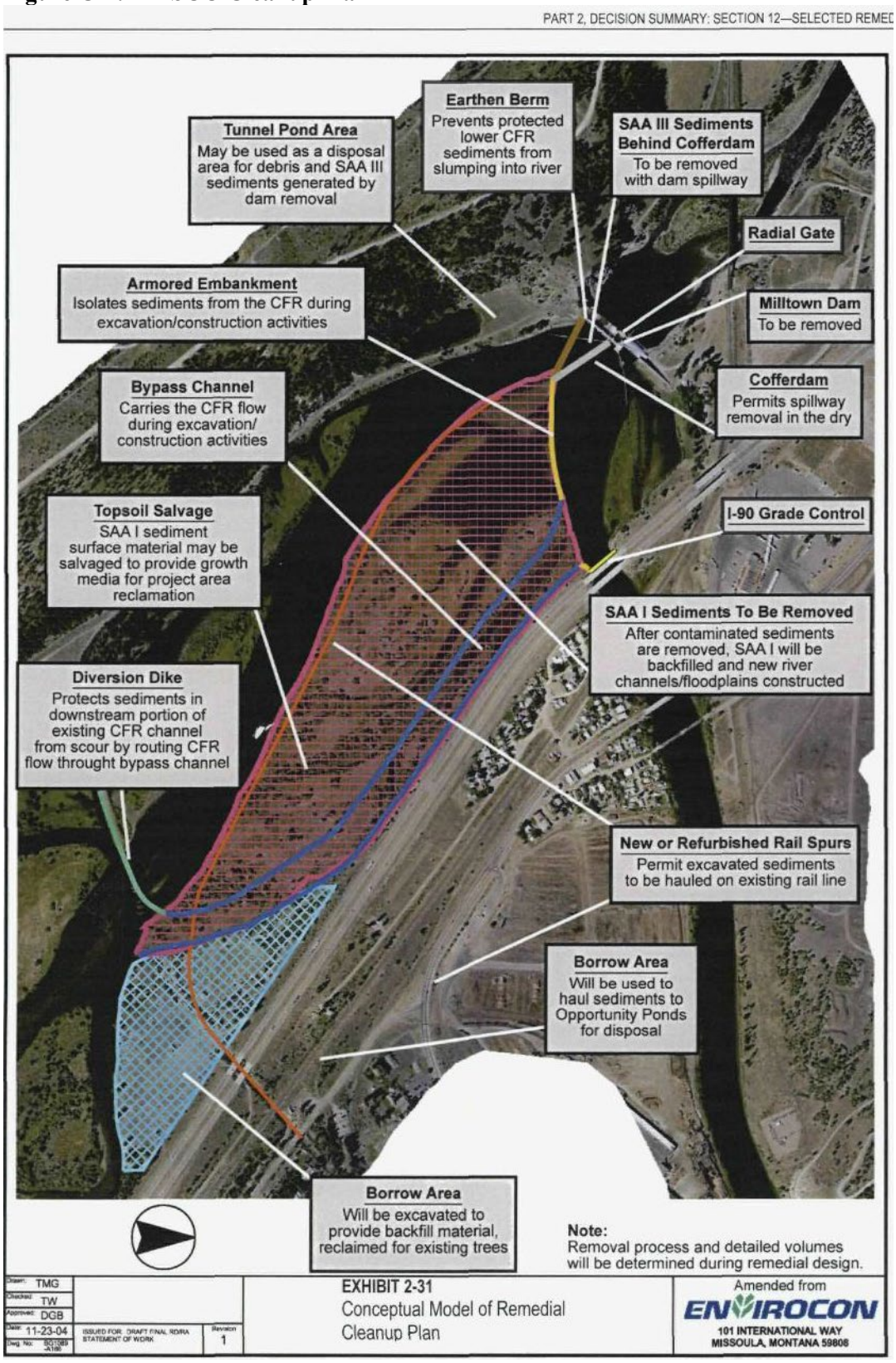
APPENDIX C – ADDITIONAL MAPS

Figure C-1: MRSOU Sediment Accumulation Areas[7]



[7] Source: December 2004 ROD

Figure C-2: MRSOU Cleanup Plan[8]



[8] Source: December 2004 ROD

APPENDIX D – INSTITUTIONAL CONTROLS

Figure D-1: Missoula Valley Water Quality Ordinance

Title 13.26

MISSOULA VALLEY WATER QUALITY ORDINANCE

Sections:

13.26.010 Short title--Applicability--Construction. This Ordinance shall be known as the "Missoula Valley Water Quality Ordinance." It is intended to protect the public health, safety and general welfare of those utilizing the Missoula Valley Aquifer and surface waters in the Missoula Valley for drinking water, recreation and other beneficial uses. The provisions of the Ordinance are deemed to be a health ordinance and shall be effective within the City of Missoula and all places within five miles outside the city limits that are within the boundary of the Missoula Valley Water Quality District pursuant to §7-4-4306 MCA (1993). This Ordinance establishes prohibitions and restrictions to prevent surface water and groundwater contamination, and to protect public health, safety and welfare. This Ordinance shall be broadly construed to effect its purposes. Nothing in this Ordinance shall relieve a person from the requirements of any other federal, state, or local law. If any provision of this Ordinance duplicates any local, state or federal statute or regulation, the local, state or federal statute or regulation shall govern. However, if the requirements of this Ordinance are more stringent than the requirements of the local, state or federal statute or regulation, the requirements of this Ordinance shall govern. (Ord. 3154, 2000; Ord. 2906 (part), 1994) .

13.26.020 Legislative intent and purpose. In order to protect the Missoula Valley's sole source of drinking water and surface waters in the Missoula Valley and to secure and promote the general public health, safety and welfare, the Missoula City Council declares that:

A. The improper storage, handling, use, transport, production or disposal of certain substances in the Missoula Valley is potentially harmful to the quality of water in the Missoula Valley and to drinking water obtained by the use of private and public supply wells, and that certain activities involving the use of certain substances should be managed to prevent water contamination.

B. Affirmative measures to prevent water pollution are the most effective means available to protect water quality.

C. In order to effectively protect surface and groundwater, local authority is needed to require pollution prevention measures at facilities which handle significant quantities of certain substances, and to prohibit and deter activities which pose threats to the quality of the Missoula Valley Aquifer.

D. The construction, development and use of new public water supply wells in proximity to existing sources of contamination is potentially harmful to the quality of drinking water obtained from such wells. The location of identified contaminant sources which pose serious threats of contamination should also be prohibited in proximity to public drinking water wells, in order to minimize the risk of contamination. (Ord. 3492, 2013; Ord. 3154, 2000; Ord. 2906 (part), 1994).

13.26.030 Definitions. For purposes of this Ordinance, the following terms have the following meanings unless the context clearly indicates otherwise:

1. Aboveground Storage Tank (AST) - Any one or combination of tanks that is used to contain an accumulation of Regulated Substance, and the volume of which is more than 90% above the surface of the ground.

2. Anti-Icing: Anti-icing means the application of a deicer before or during a storm event for the purpose of preventing ice and snow accumulation on the roadway.

3. Aquifer - A water-bearing, subsurface formation capable of yielding sufficient quantities of water for beneficial use.

4. Aquifer Protection Area - The areas within the City of Missoula and within five miles outside the Missoula city limits which are within the boundaries of the Missoula Valley Water Quality District.

5. Board - The Board of Directors of the Missoula Valley Water Quality District.

6. Bulk Petroleum Storage Facility - A facility used for storage of petroleum products for marketing or wholesale distribution that has a total bulk storage capacity of 50,000 gallons or more.

7. Carbon Absorption/Evaporation Technology: A treatment technology for perchloroethylene contaminated wastewater which removes perchloroethylene or other chlorinated solvents from a water-solvent mixture using carbon absorption and evaporates the remaining water.

8. Chemical Manufacturing Facility - A facility having a Standard Industry Class Code (SIC Code) between 2800 and 2899 which handles Regulated Substances in an amount equal to or greater than threshold quantities.

9. Class II Landfill - An area of land or an excavation, as defined in Montana Administrative Rules A.R.M. 17.50.504, where group II or group III wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile. Group II and III wastes are defined in Montana Administrative Rules, A.R.M. 17.50.503.

10. Class III Landfill - An area of land or an excavation, as defined in Montana Administrative Rules A.R.M. 17.50.504, where group III wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile. Group III wastes are defined in Montana Administrative Rules, A.R.M. 17.50.503.

11. Closure Permit - A permit issued by the Department in accordance with section 13.26.060 of this Ordinance when a facility is permanently closed, or has been abandoned for one year.

12. Community Water System - Any public water supply system, as defined in A.R.M. 17.38.101, which serves at least ten service connections used by year-round residents or regularly serves at least 25 year-round residents.

13. Component - Any constituent part of a unit or any group of constituent parts of a unit which are assembled to perform a specific function.

14. Contamination - The presence of any substance (chemical, radiological, or biological) or any condition (temperature, pH, taste, color, odor, turbidity) in soil or water which may create or threaten to create a hazard to human health or the environment, or impair the usefulness of the soil or water.

15. Department - The Missoula Valley Water Quality District.

16. Dry Cleaning Establishment - Any facility that uses a transfer machine, dry-to-dry vented unit, or dry-to-dry closed loop unit with one or more of the following solvents to clean clothing or other materials: perchloroethylene; trichlorotriflouroethane (CFC-113); CFC-11; stoddard solvent; 1,1,1-Trichloroethane; HCFC 14 lb.; HCFC-123 lb.; and HCFC-225 lb.

17. Dry-to-Dry machine: A machine that can wash and dry garments without transferring them and potentially emit chlorinated solvent to the atmosphere.

18. EPA - United States Environmental Protection Agency.

19. Facility - An area, building or buildings, appurtenant structures or surrounding land area used by a person.

20. Fleet - More than 5 vehicles or locomotives.

21. Fueling Facility - A facility that dispenses petroleum products for commercial sale, public use, or for fleet vehicle operation, excluding bulk petroleum storage facilities and farm and residential tanks of 1100 gallons or less capacity used for storing motor fuel for non commercial purposes.

22. Future Wellhead Reservation Area - The surface area overlying a portion of the Missoula Valley Aquifer which, because of aquifer recharge, groundwater flow and potential sources of contamination, should be protected against contamination to assure high quality groundwater for future generations.

23. Grass Infiltration Swale - A vegetative-lined infiltration cell designed and constructed in accordance with Department standards to collect and treat contaminants in storm water runoff.

24. Groundwater - Water that fills the interconnected spaces of material below the water table (upper limit of saturation), or water which is held in the unsaturated zone by capillary action.

25. Handle - To use, generate, process, produce, package, treat, store, emit, discharge or dispose of a Regulated Substance, excluding (a) handling during continuous non-stop transit, (b) transit via pipeline, and (c) handling of parcels and packages by the United States Postal Service, motor freight companies, and private delivery services.

26. Hazardous Waste - A hazardous waste as defined pursuant to section 1004(5) of the Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6903(5), as amended, including a substance listed or identified in 40 CFR 261.

27. Hazardous Waste Management Facility - All contiguous land, and structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of a hazardous waste, and that are required under Montana Hazardous Waste Administrative Rules, A.R.M 17.54.105, to have a hazardous waste management permit. A Hazardous Waste Management Facility may consist of several treatment, storage, or disposal operational units.

28. Independent Certified Laboratory: A laboratory outside the control of the person requesting approval from the Department that is certified by the EPA or other appropriate certifying agency to complete testing.

29. Industrial or Commercial Injection Well - A well or septic system that receives industrial or commercial wastes from a public or private facility, excluding wells or septic systems used solely for storm water discharge, sanitary waste discharge and/or discharge or extraction of non-contact heating and cooling system water.

30. Missoula Valley Aquifer - The aquifer underlying the Missoula Valley which supplies the area with water.

31. New - Constructed, installed or brought into operation after the effective date of this Ordinance.

32. Noncomplying Activity - An activity involving the handling of a Regulated Substance in an amount equal to or greater than its threshold quantity within a Future Wellhead Reservation Area.

33. Non-transient Non-community water system - Any public water supply system as defined in A.R.M. 17.38.202 that is not a community water system and that regularly serves at least 25 of the same persons over six months per year.

34. Perchloroethylene (C_2CL_4) - A colorless liquid used as a dry cleaning fluid; general degreaser of metals; solvent for waxes, fats, oils, and gums; constituent of printing inks and paint removers. Synonyms include, Tetrachloroethylene, Tetrachloroethene, PCE, PERC.

35. Person - Any natural person, individual, public or private corporation, firm, association, joint venture, partnership, municipality, governmental agency, political subdivision, public officer or any other entity whatsoever or any combination of such, jointly or severally.

36. Piping Manifold - The area(s) of a piping system fitted with apertures for making multiple connections.

37. Pollution Prevention Permit - A permit required of a person who owns, operates or controls a facility that handles any Regulated Substance in an amount equal to or greater than four times its threshold quantity. Pollution Prevention Permits are issued by the Department in accordance with section 13.26.050 of this Ordinance.

38. Primary Container - A container which comes into immediate contact with a Regulated Substance.

39. Public Sewage Disposal System - A system, as defined in §75-6-102(11) MCA, for collection, transportation, treatment or disposal of sewage that is designed to serve or serves ten or more families or 25 or more persons daily for a period of at least 60 days out of the calendar year.

40. Public Water Supply System - A system, as defined in §75-6-102(12) MCA, for the provision of water for human consumption from any community well, water hauler for cisterns, water bottling plant, water dispenser, or other water supply that is designed to serve or serves 10 or more families or 25 or more persons daily or has at least 10 service connections at least 60 days out of the calendar year.

41. Reasonably Achievable Limit: A pollutant limit that is determined on a case by case basis to be reasonably achievable taking into account environmental, economic, and other factors and costs.

42. Refrigerator Condenser: A vapor recovery system into which an air-chlorinated solvent vapor stream is routed and the chlorinated solvent is condensed by cooling the gas-vapor stream.

43. Regulated Substance - Any liquid substance, semi-liquid substance, or soluble solid on the most current Superfund Amendments and Reauthorization Act (SARA), Title III List of Lists published by the Office of Pollution Prevention and Toxic Substances, U.S. Environmental Protection Agency, Washington D.C., any petroleum product, any hazardous waste, or any other substances that the Board determines, following public review, may threaten contamination of the Missoula Valley Aquifer, excluding substances used for personal household use. The Board may, following public review and comment, remove a substance from the list of Regulated Substances.

44. Release - Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of a regulated substance into the environment (including the past release of a regulated substance), but excluding (a) releases contained in a secondary containment area or the indoor work place provided the release does not exit the indoor work place, (b) the use of pesticides and fertilizers as defined in §80-8-102(30) MCA and §80-8-102(2) MCA when they are applied in accordance with approved federal and state labels, and (c) any discharge permitted by a local, state, or federal agency.

45. Replacement - Replacement or replace shall mean:

a. Replacing, repairing, upgrading or improving a facility at a cost which equals or exceeds 50% of the value of the facility at the time of such act.
b. Replacing a component or more than 50% of a component of a facility.
c. Reoccupation of a facility, reuse of a component at a facility, or restarting an activity which has been out of service or not practiced for a period of one year.

46. Secondary Containment - Containment external to and separate from the primary container adequate to prevent the release of Regulated Substances to native soil, surface water, or groundwater. The secondary containment structure or cell must:

a. be non-reactive and resistant to the materials contained;
b. prevent infiltration of any Regulated Substance into the ground in the event of a release from the primary storage container;
c. isolate the Regulated Substance from soils, injection wells, floor drains, or any other potential surface and groundwater entry point; and
d. contain at least 110% of the volume of the largest container, or 10% of the aggregate volume of all containers, whichever is greater.

A covered building or structure may fulfill the secondary containment requirements of this Ordinance, provided the building or structure has an impermeable floor and walls and the release of a Regulated Substance would remain in the building or structure.

47. Soluble Solid - A solid that exists in a powder form and has a particle size less than 100 microns, is handled in solution or molten form, or meets the criteria for a National Fire Protection Association (NFPA) rating of 2, 3, or 4 for reactivity.

48. Storm Water Injection Well - A structure, pit or hole that primarily receives storm water runoff from paved areas, including, but not limited to, parking lots, streets, residential subdivisions, and highways.

49. Tank - Stationary device designed to contain an accumulation of substances and constructed of non-earthen materials (e.g. concrete, steel, plastic) that provide structural support.

50. Tank Fueling Area - The area surrounding the above or underground storage tanks subject to releases of petroleum products during tank fueling, including the area surrounding the tanker truck during fueling.

51. Threshold Quantity - The following quantities of Regulated Substances (excluding products in vehicle fuel tanks, aerosol spray cans, products used for research at educational institution laboratories, and substances sold for retail in a container equal to or less than 5 gallons capacity) handled at a facility at any one time, regardless of location, number of containers, or method of storage, shall constitute the Threshold Quantity:

a. For those Regulated Substances specifically listed in the Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists and for those Regulated Substances which are listed hazardous waste defined pursuant to 40 CFR Part 261, as amended, the threshold quantity shall be the reportable quantity published in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 40 CFR 302, Table 302.4 or the Superfund Amendments and Reauthorization Act (SARA) Section 355, Appendix A.

b. For those Regulated Substances that are characteristic hazardous wastes defined pursuant to 40 CFR Part 261, as amended, the threshold quantity shall be based on the substance contained in the waste with the lowest threshold quantity.

c. For those Regulated Substances not listed in the Superfund Amendments and Reauthorization Act Title III List of Lists, and for those Regulated Substances that are not a hazardous waste, the following quantities of qualifying substances at a facility at any one time shall constitute a Threshold Quantity:

(i) Waste oil - 1000 pounds or 100 gallons.

(ii) Gasoline - 250 pounds or 25 gallons

(iii) Diesel/Jet Fuel/Kerosene - 500 pounds or 50 gallons

(iv) New Motor Oil - 2,000 pounds or 200 gallons

d. For those substances that are mixtures of one or more Regulated Substance, the threshold quantity shall be based on the substance contained in the mixture with the lowest threshold quantity.

Threshold Quantities of substances may be established or revised by the Board, following public review and comment.

52. Transfer Dry Cleaning Machine: A machine unable to both wash and dry garments, which emits chlorinated solvent to the atmosphere during transfer.

53. Underground Storage Tank (UST) - Any one or combination of tanks as defined in MCA 75-10-403.

54. Vehicle Fueling Area - The area surrounding a fuel island or dispenser(s) subject to releases of petroleum products during vehicle fueling, including a 3 foot release collection buffer zone extending beyond the lanes of traffic next to the fuel islands or dispenser(s).

55. Waste Oil - Oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities.

56. Well - A structure, pit or hole sunk into the earth to reach a resource supply such as water.

57. Wellhead - The physical structure or device at the land surface surrounding a well, from or through which groundwater flows or is pumped from an aquifer. .

(Ord. 3492, 2013; Ord. 3154, 2000; Ord. 2906 (part), 1994)

13.26.040 Pollution prevention requirements.

A. No product shall be distributed, sold, offered, or exposed for sale within the aquifer protection area if it contains Perchloroethylene in any quantity. Those products containing Perchloroethylene used at dry cleaning establishments and educational institution research laboratories are exempt from this provision of the Ordinance, provided the person who owns, operates, or controls such facility obtains a pollution prevention permit from the Department, regardless of the quantity of Perchloroethylene handled at the facility.

B. A person who owns, operates or controls a facility which handles Regulated Substances in an amount equal to or greater than the threshold quantities must submit an inventory and quantity of those Regulated Substances to the Local Emergency Planning Committee (LEPC) every year.

C. A person who owns, operates or controls a new or replacement fueling facility must:

1. install and maintain an awning or canopy that prevents precipitation from falling on the vehicle fueling area(s) if surface releases of fuel from the vehicle fueling area could discharge to a storm water injection well; and
2. design and install a storm water collection system for the facility which shall:
   i) prevent the flow of fuel releases in the tank fueling area and vehicle fueling area from discharging directly to a storm water injection well; and
   ii) collect and discharge storm water from areas outside of the tank fueling area and vehicle fueling area to a grass infiltration swale or otherwise provide for such storm water to be handled in a manner to reduce the potential for water contamination.
3. The storm water collection design must be approved by the Department and permitted by the City of Missoula Public Works and Development Services prior to facility construction. The person owning, operating, or controlling the facility must maintain any grass infiltration swale and any other approved device used to prevent releases in the vehicle and tank fueling areas from discharging to a storm water injection well. The facility shall keep records of maintenance of the device at the facility to be viewed during Department inspections.

D. A person who owns, operates or controls a fueling facility where surface releases of fuel from the vehicle or tank fueling area may discharge to a storm water injection well shall provide the following physical and procedural measures to prevent fuel releases:
   1. breakaway hoses and nozzles shall be installed on all dispensers;
   2. emergency response equipment shall be kept on site to be used in the event of a release, including absorbent materials and spill containment covers for each storm water injection well which may receive discharge from a surface release; and
   3. An employee trained on how to respond to a release must be on site at all times during facility operation, except as provided in (a).
      (a) A fueling Facility that provides 24-hour public access to fuel through a remote card-lock system is exempt from the requirement to have a trained employee on site at all times during facility operation if it provides the following:
         (1) Automatic pump shutoff when 50 gallons of gasoline or 250 gallons of diesel fuel have been dispensed,
         (2) Emergency phone access,
         (3) Signs posted to instruct public to call 9-1-1 in the event of a fuel release.

   4. In addition to the above procedural and physical requirements, a person who owns, operates, or controls an existing fueling facility shall incorporate a release prevention section within the pollution prevention plan required under section 13.26.050 (B) of this Ordinance. The release prevention section of the plan shall describe the steps or methods that will be taken to prevent fuel released at the tank and/or vehicle fueling areas from reaching a storm water injection well. The release prevention plan must be approved by the Department. Physical alterations or procedural changes required as a condition of the Department's approval must be completed or instituted within one year of the Department's approval.

E. A facility that handles a total quantity of any Regulated Substance in an amount equal to or greater than four times its threshold quantity must obtain a Pollution Prevention Permit, pursuant to section 13.26.050 of this Ordinance.

F. A person who owns, operates or controls a facility at which a Regulated Substance (excluding petroleum products in underground storage tanks, in vehicle fuel tanks, at bulk petroleum storage facilities, and Regulated Substances sold for retail in a container equal to or less than 5 gallons capacity) equal to or greater than the threshold quantity is handled on the effective date of this Ordinance shall provide secondary containment for that substance. A person who owns, operates, or controls a new facility at which a Regulated Substance (excluding petroleum products in underground storage tanks, in vehicle fuel tanks, at bulk petroleum storage facilities, and Regulated Substances sold for retail in a container equal to or less than 5 gallons capacity) equal to or greater than the threshold quantity is handled after the effective date of this Ordinance must obtain Department approval of their plan for secondary containment prior to obtaining a building permit or first handling a Regulated Substance in an amount equal to or greater than its threshold quantity, whichever occurs first.

G. A person who owns, operates, or controls a facility at which a Regulated Substance equal to or greater than its threshold quantity is stored in any new or replacement underground storage tank system shall equip that system with double walled product piping, secondary containment of all ancillary equipment from the tank to the dispenser(s), tank release detection systems, and leak detectors on pressurized piping. Tank system design must be approved by the Department prior to obtaining a building permit. Such systems shall, at a minimum, meet the requirements described in A.R.M. 17.56.403 of the Montana Underground Storage Tank Regulations, as amended.

H. No person shall construct or operate an industrial commercial injection well at a new or existing facility unless said person obtains an Underground Injection Control Permit from the Environmental Protection Agency (EPA) or the Department. A person may be granted a permit from the Department or EPA if the owner, operator or controller demonstrates to the Department or EPA that the process wastewater does not contain a Regulated Substance at a concentration equal to or above its EPA primary maximum contaminant level for drinking water, EPA health advisory level, or the standard proposed in the Montana Numeric Water Quality Standards, (Circular WQB-7), whichever is lower, and the potential for water contamination is reduced by such other measures as the Department or EPA may require.

I. A person who owns, operates, or controls a bulk petroleum storage facility shall:
   1. During new or replacement construction, install all new or replacement piping aboveground;
   2. Perform annual release response training exercises simulating the actions that will be taken during a release of fuel at the facility;
   3. Have a person trained in the proper filling of aboveground tanks at the facility during tank filling operations, or establish a monitoring system capable of detecting and alerting local emergency personnel of a release during tank filling operations in such a manner to prevent the contamination of the Missoula Valley Aquifer. The monitoring system shall at a minimum include vapor monitors located at any valve and piping manifold that controls the flow of fuel to the tanks and from the tanks to the dispensers, and overfill alarms on any aboveground

product fuel storage tank. The monitoring system must be staffed during tank filling operations. Any proposed monitoring system must be approved by the Department;

4. Conduct annual integrity and leak testing of below grade metal fuel product piping to a pressure of one and a half times the operational pressure;
5. Cathodically protect buried metal piping and the bottom of aboveground tanks in accordance with guidelines contained in American Petroleum Institute (API) 651;
6. On or before January 1, 1996, and every five years thereafter, prepare a Contingency Plan outlining how personnel are to respond to a release of fuel at the facility. The plan shall also address alternative technologies which may prevent fuel from contaminating the Missoula Valley Aquifer, such as:
   a. installation of impermeable barriers or liners to prevent the vertical migration of released fuel to the aquifer;
   b. grading of the secondary containment area to common drainage channels or sumps equipped with dedicated pumps that can be activated to pump fuel from the containment area in the event of a large release;
   c. installation of vapor monitoring devices at piping manifolds and valves to alert personnel of a release;
   d. installation of vapor monitoring wells within a secondary containment area of the aboveground tanks to be used to recover released fuel before it reaches the underlying aquifer;
   e. installation of a dedicated recovery tank outside a secondary containment area of the aboveground tanks that can be used to recover released fuel; or
   f. excavation of contaminated soils immediately after a release occurs.

   The Contingency Plan must be approved by the Department, and all physical or procedural changes required as a condition of the Department's approval of the Contingency Plan, shall be completed or instituted within two years of the Department's approval;
7. On or before January 1, 1998, and every 10 years thereafter, test the integrity of the shell of each aboveground tank in accordance with American Petroleum Institute (API) 653;
8. Install containment devices to prevent a surface release of fuel at the vehicle fueling area from discharging directly to a storm water injection well, or surface waters;
9. Secondarily contain all aboveground piping manifolds; and
10. On or before January 1, 2000, and every 10 years thereafter, test the integrity of the bottom of each aboveground tank in accordance with American Petroleum Institute (API) 653. The frequency of integrity testing of the bottom of each tank may be extended by the Department provided that the owner, operator, or controller of the bulk petroleum storage facility proposes an extended frequency in accordance with American Petroleum Institute (API) 653, the proposal is received by the Department within two years of the adoption of this Ordinance, and the Department approves of the change in frequency of testing.

J. A person who owns, operates or controls a facility on which a public or private water well or monitoring well is abandoned after the effective date of this Ordinance shall ensure that the well is abandoned in compliance with the Montana Department of Natural Resources and Conservation Board of Water Well Contractor Regulations, ARM §36.21.669 through §36.21.679 and §36.21.810.

K. No person shall construct or operate a new or replacement facility which handles a Regulated Substance in a quantity equal to or greater than its threshold quantity within the Future Wellhead Reservation Area comprised of all land within township 13N, range 19W, sections 27 and 34, all land south of the Clark Fork River within township 13N, range 19W, section 22, and all land within the northwest and northeast quarter sections of township 13N, range 19W, section 4 of Montana Meridian, Missoula County, Missoula, Montana.

L. Existing facilities within the Future Wellhead Reservation Area defined in section 13.26.050 (K) of this Ordinance may continue to operate, subject to all the conditions of section 13.26.050 and the following:
   1. Any activity involving the handling of a Regulated Substance in an amount equal to or greater than its threshold quantity shall be a noncomplying activity.
   2. Any noncomplying activity that is discontinued, abandoned or ceases for a period of twelve consecutive months may not be resumed.
   3. A noncomplying activity may not be enlarged, expanded, or altered so as to substantially increase the risk of soil or groundwater contamination. Any enlargement, expansion or increase in a noncomplying activity must be approved by the Department, in writing, prior to activity commencement.
   4. In the event a facility which houses a noncomplying activity is destroyed or damaged by any means to an extent that the cost to repair or replace the facility equals 50% of the value of the facility at the time of such act, the activity shall not be resumed or continued.

M. In addition to any other applicable federal or state law and regulation, the following pollution prevention measures shall apply to dry cleaning facilities:
   1. After October 19, 2000, wastewater generated from dry cleaning machines and vacuum presses that use perchloroethylene and other chlorinated solvents shall not be discharged to any sewer system. Dry cleaning facilities which use perchloroethylene or other chlorinated dry-cleaning solvents shall either, a) treat their wastewater from dry-cleaning machines and vacuum presses on site using carbon absorption/evaporation or an equivalent technology, or b) properly dispose of the wastewater as a hazardous waste;

2. After June 19, 2000, all new or replacement dry cleaning machines using perchloroethylene or other chlorinated solvents shall be dry-to-dry machines and be equipped with integral refrigerated condensers or an equivalent.
3. After June 19, 2001, no dry cleaning facility shall include operation of a transfer dry cleaning machine using perchloroethylene.

DEICER SPECIFICATIONS

A. GENERAL REQUIREMENTS

1. A person applying a deicer on streets and highways within the City of Missoula and all places within five miles outside the city limits must comply with the requirements of this section, which are intended to ensure compliance with the drinking water or aquatic life standards for parameters listed in Table 1 below, at the point of discharge after 100:1 dilution with stormwater.
2. Any deicer applied within the City of Missoula and all places within five miles outside the city limits must be analytically tested to demonstrate that its quality meets the limits shown in Table 1. Analytical testing must be performed by the manufacturer or distributor at an independent certified laboratory using test methods approved by the Department. It is the City's preference to use a deicer that contains the least amount of any constituents which are not essential to the product's performance and which may cause contamination of soil or water, including inert or proprietary ingredients.

Table 1: Constituent Limit for Deicers

Parameter	Limit (mg/kg) [1]
Arsenic	1.0
Barium	100
Cadmium	0.20
Chromium	0.50
Copper	0.20
Lead	1.0
Mercury	0.005
Selenium	5.0
Zinc	10.0
Total Cyanide	0.20
Total Phosphorus	2,000
Total Nitrogen	1,000 / 500 [2]
PH	6.0- 9.0
Pesticides/herbicides	Based on WQB-7 Standard [3]

[1] In most cases, the limit is based on the Montana drinking water quality or acute aquatic life standard (WQB-7 standards), whichever is lower. The limit for nitrogen and phosphorus are set even lower because they are believed to be reasonably achievable. A 100 to 1 dilution factor is applied for most parameters. This factor accounts for the dilution and attenuation of deicer from the truck to the side of the road. It was determined by comparing the chloride concentration of deicers to the chloride concentration of storm water samples collected during runoff.

[2] The allowable amount of total nitrogen for a deicer is dependent on the form of nitrogen present in the deicer. Supplier must test for TKN, Nitrate + Nitrite as N, and Ammonia Nitrogen using methods approved by the Department. Organic nitrogen shall equal the amount of Total Kjeldahl Nitrogen (TKN) minus Ammonia Nitrogen. If 50% or more of the nitrogen present in the deicer is of the organic form, a limit of 1,000 mg/kg shall apply. If less than 50% of the nitrogen is of the organic form, a limit of 500 mg/kg shall apply.

[3] For a product that contains an agricultural by-product, the supplier shall test for any pesticide/herbicide possibly in the deicer using test methods approved by the Department. The limit will be based on MT WQB-7 standard using a 100 to 1 dilution.

[4] Liquid products shall be analyzed in the concentration they are applied to the street and directly compared to Table 1. Solid products shall be liquefied at specifications approved by the Department prior to analysis. In general products will be analyzed in accordance with product category test protocols developed by the Pacific Northwest Snowfighter's Association (PNS) before being compared to Table 1.

3. The supplier of a product delivered and/or applied that is contaminated with something not specified on the Product Checklist or contains a specified constituent at a concentration high enough to be a public health or environmental concern, may be subject to cleanup costs for anything that came in contact with the product, including but not limited to storage tanks, equipment, soils, and/or groundwater.

B. DEPARTMENT APPROVAL PROCESS

1. Persons wanting Department approval for a deicer must submit a complete application to the Department. The complete application must include:
    a. A Department supplied Product Checklist;
    b. Documentation showing that the product is on the approved PNS product list;
    c. Analytical results of testing required in section (A) (2);
    d. The most recent Material Safety Data Sheet for the product;
    e. Proprietary chemical and physical information on the product, which shall be held confidential;
    f. Two one liter samples of the product for quality control testing purposes; and
    g. Other relevant information that the Department may require which is obtainable by the applicant.

2. The Department shall have 30 days to review the submitted documentation and determine whether the product is approved. Persons requesting approval shall be notified whether their product is approved within 7 days of the Department's determination. Once a product has been approved it need not be approved again as long as the product formulation does not change.
3. Changes to an approved product by the manufacturer or distributor which in any way makes the product different from the original qualified product will result in removal of the product from the approved list, and may result in cleanup costs, as per section (A) (3).

C. FIELD DELIVERY OF PRODUCTS

1. A bill of lading and invoice must accompany each shipment. The bill of lading and invoice must contain the following information:
    a. Name of product;
    b. Supplier and manufacturer of product;
    c. Destination of delivery;
    d. Total number of units being delivered;
    e. Total weight of delivery (certified scale, or certified micro flow meter);
    f. Lot number. The lot number must enable purchaser to track a delivered product back to its manufacturing point, date of manufacture, and specific batch;
    g. Name of Transport Company, tank trailer or rail car number, point and date of origin;
    h. Percent concentration and specific gravity for liquid products; and
    i. Contract unit of measure, unit price delivered (invoice only), and total price for units delivered (invoice only).
2. All deicers can be subject to inspection and analysis as delivered. Purchaser shall have the option at the point of delivery to collect a sample of the product for quality control/quality assurance purposes. No precipitate or flocculation in liquid products shall be allowed in excess of the specification limits. Materials portraying these or other uncharacteristic traits or found to contain constituents at concentrations above the limits shown in Table 1, may be immediately rejected at the option of the buyer or their representative at the delivery location. Cost to remove an unwanted product and re-supply the purchaser shall be paid by the supplier or manufacturer of the product. The supplier or manufacturer may also be subject to cleanup costs in accordance with section (A) (3).
3. Each shipment shall be accompanied by a current and clearly legible MSDS.
4. Advance notice must be made for all deliveries. Deliveries shall be made during normal working hours (Monday through Friday between the hours of 8:00 A.M. and 4:00 P.M.), unless otherwise requested or agreed to by the purchaser.

D. STORAGE AND FIELD APPLICATION OF DEICERS

1. Deicers stored at volumes greater than 1000 gallons or 10,000 pounds (for solids) shall be secondarily contained (liquids) or covered (solids).
2. Where appropriate based on deicer manufacturer recommendations and/or PNS specifications, deicers stored in tanks must be circulated to prevent settling and product stratification.
3. Deicers shall be applied in such a manner and at such a rate that pure product (liquid or solid) remains on the roadway.
4. Deicers shall be applied using trucks equipped with ground-speed controllers. Deicers applied for anti-icing purposes prior to or during a storm event shall be applied at a rate not to exceed 30 gallons per lane mile. Whenever snow accumulations on the road are equal or greater than 2 inches, deicers shall only be applied after snow plowing to improve the effectiveness of a deicer and to reduce the amount applied.
5. Deicer may be applied over the entire roadway for main transportation routes identified in the Missoula Street Snow and Ice Control Plan. Only the area in advance of intersections shall be deiced for residential neighborhood streets and non-essential transportation routes.
6. The location and amount of deicer applied shall be tallied daily. Yearly volumes of deicer applied shall be provided to the Department annually by June 1 of each year.
7. Any application of a non-approved deicer or a spill of deicer in an amount greater than 100 gallons or 1,000 pounds (solid) shall be reported to the Department within 24 hours of application or release.
8. By January 1, 2001, the City of Missoula shall revise their Street Snow and Ice Control Plan to address the following:
    (a) liquid deicer application methods (use of ground-speed controllers);

(b) rates of application;
(c) use of deicers with respect to the effective temperature and freezing point of the product;
(d) use of snow plows prior to deicer application; and
(e) keeping records on the amounts applied.

(Ord. 3392, 2008; Ord. 3177, 2001; Ord. 3154, 2000; Ord. 2906 (part), 1994).

13.26.050 Pollution prevention permit.

A. A person who owns, operates or controls a facility at which any Regulated Substance is handled in an amount equal to or greater than four times its threshold quantity shall apply for a Pollution Prevention Permit from the Department by the later of (a) July 1, 1995, or (b) 60 days after the date on which the facility first handled a Regulated Substance in an amount equal to or greater than four times its threshold quantity. New or replacement facilities which will handle a Regulated Substance in an amount equal to or greater than four times its threshold quantity shall obtain a pollution prevention permit prior to obtaining a building permit, facility construction or operation. The Department may order revisions in the permit application submitted by the regulated facility to be completed within 30 days of receipt of an administrative order issued pursuant to 13.26.120.

B. In order to obtain a pollution prevention permit, an application for the permit accompanied by a pollution prevention plan shall be submitted to the department for approval. The department shall supply a form that can be used for the plan. If a facility is required by state or federal law to prepare a pollution prevention or release prevention plan, a copy of such plan, supplemented with such other information as required by this section, shall suffice to meet the pollution prevention plan requirement of this section. The pollution prevention plan shall contain the following:

1. A discussion of the risks posed by major water quality hazards at the facility and the steps taken to address each of those risks, including but not limited to:

a. The quantity and toxicity of any regulated substance handled in an amount equal to or greater than four times its threshold quantity,
b. Potential consequences of any release,
c. Location of facility with respect to a water body, groundwater and conduits to groundwater,
d. Personnel training,
e. Engineering controls,
f. Emergency response plans,
g. Preventative maintenance,
h. Process safety,
i. Management structure implemented to control the risks and hazards;

2. A description of:

a. emergency equipment available at the facility to respond to a release of a regulated substance,
b. written procedures describing how such equipment will be inspected and maintained, and
c. procedures to control, mitigate and/or remediate any release of regulated substance;

3. For each regulated substance that is handled in an amount equal to or greater than four times its threshold quantity at the facility, the pollution prevention plan shall describe:

a. The state (solid, liquid or gas), quantity and type of container in which each regulated substance is acquired by the facility,

b. Available alternatives, if any, by which the facility could:

i. Reduce the quantity of regulated substances handled by process changes, product substitution, reuse or recycling or treatment that does not constitute disposal, and

ii. Adopt handling practices or make site improvements to reduce the potential for contamination,

c. The manner and conditions under which each regulated substance is stored and transferred prior to use or disposition,

d. The manner and conditions under which each regulated substance is used at the facility,

e. The manner and process by which any waste regulated substances are treated, recycled or disposed,

f. The physical structures and/or operational procedures employed at the facility to meet the secondary containment requirements of this chapter,

g. The procedures to be employed to ensure that regulated substances over the threshold quantity do not release or otherwise cause contamination during transportation, transfer, use, storage and disposal;

4. Building plans and site development drawings showing compliance with the secondary containment requirements of this chapter. Such plans shall show the pathway of a potential release of a regulated substance, including but not limited to, information on the location of sewer manholes, injection wells, drainage ditches, nearby streams, rivers or irrigation ditches and the direction of surface drainage. Such plans shall provide confirmation that the secondary containment methods are compatible with the materials to be contained and that regulated substances are isolated from injection wells, floor drains, surface waters and any other surface water or groundwater injection point. The department may require the plans to be reviewed by a professional engineer if the secondary containment structures require substantial engineering design. The building or site plans must show the location of regulated substances in buildings or other designated site areas;

5. Identification of the individual(s) or staff position responsible for monitoring releases and threatened releases and a description of the steps to be taken in the event of a release, including but not limited to, reporting the release to the department, Missoula 9-1-1 dispatch, the city tire department, rural fire department, National Response Center and any other entity required by law. The plan should identify the skill and knowledge of the person or position responsible for actions in the event of a spill.

C. The pollution prevention permit shall be valid for a period of two years. The applicant must apply for permit renewal at least sixty days prior to permit expiration.

D. To obtain a pollution prevention permit from the department the applicant shall pay an application fee in an amount determined by the board.

E. The department shall issue a pollution prevention permit within thirty days of determining that the applicant has submitted a complete and accurate permit application and the pollution prevention plan complies with the requirements of this chapter. The department may require a facility inspection to ensure compliance with the requirements of this chapter before a permit is issued. (Ord. 2906 (part), 1994).

13.26.060 Facility closure permit.

A. After the effective date of the ordinance codified in this chapter, any person that is required to have a pollution prevention permit by this chapter must obtain a facility closure permit as required by this section. Applications for a closure permit shall be filed with the department no later than thirty days after:

1. the facility owned, operated or controlled by said person is permanently closed, or
2. the date on which the facility has been abandoned for one year. If a person is required by state or federal law to obtain a closure permit, a copy of such permit, supplemented with such other information as may be required by this section, shall suffice to meet the facility closure permit requirement of this section. All applications shall include:

a. A closure permit application form, supplied by the department;

b. A written record identifying the regulated substances and quantities at the facility on the date on which the facility permanently closed or was abandoned, and a description of the regulated substances removed from the facility before or at the- time the facility permanently closed or was abandoned;

c. If the facility has underground sumps, injection wells, underground tanks or any other structure that nay have contained or become contaminated with regulated substances, the application shall include a plan to collect samples to assess whether contaminants are present near the structure. The department shall assist the applicant in complying with this requirement;

d. Results of any soil or groundwater sample collected on site;

e. Such other information as the department may require which is relevant to the environmental condition of the facility.

B. If the closure permit application and required submittals are not complete, the department shall notify the applicant in writing of the deficiencies and the applicant shall have forty-five days to cure the deficiencies.

C. The department shall issue a closure permit within thirty days of finding that the closure permit application form is accurate and complete and all appropriate copies of sample analyses have been submitted to the department showing that

the facility has complied with this section. (Ord. 2906 (part), 1994).

13.26.070 Reporting of releases.

A. A person who owns, operates or controls a facility or a person responsible for a release must immediately report a release of a regulated substance to the Missoula 9-1-1 center by telephone in the following cases:

1. A release of petroleum in an amount greater than twenty-five gallons;

2. A release of a regulated substance other than petroleum in a quantity which exceeds the lesser of the threshold quantity of this chapter or the reportable quantity under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended.

B. Exemption from the requirement to report a release is not intended to relieve, in whole or in part, a person's responsibility to remediate or eliminate contamination caused by a release, as may be required by this chapter or any other state, federal or local law or regulation. (Ord. 2906 (part), 1994).

13.26.080 Prohibited activity. It is unlawful for any person to:

A. Cause contamination or to place, cause to be placed, or allow to remain in place any substance in a location where it is likely to cause contamination;

B. Violate any provision set forth in a permit for the facility issued pursuant to this chapter;

C. Violate any order issued pursuant to this chapter;

D. Violate any provision of this chapter. (Ord. 2906 (part), 1994).

13.26.090 Protection of water supply wells.

A. New water supply wells installed after the effective date of this Ordinance shall comply with the following:

1. New and replacement public and private water supply wells must be installed within design standards established by the Montana Administrative Rules, A.R.M. 17.38.101 through 17.38.513.

2. Wells of new community and non-community non-transient water systems may not be constructed:
a. Within 1000 feet of any hazardous waste management facility, Class II landfill, bulk petroleum storage facility, fuel pipeline, fueling facility not meeting the design standards of section 13.26.040 (C) or (D) of this Ordinance, chemical manufacturing facility, regulated substance tank not meeting the requirements of section 13.26.040 (G) of this Ordinance, and any site where a release to groundwater has been reported to a state or federal agency.
b. Within 250 feet of a Class III landfill, railroad track, the edge of pavement of the principal north-south or east-west hazardous substance transportation routes, or the subsurface discharge point of a public sewage disposal system.
c. Within 100 feet of a sewer lift station serving a publicly-owned or public sewage system, storm water injection well, or wastewater absorption system, as defined in the Missoula City- County Health Board, Regulation No. 1.
d. Within 50 feet of any sewer main or unlined irrigation ditch.

3. The siting requirements of subsection 13.26.090 (A)(2), may be waived by the Department if it is demonstrated to the Department through scientific and technical evidence that the proposed location of a new well is the only practical site available and the potential for contamination to the well or groundwater is reduced by such other measures as the Department may require.

4. The siting requirements of subsection 13.26.090 (A) (2) shall not be considered by any state or federal agency to provide an institutional control which would protect public health from contaminants at a site described in subsections 13.26.090 (A) (2) (a)-(d) in order to justify a decision not to clean up contamination at such sites or to not take action to limit releases of contaminants from such sites which may affect the quality of groundwater or surface water that may affect the quality of water obtained through community or non-community non-transient public water systems located within the distances described in subsections 13.26.090 (A) (2) (a)-(d).

B. After the effective date of this Ordinance, no person shall construct or operate a new:

1. Hazardous waste management facility, Class II landfill, bulk petroleum storage facility, chemical manufacturing facility, fuel pipeline, fueling facility not meeting the design standards of section 13.26.040 (C) or (D) of this Ordinance, or a regulated substance tank not meeting the requirements of section 13.26.040 (G) of this Ordinance within 1000 feet of a community or non-transient non- community public water supply well.

2. Class III landfill, railroad track, or the discharge point of a public sewage disposal system within 250 feet of a community or non-transient non-community public water supply well.

3. Publicly-owned or public sewage system sewer lift station or wastewater absorption system, as defined in the Missoula City-County Health Board Regulation No. 1 within 100 feet of a community or non-transient non-community public water supply well.

4. Sewer main or storm water injection well within 50 feet of a community or non-transient non- community public water supply well.

C. No person shall install a new private drinking water supply well if the primary structure located on the property is situated within 200 feet of a water main which is part of an existing public water supply system owned or operated by the City of Missoula, a county, or any consolidated city and county water or sewer district as defined in Title 7, chapter 13, parts 22 and 23, and the property abuts the right-of-way in which the main is located unless the owner of the existing public water supply system approves of the well.

D. U.S. Highway 93 and Interstate Highway 90 shall serve as the principal North-South and East- West hazardous substance transportation routes in the Missoula Valley. The City of Missoula shall provide adequate signing to indicate location of the routes to persons who transport hazardous substances through the valley. (Ord. 3661, 2020; Ord. 3177, 2001; Ord. 3154, 2000; Ord. 2906 (part), 1994).

13.26.100 Variances.

A. Purpose. Variances provide limited flexibility from strict compliance with specific ordinance requirements.

B. Applicability. When a person believes he or she meets the criteria for a variance set forth in subsection D below, such person may apply for board approval of a variance following the procedure in subsection F of this section.

C. Fees. The board shall establish a fair and reasonable variance application fee based on the cost to give notice of hearing and investigate the proposed variance. The application fee must be paid in full before a variance will be considered. Application fees are not refundable. The board may approve changes in fees at regularly scheduled board meetings.

D. Criteria for Variances. The board may approve of a variance to strict compliance with specific ordinance requirements only if it finds all of the following:

1. The applicant is subject to special circumstances which are:

a. Peculiar to the applicant's facility or situation, and
b. Not caused by the applicant's actions or inaction; and

2. Substantial undue hardship would result from requiring strict compliance with the requirement(s) from which the variance is sought by:

a. Creating an unreasonable financial burden on the applicant, and
b. Depriving the applicant of rights commonly enjoyed by other persons similarly situated under the terms of this chapter;

3. The variance must prevent aquifer and public water supply contamination and protect public health, safety and welfare to an extent similar to the requirement(s) from which the variance is sought.

E. Variance Restrictions.

1. The board may not approve a variance which may adversely affect the health, safety or welfare of any individual.

2. No variance granted shall be construed to relieve an applicant of its obligations under other provisions of this chapter, under other local, state and federal laws.

3. Variances are nontransferable and apply only to the applicant to whom they are granted for the period stipulated by the board.

F. Variance Approval Procedure.

1. A complete variance application shall be submitted to the department, including:

a. Applicant's name and address;
b. Specific provision(s) of the ordinance from which the variance is requested;
c. Legal description or address where alternative is requested;
d. Detailed and accurate description of the proposed alternative under consideration;
e. Written explanation addressing each criteria under Section 13.26.100(D)(1) through (3).
f. Other relevant information which the department may require which is obtainable by the applicant.

2. The department shall have seven days to determine if an application is complete.

3. If the department determines that the application is not complete, it shall notify the applicant of the deficiencies.

4. If the department determines that the application is complete, the board shall schedule a public hearing within forty-five days of the department's determination.

5. The department shall serve notice of the hearing to the applicant's last known address by personal service or certified mail at least fourteen days before the hearing is scheduled. The department shall publish notice of hearing in a newspaper of general circulation in Missoula County at least four days before the hearing. Notice shall include:

a. Name and address of applicant;
b. Time, location and nature of hearing; and
c. Address and phone number where interested persons may obtain information.

G. Order of Hearings.

1. Hearings shall proceed in the following order:

a. First, the board shall hear the staff report, if any, on the proposed variance.

b. Second, the applicant shall present relevant evidence to the board.

c. Third, the board shall hear any person in support of or in opposition to the proposed variance and shall accept any related letters, documents or materials.

H. Disposition of Hearing and Continuances.

1. The board shall deny, approve or approve with conditions an application for variance to specific requirements of this chapter.

2. The board shall inform the applicant of its decision in writing, along with reasons for approving, conditionally approving, or denying the variance, within fifteen days of its decision.

3. The board may continue a hearing for a period not to exceed forty-five days.

4. A hearing may be continued for longer than forty-five days only if circumstances require a longer period and both the board and the applicant agree to a longer period.

I. Appeals. Any person adversely affected by a variance decision of the board may initiate judicial review. (Ord. 2906 (part), 1994).

13.26.110 Inspections.

A. The department is authorized to enter and inspect at reasonable hours (or at any time on evidence of a release), upon presentation of credentials with or without prior notice, all facilities within the aquifer protection area which it reasonably believes may handle regulated substances, in order to determine that the provisions of this chapter are being followed.

B. If a person with authority over a facility will not permit an inspection, the city attorney's office may apply to the city municipal court for a search warrant, based on probable cause to issue a warrant to inspect, survey or examine the facility and the premises on which it is located for potential violations of this chapter or in the interest of public health, safety and general welfare.

C. If a facility appears vacant or abandoned, and the property owner cannot be readily contacted to obtain consent for an inspection, in the interest of public health, safety and general welfare an agent of the city may enter any open or unsecured portion of the facility to conduct an inspection.

D. Agents of the city or department shall be provided with official identification and will show their identification when making an inspection.

E. Law enforcement officers shall assist in making inspections when the department requests their assistance, when necessary to provide for safe access and entry to the facility and at such time that law enforcement assistance can be reasonably scheduled or when a clear hazard to public health, safety or welfare exists. (Ord. 2906 (part), 1994) .

13.26.120 Enforcement.

A. The Department shall have the power and authority to administer and enforce the provisions of this Ordinance.

B. Whenever the Department has knowledge or evidence that a violation of this Ordinance has occurred, the Department may issue a Notice of Violation and Order to Take Corrective Action to be served personally or by certified mail on the alleged violator or its agent. This Notice of Violation and Order to Take Corrective Action shall specify:

1. the provision of this Ordinance or permit alleged to be violated;
2. the facts alleged to constitute the violation; and
3. any penalties sought to be assessed pursuant to section 13.26.130.

This notice may also include an order for corrective action, which shall specify as applicable:

1. The specific nature of corrective action that the Department requires, which may include without limitation:

a. investigation, sampling and analysis to confirm a release or contamination;

b. containment, removal and remedial action to abate and reduce contamination or the threat of contamination;

c. the submission of a corrective action plan and corrective action progress reports or any other information deemed appropriate to protect human health and the environment; and

2. The time within which the corrective action is to be implemented. This order is final unless, five working days after the order is received, the offender submits a written request for an administrative review as provided for in Section (C), or within 10 working days of receipt of the Department's Decision concluding the administrative review, the offender submits a written request for a hearing before the Board, as provided for in Section (D). Upon good cause shown, the time frame for requesting a departmental administrative review or a Board review may be extended if made within the time specified for compliance in the Notice of Violation and Order To Take Corrective Action. In no case, however, shall a request for administrative review or Board Hearing be granted if requested after the compliance date required in the Department's Order to Take Corrective Action.

C. Administrative review. Any person subject to a Department Notice of Violation and Order to Take Corrective Action may request an administrative review by the Health Officer, or in the case of Health Officer absence, his or her designee (Hearing Officer). The Hearing Officer shall schedule an administrative review hearing within ten days of receipt of the request, but in no case later than the date of compliance required in the Department's Order to Take Corrective Action. The Hearing officer shall provide written or verbal notice of the date, time and location of the scheduled hearing to the person requesting the hearing. At the administrative hearing the Hearing Officer shall first hear the staff report, if any, on the Notice of Violation and Order To Take Corrective Action. Second, the person who requested the hearing may present relevant information to the hearing officer. Third, the Hearing Officer may hear any person who has relevant information regarding the Notice of Violation and Order to Take Corrective Action. The Hearing Officer may continue its administrative review for a reasonable time period following the administrative review hearing in order to obtain information necessary to make a decision, but in no case shall the administrative review be continued beyond the date of compliance required in the Department's Order to Take Corrective Action. The Hearing Officer shall affirm, modify or revoke the Notice of Violation and Order to Take Corrective Action, in writing, following completion of the administrative review. A copy of this decision shall be sent by certified mail or delivered personally to the person who requested the administrative review.

D. Board Hearings. Persons subject to a Department Notice of Violation and Order to Take Corrective Action may submit a written request for a hearing before the Board following conclusion of an Administrative Review, within ten days of receipt of the Hearing Officers Decision concluding the administrative review, but in case later than the date of compliance required in the Departments Order to Take Corrective Action. Upon good cause shown, the time frame for requesting a hearing may be extended if made within the time specified for compliance in the Notice of Violation ad Order to Take Corrective Action. The Board shall schedule a hearing within 45 days of receipt of this request, but in no case later than the date of compliance required in the Departments Notice of Violation and Order to Take Corrective Action. Notice of hearing shall be given by the Department to persons requesting a hearing at the address stated on the request for hearing or at the last known address, by personal service or by mail, not less than seven days before the hearing is scheduled. Notice is complete on the date of delivery or mailing. The Department shall publish a notice of hearing in a

newspaper of general circulation in Missoula County at least four days prior to the hearing. At the hearing, The Board shall first hear the staff report, if any, on the Notice of Violation and Order To Take Corrective Action. Second, the person who requested the hearing may present relevant information to the Board. Third, the Board may hear any person who has relevant information regarding the Notice of Violation ad Order to Take Corrective Action. The hearing may be conducted informally and need not follow rules of evidence or procedure applicable to judicial hearings. The Board may impose rules for the orderly conduct of the hearing. The Board shall affirm, modify, or revoke the Department's Notice of Violation and Order To Take Corrective Action, in writing, following completion of its review. A copy of this decision shall be sent by certified mail or delivered personally to the person who requested the hearing. The Board shall maintain a written record of the hearing and document its final decision in the record.

E. If the person who owns, operates or controls the facility fails to comply with investigation or sampling required in an order issued pursuant to this section, the Department may conduct said investigation or sampling and the person so ordered shall be responsible for paying for Department staff time, analytical costs, and any incidental costs associated with the investigation and/or sampling. Failure of said person to pay the Department staff time or analytical costs shall be a violation of this Ordinance.

F. Instead of issuing the order provided for in subsection (B), the Department may either:

1. require the alleged violator to appear before the Board for a hearing at a time and place specified in the notice and answer the charges complained of; or

2. initiate any other action authorized by this Ordinance.

G. In connection with a Board hearing held under this Chapter, the Board may and on application by a person shall, compel the attendance of witnesses and the production of evidence on behalf of the persons.

H. A person aggrieved by an order of the Board may within fourteen (14) days apply for rehearing upon only one or more of the following grounds:

1. the Board acted without or in excess of its powers;
2. the order was procured by fraud;
3. the order is contrary to the evidence;
4. the applicant has discovered new evidence, material to him/her, which he/she could not with reasonable diligence have discovered and produced at the hearing;
5. competent evidence was excluded to the prejudice of the applicant.

I. Within thirty (30) calendar days after the decision, or in the case of rehearing within (30) calendar days of the rehearing, a party aggrieved thereby may appeal to the municipal court.

J. The municipal court shall hear and decide the cause upon the record of the Board. The court shall determine whether or not the Board properly exercised its authority, whether or not the findings of the Board were supported by substantial competent evidence, and whether or not the Board made errors of law prejudicial to the appellant.

K. Either the Board or the person aggrieved may appeal from the decision of the municipal court to the Supreme Court. (Ord. 3154, 2000; Ord. 2906 (part), 1994).

13.26.130 Criminal penalties.

A. Any person who violates any of the provisions of this chapter, or any order made pursuant to this chapter, shall be guilty of a misdemeanor and subject, upon conviction thereof, to a fine not to exceed five hundred dollars or by imprisonment in the county jail not to exceed sixty days, or by both such fine and imprisonment. Each day a violation exists shall constitute a separate offense.

B. Action under this section shall not be a bar to enforcement of this chapter or orders made pursuant thereto, by injunction or other appropriate remedy.. The board or the department may institute and maintain any and all enforcement proceedings.

C. All fines collected shall be deposited in the city general fund.

D. Pollution prevention efforts made by the violator, the Economic benefit of not complying with any section of this chapter and the gravity of the offense shall be considered in determining penalties of violations of this chapter.

E. The city may not enter into a vendor or construction contract, grant or loan with any person who has been convicted of an offense under this chapter. This prohibition shall:

1. Continue for a period of one year following the date of conviction, and more than one year if said person does not correct the conditions giving rise to the conviction; and

2. Affect each facility owned or operated by the person.

F. Notwithstanding any other provision of law, the municipal court may also order that the offender take action to enhance public health or the environment by restoring or otherwise improving the quality of the Missoula Valley aquifer in a manner consistent with public health, safety and general welfare and these provisions of this chapter. (Ord. 2906 (part), 1994).

13.26.140 Injunctive relief. If a person continues to operate a facility or engage in an activity in violation of the provisions of this chapter, then the board or the department may file an action for injunctive relief in the district court or in the city municipal court if the city municipal court has jurisdiction and authority to do so. (Ord. 2906 (part), 1994).

13.26.150 Severability. If any section, subsection, sentence, clause, phrase or work of this chapter is for any reason held to be invalid or unconstitutional, such decision shall not affect the validity of the remaining portions of this chapter. The council declares that it would have passed the chapter and each section, subsection, sentence, clause, phrase and wordsthereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, phrases or words have been declared invalid or unconstitutional, and if for any reason this chapter should be declared invalid or unconstitutional, then the remaining chapter provisions will be in full force and effect. (Ord. 2906 (part), 1994).

Figure D-2: 2017 Institutional Controls Agreement

13

WHEN RECORDED RETURN TO:
Natural Resource Damage Program
P.O. Box 201425
Helena, MT 59620-1425
(406) 444-0205

201716024 B: 984 P: 482 Pages:13 Fee:$91.00
08/09/2017 01:14:31 PM Contracts & Agreements
Tyler R. Gernant, Missoula County Clerk & Recorder

INSTITUTIONAL CONTROLS AGREEMENT

The Montana Department of Environmental Quality (DEQ), the Montana Department of Justice (DOJ) on behalf of its Natural Resource Damage Program (NRDP), and the Montana Department of Fish, Wildlife and Parks (FWP) enter into this agreement relating to the property owned by the State of Montana in the former Milltown Reservoir area in Missoula County, Montana, more particularly described as follows:

TRACTS OF LAND LOCATED IN NE¼SE¼ AND SE¼NE¼ OF SECTION 20, THE W½ OF SECTION 21, THE N½ OF SECTION 28, THE NW¼ AND THE S½ OF SECTION 27, AND THE NE¼NW¼ OF SECTION 34, ALL IN TOWNSHIP 13 NORTH, RANGE 18 WEST, P.M.M., MISSOULA COUNTY, MONTANA, BEING MORE PARTICULARY DESCRIBED AS TRACTS 1, 2, 3 AND 4 OF CERTIFICATE OF SURVEY NO. 5753.

LESS AND EXCEPTING A TRACT OF LAND BEING A PORTION OF TRACT 1 OF CERTIFICATE OF SURVEY NO. 5753 LOCATED IN THE SE¼NE¼ AND NE¼SE¼ OF SECTION 20, TOWNSHIP 13 NORTH, RANGE 18 WEST, P.M.M., MISSOULA COUNTY, MONTANA, BEING MORE PARTICULARLY DESCRIBED AS TRACT 1 OF CERTIFICATE OF SURVEY NO. 6141.

RECITALS

Whereas, the Milltown Reservoir Sediments Operable Unit of the Milltown Reservoir Sediments/ Clark Fork River National Priorities List Site has been the subject of an environmental cleanup under the federal Comprehensive Environmental Response, Compensation, and Liability Act, 42 U. S. C. § 9601 et seq., and implemented under the terms of a Consent Decree involving the United States, the State of Montana, the Confederated Salish and Kootenai Tribes, the Atlantic Richfield Company, and Northwestern Corporation entered by the U.S. District Court for the District of Montana in Case No. CV-89-039-BU-SEH on February 8, 2006.

Whereas, under the terms of the Consent Decree, the State of Montana acquired the real property through the United States that was previously owned by Northwestern in the area of the former Milltown Reservoir, as described above.

Whereas, DEQ, DOJ, and FWP have agreed that jurisdiction, management, and responsibility over the property should be transferred to FWP, so that the property can be appropriately managed as a State Park. The formal transfer of authority over the property from DOJ/NRDP to FWP will occur through an Executive Order of the Governor.

Whereas, the remedial action implemented for the Milltown Reservoir Sediments Operable Unit left hazardous substances consisting of mine wastes with elevated metals and arsenic in certain locations on the property.

Whereas, four separate waste repositories are located on the property (Exhibit A1), consisting of the Upland Disposal Site Repository (Exhibit A2), which contains sediments contaminated with mine wastes, the Staging Area Repository (Exhibit A3), which contains sediments contaminated with mine wastes, the Tunnel Pond Repository (Exhibit A4), which contains sediments contaminated with mine wastes and debris from the demolition of the dam, and its associated buttress, and the Right Bank Repository (Exhibit A5), which contains debris from the demolition of the dam. In addition, the I-90 Buttress (Exhibit A6) serves as a stability structure for the adjoining interstate. The specific legal locations of each of these repositories is depicted on the Exhibits hereto.

Whereas, the Property contains areas where residual contamination is above levels which would allow for unrestricted residential use.

Whereas, this agreement imposes certain use restrictions and land management practices on the property to ensure that the property is properly managed and maintained as appropriate to ensure protection of human health and the environment.

Whereas, to ensure that the restrictions are maintained into the future as needed, the specific restrictions applicable to specific areas are identified in detail below, so that any future landowners and others will have notice of the existence of the hazardous substances on the property and of the use restrictions necessary to adequately protect and maintain waste repositories and appropriately limit exposure to residual contamination.

AGREEMENT

Now, therefore, DEQ, DOJ, and FWP, for themselves and for any successor agencies of the State of Montana, agree as follows:

A. These three agencies, and in particular FWP, as the agency with jurisdiction, management, and responsibility over the property, shall observe and enforce the following land use restrictions and land management practices:

1. Repositories:
   a. For the four designated repository locations and the buttress location identified on Exhibits A1, A2, A3, A4, A5, and A6 hereto, the following shall be prohibited:

      (i) any excavation, grading, recontouring, trenching, drilling, digging or other activity which would disturb or alter the soil cover on the repository or buttress in a manner that would lessen or interfere with the effectiveness of the cover;

      (ii) any alteration, rerouting, or re-grading of drainage features or run-on/run-off controls or any construction, grading, or other activity that would interfere with the proper function of drainage features or run-on/run-off controls associated with any of the repositories;

      (iii) any alteration, re-grading, construction or other activity that would interfere with the proper function of the Tunnel Pond repository buttress or the I-90 Buttress, as shown on Exhibits A1, A2, A3, A4, A5, and A6 hereto;

      (iv) any activity that would obstruct, alter, or interfere with continued use or maintenance of any monitoring well associated with any of the repositories or buttresses;

      (v) residential use.

   b. Permanent signs which identify and depict the specific repository locations will be placed on the property to notify any party that might be involved in construction, maintenance, or other activities on the property of the presence of the repositories and the need to avoid activities which would affect the integrity of the repository as described herein.

2. Residual contamination: For any portions of the property which are conveyed by the State to another party, the conveyance documents shall impose use restrictions prohibiting any residential use of the property conveyed, unless the acquiring party establishes pursuant to § 75-10-727, MCA, with appropriate sampling if necessary, that there is not an unacceptable risk posed to public health, safety, and welfare and the environment by allowing unrestricted residential use of the portion of the property. The restrictions include new well installation used as a drinking water supply for human consumption for which the pertinent monitoring results show an exceedance of the ground water standard for arsenic.

The restrictions and requirements identified and agreed to herein constitute a binding institutional control in accordance with Section 727 of the Montana Comprehensive Environmental Cleanup and Responsibility Act, § 75-10-727, MCA (2015). That statute provides

that an owner of real property may, with the approval of DEQ, restrict the use of the owner's real property to mitigate the risk posed to the public health, safety, and welfare and the environment by imposing on the real property an appropriate institutional control. Such an institutional control may be imposed without conveying the property or creating a dominant and servient estate, and it runs with the land and is binding on all successors in interest to the real property until the institutional control is removed, in accordance with 75-10-727(4). The application of these institutional controls to the property as provided herein has been approved by DEQ, as required in that statute, and as evidenced by DEQ's signature on this document.

Each of the agencies that is a party hereto and each of their successors and assigns shall notify the other parties/successors hereto, as well as the EPA Region 8 Montana Office, as soon as practicable of that party's discovering or receiving notice of any violation or potential violation of these institutional controls.

Each of the agencies that is a party hereto and each of their successors and assigns, as well as the EPA, shall be entitled to enforce these requirements and restrictions as an intended beneficiary thereof.

This Agreement and any requirement or restriction herein may be modified only by written agreement of the parties hereto, or their respective successors and assigns. Any modification of this agreement is effective only if it is recorded in the appropriate land records.

In witness whereof, the undersigned execute this Agreement on the dates set out below.

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

By Tom Livers Date: 5/22/17
Tom Livers, Director

STATE OF MONTANA)
)ss
COUNTY OF LEWIS & CLARK)

The foregoing instrument was acknowledged before me on May 22, 2017, by Tom Livers, Director of the Department of Environmental Quality.

KARI S. SMITH
NOTARY PUBLIC for the
State of Montana
Residing at Helena, Montana
My Commission Expires
June 29, 2018

Kari S Smith
Notary Public in and for the
State of Montana
Residing at Helena MT
My Commission Expires June 29, 2018
Printed Name Kari S. Smith

MONTANA DEPARTMENT OF JUSTICE
NATURAL RESOURCE DAMAGE PROGRAM

By _____ Date: June 9 2017
Harley R. Harris, Program Manager

STATE OF MONTANA)
)ss
COUNTY OF LEWIS & CLARK)

The foregoing instrument was acknowledged before me on June 9, 2017, by Harley R. Harris, Program Manager of the Department of Justice, Natural Resource Damage Program.

JULIE JAMES NOTARIAL SEAL STATE OF MONTANA
JULIE JAMES
NOTARY PUBLIC for the
State of Montana
Residing at Helena, Montana
My Commission Expires
August 31, 2017

_____
Notary Public in and for the
State of Montana
Residing at _____
My Commission Expires _____
Printed Name _____

MONTANA DEPARTMENT OF FISH, WILDLIFE, & PARKS

By: _____ Date: June 29, 2017
Martha Williams, Director

STATE OF MONTANA)
)ss
COUNTY OF LEWIS & CLARK)

The foregoing instrument was acknowledged before me on 29 June, 2017, by Martha Williams, Director of the Department of Fish, Wildlife & Parks.

JENNIFER HERSOM
NOTARY PUBLIC for the
State of Montana
Residing at Helena, Montana
My Commission Expires
March 26, 2019

Jennifer Hersom
Notary Public in and for the
State of Montana
Residing at _____
My Commission Expires _____
Printed Name _____

"EXHIBIT A1"
REPOSITORY INDEX

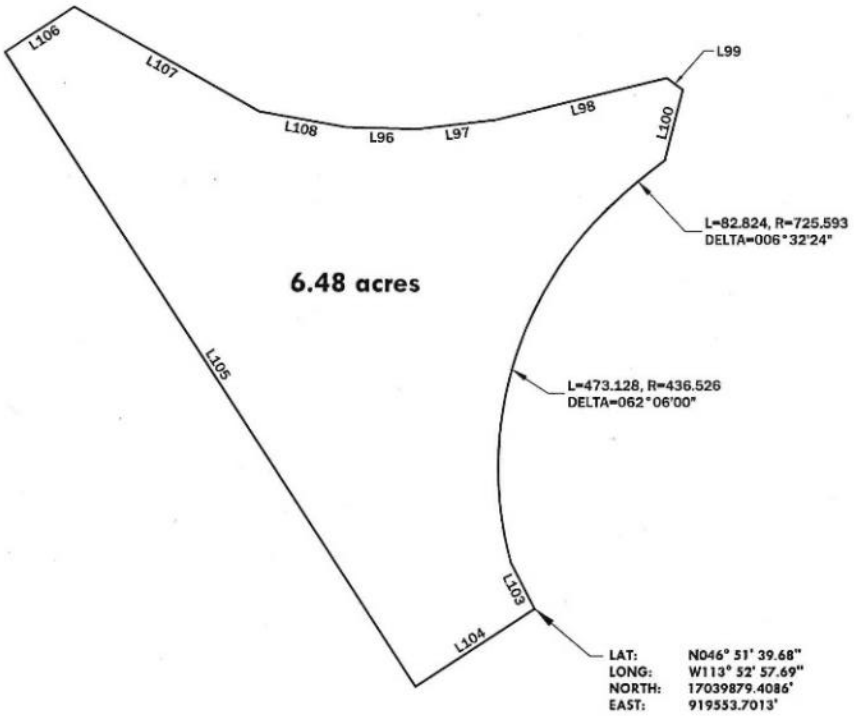
PLAN VIEW

200' 100' 0'

The Basis of Bearing for this exhibit is UTM NAD83 Zone 12 North.
Distances as shown are grid distances in International feet.

"EXHIBIT A2"
UPLAND DISPOSAL SITE REPOSITORY

Located in a portion of Section 28, Township 31 North Range18 West,
Principal Meridian, Montana,
Missoula County, Montana



Line Table		
Line #	Direction	Length
L96	S88° 40' 04"E	86.023
L97	N83° 23' 43"E	95.635
L98	N76° 09' 33"E	213.190
L99	S53° 59' 01"E	24.623
L100	S14° 16' 36"W	87.861
L103	S27° 27' 35"E	63.853
L104	S56° 51' 40"W	172.641
L105	N33° 08' 20"W	917.697
L106	N56° 51' 40"E	99.764
L107	S60° 39' 16"E	258.123
L108	S79° 55' 51"E	108.674

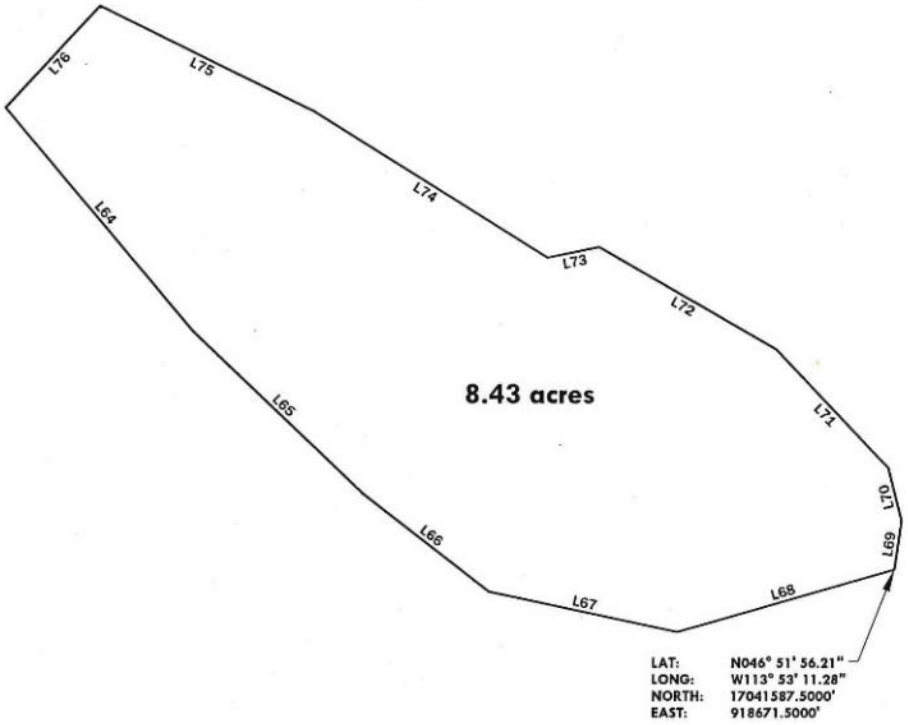
PLAN VIEW

200' 100' 0'

The Basis of Bearing for this exhibit is UTM NAD83 Zone 12 North.
Distances as shown are grid distances in International feet.

"EXHIBIT A3"
STAGING AREA REPOSITORY

Located in a portion of Section 21, Township 31 North Range 18 West,
Principal Meridian, Montana,
Missoula County, Montana



Line Table		
Line #	Direction	Length
L64	S40° 20' 46"E	352.949
L65	S46° 33' 07"E	287.191
L66	S52° 14' 31"E	193.523
L67	S78° 02' 31"E	234.080
L68	N73° 54' 40"E	274.241
L69	N08° 11' 53"E	59.609
L70	N14° 27' 24"W	66.093
L71	N43° 34' 04"W	198.052
L72	N60° 14' 27"W	248.814
L73	S78° 20' 27"W	64.327
L74	N58° 09' 27"W	335.491
L75	N64° 03' 19"W	289.141
L76	S42° 49' 31"W	167.705

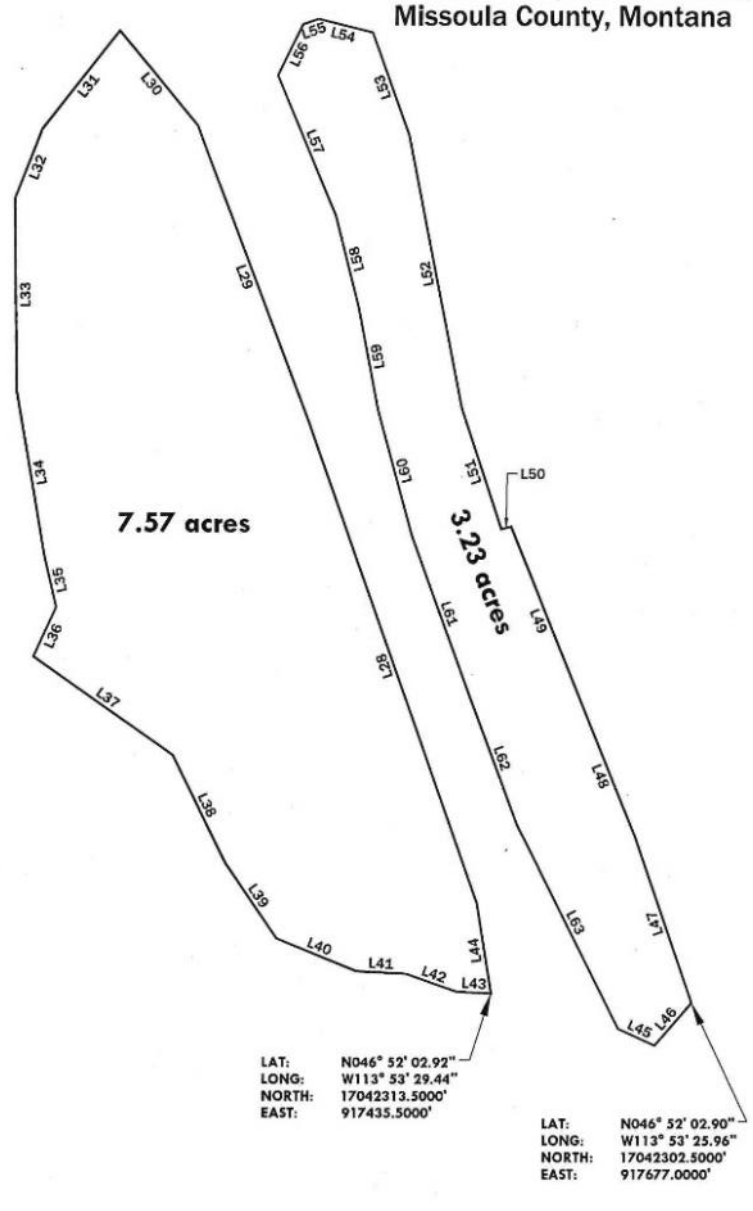
PLAN VIEW

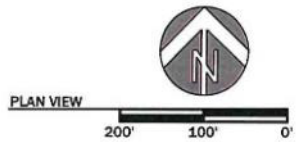
200' 100' 0'

The Basis of Bearing for this exhibit is UTM NAD83 Zone 12 North.
Distances as shown are grid distances in International feet.

"EXHIBIT A4"
TUNNEL POND REPOSITORY

Located in a portion of Sections 20 & 21, Township 31 North Range 18 West,
Principal Meridian, Montana,
Missoula County, Montana



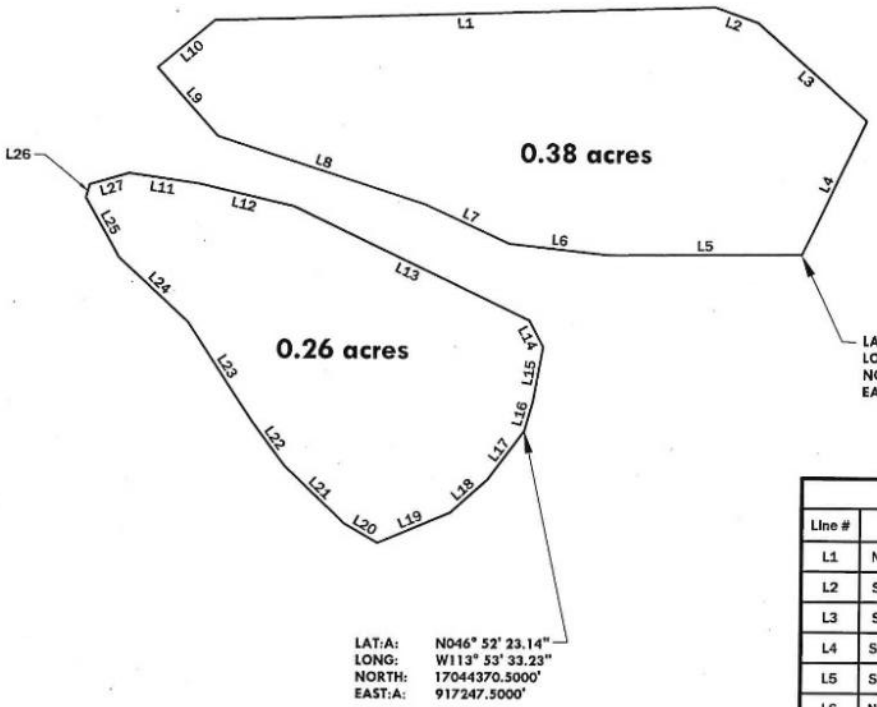


The Basis of Bearing for this exhibit is UTM NAD83 Zone 12 North.
Distances as shown are grid distances in International feet.

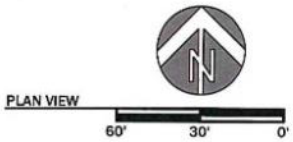
Line Table		
Line #	Direction	Length
L28	N19° 36' 13"W	612.502
L29	N20° 54' 06"W	378.401
L30	N39° 46' 51"W	147.691
L31	S38° 03' 37"W	149.232
L32	S21° 16' 01"W	89.602
L33	S00° 52' 25"E	229.527
L34	S09° 58' 30"E	202.054
L35	S13° 08' 02"E	61.612
L36	S24° 24' 28"W	65.339
L37	S54° 54' 59"E	205.300
L38	S26° 23' 19"E	145.122
L39	S34° 25' 35"E	107.898
L40	S67° 53' 26"E	103.619
L41	S87° 06' 49"E	59.576
L42	S70° 43' 51"E	65.150
L43	S87° 12' 26"E	41.049
L44	N09° 14' 46"W	108.915
L45	S65° 33' 22"E	48.332
L46	N40° 47' 09"E	67.357
L47	N19° 12' 46"W	209.678
L48	N22° 11' 02"W	166.851
L49	N22° 05' 43"W	235.279
L50	S75° 57' 50"W	12.369
L51	N18° 26' 06"W	151.789
L52	N11° 19' 36"W	333.496
L53	N19° 57' 52"W	130.332
L54	N76° 10' 17"W	66.940
L55	S70° 38' 28"W	19.609
L56	S26° 11' 17"W	67.978
L57	S22° 49' 34"E	181.732
L58	S14° 28' 13"E	112.055
L59	S10° 59' 50"E	125.810
L60	S15° 22' 03"E	156.599
L61	S20° 11' 02"E	207.226
L62	S20° 37' 05"E	161.868
L63	S26° 50' 46"E	273.474

"EXHIBIT A5"
RIGHT BANK REPOSITORY

Located in a portion of Section 20, Township 31 North Range 18 West,
Principal Meridian, Montana,
Missoula County, Montana



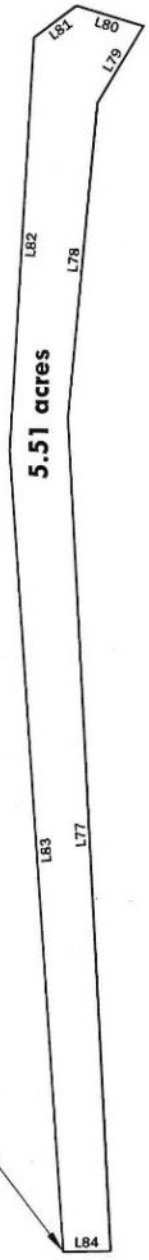
Line Table		
Line #	Direction	Length
L1	N88° 14' 59"E	180.084
L2	S70° 27' 48"E	16.447
L3	S48° 27' 24"E	52.775
L4	S25° 36' 08"W	53.226
L5	S89° 35' 16"W	69.502
L6	N83° 39' 35"W	36.222
L7	N65° 20' 39"W	33.560
L8	N72° 08' 38"W	78.270
L9	N41° 55' 21"W	32.928
L10	N50° 19' 56"E	26.632
L11	S81° 56' 16"E	25.335
L12	S76° 53' 11"E	35.131
L13	S64° 29' 19"E	94.177
L14	S27° 45' 31"E	10.735
L15	S10° 10' 32"W	19.812
L16	S15° 56' 43"W	10.920
L17	S36° 36' 25"W	21.800
L18	S48° 21' 59"W	18.062
L19	S67° 04' 04"W	28.231
L20	N59° 44' 37"W	13.892
L21	N46° 21' 50"W	29.707
L22	N36° 52' 12"W	20.000
L23	N33° 11' 06"W	42.296
L24	N47° 22' 50"W	33.985
L25	N29° 29' 14"W	24.602
L26	N15° 57' 26"E	4.894
L27	N73° 59' 21"E	14.699



The Basis of Bearing for this exhibit is UTM NAD83 Zone 12 North.
Distances as shown are grid distances in International feet.

"EXHIBIT A6"
I90 BUTTRESS

Located in a portion of Section 21, Township 31 North Range 18 West,
Principal Meridian, Montana,
Missoula County, Montana



LAT: N046° 52' 03.69"
LONG: W113° 52' 48.12"
NORTH: 17042286.0000'
EAST:A: 920307.5000'

PLAN VIEW

300' 150' 0'

The Basis of Bearing for this exhibit is UTM NAD83 Zone 12 North.
Distances as shown are grid distances in international feet.

Line Table		
Line #	Direction	Length
L77	N55° 14' 37"W	1520.948
L78	N46° 53' 59"W	575.901
L79	N21° 16' 40"W	162.583
L80	S54° 52' 46"W	127.760
L81	S01° 10' 52"W	97.021
L82	S48° 54' 00"E	753.753
L83	S56° 09' 48"E	1462.749
L84	N37° 32' 33"E	86.300

Figure D-3: Powell County Superfund Overlay District

POWELL COUNTY

ZONING & DEVELOPMENT REGULATIONS

Prepared by:

COUNTY OF POWELL

DEER LODGE, MONT.

Powell County Planning Department
409 Missouri Ave., Suite 101
Deer Lodge, MT 59722
chamming@powellcountymt.gov
406.846.9729

Truly the last best place

TABLE OF CONTENTS

Adopted: 2-20-96
Amended: 11-28-00
Amended: 2-15-05
Revised: 10-16-06
Amended: 2-26-07
Amended: 1-07-09
Amended: 4-27-11

Copies of supporting resolutions can be obtained at the Planning Department.

i. owned by a property owners' association, or

ii. Dedicated to public use, if acceptable to the County Commissioners, or

iii. A Conservation Easement (CE) to be entered into in accordance with 76-6-101 through 76-6-211, MCA. For the purposes of a PUD, the CE must be approved by the Planning Board, or

iv. A combination of i, ii and iii, above, if approved by the County Commissioners.

b. If a CE is to be entered into, within 30 working days of receipt of a draft CE with a letter of support from the qualified organization that will hold the CE, the Planning Board shall approve or disapprove the CE. The reasons for approval or disapproval must be stated in writing and made available to the applicant. If the draft CE and supporting letter are not submitted with the application for the PUD, the CUP and, if appropriate, the subdivision Preliminary Plat may be approved with the condition that the final CE be submitted and approved, and executed and filed with the Powell County Clerk & Recorder prior to the filing of the subdivision Final Plat.

VI-E. Ground Water Recharge Overlay District – This district is responsive to the Clark Fork Basin Water Management Plan and is depicted by maps on file in the Planning Department.

VI-E-1. Performance standards

(Reserved)

VI-E-2. Use restrictions - Residential densities in this Overlay District shall be no more than one residence per 20 acres.

VI-F. Superfund Overlay District - This District covers the area contaminated by mining and smelting wastes from operations further upstream in the Butte and Anaconda areas. The contaminated areas lie along the Clark Fork River and the Valiton Ditch, which lies east of the Clark Fork River. Maps of the Superfund Overlay District are available at the Powell County Planning Department.

VI-F-1. Purpose - The purpose of establishing this Overlay District is to implement the Growth Policy by protecting public health and safety while allowing appropriate development activities in the Powell County portion of the Clarks Fork Superfund Site. This purpose will be accomplished by:

a. Assuring that future land use in the Superfund Overlay District is compatible with the presence of potential contaminants and the various remedial actions required to isolate those potential contaminants from the environment.

b. Requiring that any development in this Overlay District be preceded by soil testing and, if approved, employ construction practices that are consistent with the permanent protection of the environment and public health.

The requirements of this overlay district also serve as institutional controls in the context of the federal Superfund law. The federal government recognizes the use of institutional controls as appropriate and necessary in Superfund areas. The preamble to the Revised National Contingency Plan (53 CFR 51394 et seq.) states:

> "EPA expects to use institutional controls such as water use and deed restrictions to supplement engineering controls as appropriate for short and long-term management to prevent or limit exposure to hazardous substances, pollutants, or contaminants. Institutional controls may be used during the conduct of the RI/FS (Remedial Action/Feasibility Study) and Implementation of the Remedial Action and, where necessary as a component of the completed remedy. (at 300.430(a)(1)(iii)(D))"

VI-F-2. Development on Sites Containing Soil Caps or Other Barriers or Structures Required by Superfund Laws

a. (Reserved)

VI-F-3. Development On Sites Where No Remedial Structures Have Been Installed

a. Where no remedial structures exist, the total arsenic content of any soil to be excavated or graded shall be determined, and that information shall be submitted with the application for a Conditional Use Permit (CUP). All testing shall follow the protocols of the U.S. Environmental Protection Agency.

b. If soil testing shows levels of arsenic exceeding the permissible levels for the proposed use that are established in section VI-F-4., the developer shall present a plan for the reduction of those levels. The remedies proposed may include, but are not limited to, tilling the soil, mineral or chemical treatment of the soil, a clean fill cap, an impermeable barrier, or others. Before approving a proposed remedy, Powell County shall consider its practicability and costs as well as its long term effectiveness in isolating contaminated or potentially contaminated soil or materials from the environment.

c. Dust suppression measures may be required whenever a new arsenic reduction remedy is constructed. The administrator may require air quality monitoring, at the developer's expense, to ensure the effectiveness of the dust suppression measures.

d. Arsenic reduction remedies shall be sited and designed to minimize erosion caused by surface runoff. Erosion control techniques may include any effective combination of paving the surface, diverting runoff, and planting.

e. Only clean fill shall be imported into the Superfund Overlay Zone or any site within the Superfund Overlay Zone. The import of more than one cubic yard or fill requires explicit approval as part of a Conditional Use Permit, and such a permit shall be approved only where the specific sources of the fill is identified and approved as

providing "clean fill". Imported fill is subject to random testing to check compliance with this performance standard.

VI-F-4. Conditional Use Permit Required -- All use changes and development in the Superfund Overlay Zone are subject to the securing of a Conditional Use Permit. All applications for a CUP or variance in the Superfund Overlay Zone shall include the following additional information beyond that which is required for any CUP or variance.

a. A detailed grading plan showing the depth of all proposed excavations and the volume of soil to be moved.

b. Where no remedial structures exist on a site, the application materials shall include arsenic tests, as required by Powell County, and detailed plans (if necessary) for achieving compliance with the maximum arsenic level allowed for the proposed use. The permissible arsenic levels are as follows:

Use	*Permissible Arsenic Level*
residential areas	250 ppm
commercial/industrial areas	500 ppm
agricultural/recreational areas	1,000 ppm

c. Powell County may contract for the professional assistance needed to ensure the adequacy of applications materials and compliance with the performance standards adopted in this chapter. The actual cost of such assistance shall be the responsibility of the developer and no certificate of compliance shall be issued where these costs have not been reimbursed to the county.

VI-F-5. Wells - A development certificate shall be required to drill or dig a well in the Superfund Overlay Zone. Prior to the issuance of a completion certificate of any well in this overlay district, it shall be tested for coliform bacteria, arsenic, barium, cadmium, chromium, copper, lead, mercury and nitrate and the results of the tests submitted to Powell County. No certificate of compliance shall be issued for any well in which the water exceeds state water quality standards for the proposed use.

VI-F-6. Notice to Purchasers - Before any parcel or any interest in any parcel, in the Superfund Overlay Zone is conveyed, the following statement shall be placed on the deed, contract for sale, or other instrument of conveyance: "This parcel is within a Superfund site. A permit must be obtained before any development or construction covered by these regulations is initiated."

CHAPTER VII – BUFFERING AND SCREENING REQUIREMENTS

VII-A. Purpose – Landscaping requirements are an essential element in mitigating potential land use conflicts. The purpose of this chapter is to assure that the landscaped buffers required by these regulations effectively accomplish that goal. Screening requirements are added to the buffer requirements in some development districts.

VII-B. Minimum buffer requirements – The width of required buffers shall vary with the nature of the uses being separated, the height of the buildings being separated and the

APPENDIX E – PRESS NOTICES

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Missoulian & The Messenger
Wednesday Classified

208 GENERAL HELP | 208 GENERAL HELP

Missoulian

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PT positions, nights.

The Missoulian is accepting applications for newspaper inserters at our production facility. There are full and part-time positions available for evening shifts. The schedule varies and may include weekends and holidays. Duties include preparing newspapers for delivery by carrier and by mail, inserting supplements, and machine operation. Many positons qualify for our full benefits package, including health, dental, and vision coverage, 401(k) retirement plan.
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208 GENERAL HELP | 208 GENERAL HELP

Missoulian

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209 PROFESSIONAL POSITIONS | 209 PROFESSIONAL POSITIONS

Information Systems Analyst

National conservation organization seeks a regular, full-time Information Systems Analyst. Position is responsible for overseeing the organization's reinvention of its information systems (IS) and data flow, with a focus on high data integrity and user efficiency. The Information Systems Analyst will initially report to the President & CEO, through IS design, structure, and implementation. Duties include: organize and facilitate an internal cross-functional team to formalize IS policies, standards, practices, and measures; organize and facilitate an internal team of cross-functional users of database applications; manage organizational adoption of new CRM and grants/project management systems, working with an internal team and existing contracted consultant; organize and facilitate organizational teams in the transfer to new IS; design and implement staff trainings and reference materials, and provide ongoing support to enable effective transitions to new systems; serve as point of contact for the NFF contracted IT consultants; plan, prepare budget, track inventory, purchase, monitor, and ship software and hardware to meet overall technology needs; serve as a liaison to staff for technology issues and trends ... more. Possess an undergraduate degree in Information Systems, Computer Science or related field (or equivalent experience); a minimum of 5 years' relevant experience with proven results in data management, data governance and technology; prior experience implementing new organization-wide IS; strong understanding of database concepts and methods of system integration; excellent communication skills; collaboratively manage IS; able to set priorities; have a valid U.S. driver's license ... more. This positon is located in Missoula, Montana. Salary range $58,000-$68,000 range. Excellent compensation package. No phone inquiries. Candidates should submit cover letter and resume in .pdf format to: sbombard@nationalforests.org by October 30, 2020. Please note in Subject Line: "Application for Information Systems Analyst". For more information, see the Position Description by going to Web site: https://www.nationalforests.org/who-we-are/jobs

213 HEALTH CARE/ SCIENCE | 213 HEALTH CARE/ SCIENCE

399 LEGALS MNAXLP | 399 LEGALS MNAXLP | 399 LEGALS MNAXLP | 399 LEGALS MNAXLP

NOTICE TO CREDITORS
Dept. No.: 1
Case No.: DP-20-164
IN THE MATTER OF THE ESTATE OF: KENNETH J. MILLER,
Deceased.
MONTANA FOURTH JUDICIAL DISTRICT COURT,
MISSOULA COUNTY
NOTICE IS HEREBY GIVEN that the undersigned has been appointed Personal Representative of the above-named estate. All persons having claims against the said decedent are required to present their claims within four (4) months after the date of the first publication of this notice or said claims will be forever barred. Claims must either be mailed to Thomas H. Stanton, attorney for the Personal Representative, return receipt requested, at P.O. Box 9410, Missoula, Montana 59807-9410, or filed with the Clerk of the above-entitled Court.
DATED: 9/11, 2020
/s/ Kenneth J. Miller II
Personal Representative
THOMAS H. STANTON
WELLS & McKITTRICK, P.C.
P.O. Box 9410
222 East Pine
Missoula, Montana 59807
Tel: 406-728-7177
Fax: 406-728-0790
admin@wandmlaw.com
Attorneys for Personal Representative
#20608913 September 23, 30 & October 7, 2020

NOTICE TO CREDITORS
Cause No. DP-20-194
Dept. No. 2
IN RE THE ESTATE OF
DONALD REX HARRINGTON,
Deceased.
MONTANA FOURTH JUDICIAL DISTRICT COURT,
MISSOULA COUNTY
NOTICE IS HEREBY GIVEN that Donna Mae Paige has been appointed Personal Representative of the above-named estate. All persons having claims against the said deceased are required to present their claims within four (4) months after the date of the first publication of this notice or said claims will be forever barred.
Claims must either be mailed to Donna Mae Paige, Personal Representative, return receipt requested, c/o Dan G. Cederberg, P.O. Box 8234, Missoula, Montana 59807-8234, or filed with the Clerk of the above Court.
DATED this 23rd day of September, 2020.
CEDERBERG LAW OFFICES, P.C.
2625 Dearborn Ave., Suite 102B
P.O. Box 8234
Missoula MT 59807-8234
By: /s/ Dan G. Cederberg
Attorneys for Personal Representative
Dan G. Cederberg
CEDERBERG LAW OFFICES, PC

EPA United States Environmental Protection Agency
DEQ Montana Department of Environmental Quality

Milltown Reservoir Sediments/Clark Fork River Superfund Site Five-Year Review

The EPA and the Montana Department of Environmental Quality are conducting the third, five-year review of the Milltown Reservoir Sediments/Clark Fork River Superfund site (the Site) in Milltown, Mont. The purpose of the five-year review is to make sure that selected cleanup actions effectively protect human health and the environment. The five-year review is scheduled to be completed by November 2020.

The Site includes about 120 miles of the Clark Fork River upstream of the Milltown Dam and Reservoir. To manage cleanup efforts, the EPA broke the Site into three operable units (OUs). OU1 was originally the Milltown Drinking Water Supply and is now part of OU2. OU2 is the Milltown Reservoir Sediments area. OU3 is the Clark Fork River area upstream of OU2 and downstream of the Silver Bow Creek/Butte Area Superfund site and the Anaconda Smelter Superfund site.

Cleanup Actions
Cleanup began in 1984 and is nearly complete at OU2 and ongoing at OU3. The OU2 remedy includes: a replacement water system for Milltown, a bypass channel at the reservoir, removal of contaminated materials, removal of the Milltown Dam, temporary groundwater controls until the Milltown aquifer recovers, other institutional controls, and long-term monitoring of surface water and groundwater. The OU3 remedy includes: soils and sediment removal and disposal outside of the OU, some in-place treatment of soils, revegetation of removed or treated areas, streambank stabilization, weed control, institutional controls and monitoring.

We Want to Hear from You!
As part of this process, EPA will interview community members and stakeholders who have concerns, questions, or information about the site that they think EPA should consider. The deadline to schedule an interview is October 30, 2020. Please contact EPA's Beth Archer to request an interview by phone, or video conference or to have the interview questions emailed to you.

Contact
Beth Archer, EPA Community Involvement Coordinator
(303) 312-6611, archer.elizabeth@epa.gov

Additional Site Information
Visit the website (www.epa.gov/superfund/milltown-reservoir) or the Site's Information Repositories (pending COVID-19 availability):

Grant-Kohrs Ranch National Historic Site, 266 Warren Lane, Deer Lodge, MT 59722
Missoula City/County Library, 301 East Main Street, Missoula, MT 59802

EPA United States Environmental Protection Agency

DEQ Montana Department of Environmental Quality

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Missoula City/County Library, 301 East Main Street, Missoula, MT 59802

APPENDIX F – INTERVIEW FORMS

MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Subject name: Keith Large, Joel Chavez	**Subject affiliation: MDEQ Project Officers**
Interview date: 10/06/2020	**Interview time:**
Interview format (Select): Email	
Interview category (Select): State	

Interview Introduction

EPA conducts regular checkups, called Five-Year Reviews, at Superfund sites. A Five-Year Review is a way to evaluate the progress of cleanup actions and make sure they are protecting people and the environment.

As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

Site Orientation:

The Site currently consists of three operable units. Operable Unit 1 was focused on providing a safe water supply to Milltown area residents through establishment of a public water supply system for the town of Milltown. Operable Unit 2 is the Milltown Reservoir Sediments Operable Unit (MRSOU) and includes approximately 540 acres in the Clark Fork River and Blackfoot River floodplain. MRSOU consists of the area encompassed by the former Milltown Dam and Reservoir and the area where arsenic contamination exists in groundwater. Operable Unit 3 is the Clark Fork River Operable Unit (CFROU). It consists of approximately 120 river miles of the Clark Fork River and extends from the confluence of the old Silver Bow Creek channel with the reconstructed lower Mill-Willow bypass, near Anaconda, to the maximum former Milltown Reservoir pool elevation east of Missoula. The Milltown Reservoir/ Clark Fork River site is one of four contamination areas, jointly known as the Clark Fork Basin Sites.

Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   DEQ is responding to this Five Year Review for the entire site and will provide operable unit specific feedback accordingly throughout this questionnaire.

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Milltown Reservoir Sediments OU: Yes.

   Clark Fork River OU: The State of Montana, Department of Environmental Quality (DEQ), is the lead Agency responsible for the on-going Remedial Action at the Site. As the lead Agency, DEQ is intimately

familiar with environmental issues associated with the Site.

3. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   Milltown Reservoir Sediments OU: The OU1 remedy is performing very well.

   Clark Fork River OU: The Remedial Action is progressing and has been successful to date.

4. What is your assessment of the current performance of the remedy in place at the Site?

   Milltown Reservoir Sediments OU: The OU1 remedy is working well and meeting all the ROD criteria.

   Clark Fork River OU: The Remedy has been generally successful. Incorporation of "lessons learned," will ensure continued future success.

5. What have been the effects of this Site on the surrounding community, if any?

   Milltown Reservoir Sediments OU: The surrounding community benefited from the reuse of Milltown after the RA cleanup was completed in 2012 with the opening of the State Park.

   Clark Fork River OU: The surrounding community has benefited from knowing contamination associated with being located in, or immediately adjacent, to a Superfund Site, is in the process of being remediated.

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   Milltown Reservoir Sediments OU: No.

   Clark Fork River OU: Work associated with this OU directly impacts many area residents and is highly visible to others. Inquiries are common. Complaints have been limited to date, but have been satisfactorily addressed.

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   Milltown Reservoir Sediments OU: No.

   Clark Fork River OU: No.

8. Are you aware of any changes in projected land use(s) at the Site?

   Milltown Reservoir Sediments OU: No.

   Clark Fork River OU: Nothing to date.

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues or recommended institutional controls?

   Milltown Reservoir Sediments OU: Yes, I am comfortable with the current ICs.

   Clark Fork River OU: Institutional Controls (IC's) have not been developed or implemented at the Site. An IC Plan will be drafted and vetted with the public as Site work progresses.

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

    Milltown Reservoir Sediments OU: Yes, annual site inspections and monitoring are conducted. No issues identified.

    Clark Fork River OU: Community Interviews were conducted in 2016, as part of the Community Relations Plan. The overall public view of the plan was positive, with the expressed desire for continued action, local employment opportunities, and respect for the wishes of private property owners.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

    Milltown Reservoir Sediments OU: None have been reported to DEQ.

    Clark Fork River OU: Minor trespassing issues.

12. How effective has EPA and/or the State's communication been in the past? Do you feel you have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    Milltown Reservoir Sediments OU: Past communication was always good between the agencies. Communication remains effective and responsive between EPA and DEQ.

    Clark Fork River OU: EPA has not had a Regional Project Manager (RPM) assigned to the Site for some time. Communications have suffered because of that. However, in the spring of 2020, EPA rectified that, with the appointment of an RPM to the Site. Communication is now excellent. DEQ presently feels informed.

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    Milltown Reservoir Sediments OU: OU1 has been in O&M since 2012. Some minor O&M issues regarding runoff and associated erosion are being addressed and will continue to be addressed as needed.

    Clark Fork River OU: The continuation of a positive relationship with the EPA.

14. Do you have any comments, suggestions or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    Milltown Reservoir Sediments OU: No.

    Clark Fork River OU: No.

15. Is there anything we have not covered that you would like to share?

    Milltown Reservoir Sediments OU: No.

    Clark Fork River OU: No.

16. As a reminder, your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. If you are representing an organization, do you consent to have your name included along with your responses to this

questionnaire in the Five-Year Review Report?

These are DEQ's responses. Keith Large is the project officer for Milltown Reservoir Sediments OU and Joel Chavez is the project officer for the Streamside Tailings and Clark Fork River Operable Units.

Keith Large: klarge@mt.gov; Office: 406-444-6569; Mobile: 406-431-2253

Joel Chavez: jchavez@mt.gov; Office: 406-444-6407; Mobile: 406-431-2251

Closing

Thank you for participating in the interview process. We are grateful for the opportunity to learn from you. EPA expects to finalize the Five-Year Review in mid-2021. When complete, the Five-Year Review will be available on the site's web page, www.epa.gov/superfund/milltown-reservoir

MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Subject name: Doug Martin	**Subject affiliation: NRDP**
Interview date: 10/7/2020	**Interview time:**
Interview format (Select): Email	
Interview category (Select): State	

Interview Introduction

EPA conducts regular checkups, called Five-Year Reviews, at Superfund sites. A Five-Year Review is a way to evaluate the progress of cleanup actions and make sure they are protecting people and the environment.

As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

Site Orientation:

The Site currently consists of three operable units. Operable Unit 1 was focused on providing a safe water supply to Milltown area residents through establishment of a public water supply system for the town of Milltown. Operable Unit 2 is the Milltown Reservoir Sediments Operable Unit (MRSOU) and includes approximately 540 acres in the Clark Fork River and Blackfoot River floodplain. MRSOU consists of the area encompassed by the former Milltown Dam and Reservoir and the area where arsenic contamination exists in groundwater. Operable Unit 3 is the Clark Fork River Operable Unit (CFROU). It consists of approximately 120 river miles of the Clark Fork River and extends from the confluence of the old Silver Bow Creek channel with the reconstructed lower Mill-Willow bypass, near Anaconda, to the maximum former Milltown Reservoir pool elevation east of Missoula. The Milltown Reservoir/ Clark Fork River site is one of four contamination areas, jointly known as the Clark Fork Basin Sites.

Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   Operable Unit 2 and 3.

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes, I participated in the ROD development for MT NRDP for OU2 and OU3. I also participated in the NRDA at both sites. For OU2 I was the Project Manager for the implementation of the Restoration Actions.

3. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   For the Milltown Reservoir Sediments, OU2, the removal of contaminated sediments, restoration and

redevelopment activities have been a success. The groundwater cleanup results are yet to be determined, but monitoring data appears to be trending towards cleaner water, it is just not happening as quickly as EPA had predicted.

For the Clark Fork River, OU3, the cleanup is occurring at an appropriate rate, but slower than predicted in the ROD. The waste is being removed succcessfully from the floodplain and streambanks in a fashion the State proposed during settlement discussions. Landowners are working with the State.

4. What is your assessment of the current performance of the remedy in place at the Site?

   At Milltown, OU2, the performance of the remedy is good. As noted above, groundwater is not cleaning up as predicted, but monitoring shows trends in a cleaner direction. Remedy revegetation is performing well.

   On the Clark Fork River, OU3, the current remedy is performing as expected. Implementation is not at the rate once predicted, but the removal of the waste from streambanks and the floodplain is effectively improving the Clark Fork River system.

5. What have been the effects of this Site on the surrounding community, if any?

   With the implementation of the State's restoration plan and development of the Milltown State Park at the Milltown Sediments OU, there are positive impacts. The fact that these two actions were implemented using State NRD funds provide the local communities with positive effects at no cost to the local communities. Communications with local residents indicates a great deal of appreciation and use of the site.

   For the Clark Fork River, OU3, I understand the surrounding communities are looking forward to the completion of the work, but they also know it will be sometime before the work is completed.

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   For the Milltown site, OU2, the only complaints I am aware of have to do with the I-90 bridges EPA was responsible for mitigating. Some still wonder why EPA did not remove and replace the bridges and why Montana Department of Transportation is doing it now.

   For the CFR OU3, the biggest complaint is the length of time the remedy is taking and the loss of fish habitat associated with the streambank construction. NRDP is working with DEQ on streambank techniques to decrease the time to recovery.

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   No

8. Are you aware of any changes in projected land use(s) at the Site?

   No

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues or recommended institutional controls?

   Yes, things at both sites seem to be working.

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

Milltown, OU2, the NRDP implemented the Restoration Actions at Milltown in coordination with the remedial action. NRDP has completed numerous maintenance activities (weed control, vegetation augmentation, channel repairs) and has implemented its monitoring plan. Monitoring results were provided to EPA for 2017.

On the CFR OU3, NRDP has integrated restoration actions with DEQ's remedial actions such as additional revegetation, borrow area restoration, tributary stream reconnections, and establishing ICs to protect the remedial areas. In addition, NRDP works to improve instream flow, enhance fish passage, and conserve critical habitats (fee title acquisition and conservation easements) along the river corridor.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

    None at Milltown.

    On the CFR OU3, NRDP assisted DEQ with the implementation of BMPs to reduce the flow of salts from the slickens carrying heavy metals into the river in 2020.

12. How effective has EPA and/or the State's communication been in the past? Do you feel you have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    More communications are also better. At the Milltown, OU2, site there is not a need for significant public out-reach at this time, but in the past EPA and the State coordinated on many public meetings that were well attended and accepted.

    On the CFR, OU3, the State DEQ responds well to request for public information, but since a local group has taken it upon itself to hold public meetings, it might indicate a need for more communications to the public.

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    Not concerned with the Milltown site. For the CFR OU3 site I am concerned with the pace of the remedial action and whether or not the State will be able to fully implement the most robust remedy possible.

14. Do you have any comments, suggestions or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    A public meeting to provide the local community with a status update would be beneficial. NRDP should provide an update on the Restoration also.

    For the CFR OU3, public outreach is also needed to inform the public.

15. Is there anything we have not covered that you would like to share?

16. As a reminder, your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. If you are representing an organization, do you consent to have your name included along with your responses to this questionnaire in the Five-Year Review Report?

    Yes.

Closing

Thank you for participating in the interview process. We are grateful for the opportunity to learn from you. EPA expects to finalize the Five-Year Review in mid-2021. When complete, the Five-Year Review will be available on the site's web page, www.epa.gov/superfund/milltown-reservoir

MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Interviewer name: Ken Champagne, Beth Archer and Kirby Webster	**Interviewer affiliation: EPA RPM, EPA CIC and Skeo**
Subject name: Jeffrey Johnson	**Subject affiliation: National Park Service at Grant-Kohrs Ranch National Historic Site**
Interview date: 10/26/2020	**Interview time: 10 am**
Interview format (Select): Phone	
Interview category (Select): Federal Agency	

Interview Introduction

EPA conducts regular checkups, called Five-Year Reviews, at Superfund sites. A Five-Year Review is a way to evaluate the progress of cleanup actions and make sure they are protecting people and the environment.

As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

Site Orientation:

The Site currently consists of three operable units. Operable Unit 1 was focused on providing a safe water supply to Milltown area residents through establishment of a public water supply system for the town of Milltown. Operable Unit 2 is the Milltown Reservoir Sediments Operable Unit (MRSOU) and includes approximately 540 acres in the Clark Fork River and Blackfoot River floodplain. MRSOU consists of the area encompassed by the former Milltown Dam and Reservoir and the area where arsenic contamination exists in groundwater. Operable Unit 3 is the Clark Fork River Operable Unit (CFROU). It consists of approximately 120 river miles of the Clark Fork River and extends from the confluence of the old Silver Bow Creek channel with the reconstructed lower Mill-Willow bypass, near Anaconda, to the maximum former Milltown Reservoir pool elevation east of Missoula. The Milltown Reservoir/ Clark Fork River site is one of four contamination areas, jointly known as the Clark Fork Basin Sites.

Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   OU3 – CFROU.

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes.

3. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   I think that the project is going very well. MDEQ has made adjustments to their cleanup approach based on experience at other phases within the Operable Unit. Maintenance has been pretty minimal at this time. Reuse activities are ongoing. People have been able to fish and use the river recreationally before, during and after remediation.

4. What is your assessment of the current performance of the remedy in place at the Site?

   I think the current performance is going as expected.

5. What have been the effects of this Site on the surrounding community, if any?

   Recreationally it has impacted fishing. There have been some fish kills that are believed to have been a result of contamination being carried into the water during high water events or significant rainfalls. It may have also affected some ranchers. If there are slickens, it might have affected where cattle can be.

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   Yes. There is a wide spectrum of reaction to the cleanup. Some people are very strongly for it. Some people are at the other extreme who do not want anything done on their property and do not understand why this work is being carried out. Overall, the reaction has been favorable especially now that it has been 4 to 5 years since remediation started and people have an opportunity to see what it looks like after remedy implementation with vegetative regrowth and wildlife returning.

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   No.

8. Are you aware of any changes in projected land use(s) at the Site?

   Yes. The State of Montana has been in the process of putting in conservation easements, primarily by purchasing ranches and putting in easements and reselling ranches. That is the biggest change in projected land use.

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues or recommended institutional controls?

   Yes, I'm comfortable with the status. There are limited institutional controls at the site. Where the remedy has not been implemented yet, it is mostly privately owned. Where the remedy has been implemented, there are some restrictions to access, primarily along riverbanks to let vegetation get

established. These are not in high traffic areas for walking or fishing. There are signs posted. I think they are working.

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

    Yes. We have participated in DEQ public meetings, produced newsletters, talked to different community stakeholders like Rotaries, the City of Deer Lodge, or Powell County Commissioners. Last month Joel Chavez and I met with an environmental class from University of Montana to give a site tour.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

    There has been no emergency response. No vandalism. We have had a little bit of trouble with trespassing specific to Grant-Kohrs Ranch, but nothing ongoing.

12. How effective has EPA and/or the State's communication been in the past? Do you feel you have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    EPA and the States communication in the past has been excellent. I have been more than adequately informed. When I have questions or concerns, I have received responses and some adjustments have been made. I would like to continue what we have been doing for the future.

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    I don't have any concerns. Everybody is following the remedial design and approved documents and plans. DEQ is making adjustments to their future activities for future phases based on lessons learned. That is very good.

14. Do you have any comments, suggestions or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    No.

15. Is there anything we have not covered that you would like to share?

    No.

16. As a reminder, your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. If you are representing an organization, do you consent to have your name included along with your responses to this questionnaire in the Five-Year Review Report?

    Yes.

Closing

Thank you for participating in the interview process. We are grateful for the opportunity to learn from you. EPA expects to finalize the Five-Year Review in mid-2021. When complete, the Five-Year Review will be available on the site's web page, www.epa.gov/superfund/milltown-reservoir

MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Interviewer name:	**Interviewer affiliation:**
Subject name: Don Booth	**Subject affiliation: Booth Consulting**
Interview date: 10/7/20	**Interview time:** 7:00 AM
Interview location: NA	
Interview format (Select): Email	
Interview category (Select): PRP	

Interview Introduction

EPA conducts regular checkups, called Five-Year Reviews, at Superfund sites. A Five-Year Review is a way to evaluate the progress of cleanup actions and make sure they are protecting people and the environment.

As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

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Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   MRSOU

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes

3. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   The Milltown project provides a case study that shows multiple stakeholders can efficiently work together to reach consensus on design and safe implementation of an integrated remediation/restoration/reuse approach.

4. What is your assessment of the current performance of the remedy in place at the Site?

   Remedy achieved most remedial performance standards (i.e., surface water criteria, protection of wetlands and biological resources, reclamation, historic preservation, etc.), restored a free flowing river and is protective of the environment. Contaminant concentrations in site groundwater have not fully met all groundwater standards but the remedy is protective of human health because a replacement water supply provides clean water to the Milltown community.

5. What have been the effects of this Site on the surrounding community, if any?

   Long-term positive effects of the integrated remediation / restoration approach include improved recreational access and environmental benefits. Other impacts to the community included construction traffic delays, loss of dam property tax revenue, and the need to drill deeper private wells when the reservoir was drained.

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   No

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   No

8. Are you aware of any changes in projected land use(s) at the Site?

   Land use changed from hydroelectric project reservoir to state park after remedy implementation but I am not aware of any further projected changes other than addressing safety concerns associated with pedestrian traffic beneath a railroad bridge that currently restricts public access to the Bonner Development portion of the state park.

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues or recommended institutional controls?

   County regulations and availability of the replacement water supply protect against well installation/use in areas where groundwater exceeds standards and easements/state ownership protect areas of wastes left in place. Establishment of a controlled groundwater area under state regulations could be considered to provide additional long-term protection against groundwater use.

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

    Yes - I have been conducting semiannual site inspections and submitting annual reports to the agencies.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

    Nothing that has required emergency response or been associated with vandalism. Minor issues related to localized reseeding, weed management, soil cover replacement, stormwater ditch clean-out, etc. have been addressed under O&M.

12. How effective has EPA and/or the State's communication been in the past? Do you feel have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    I believe agency communication has been effective and I have been kept well informed. Existing information kiosks at the park are a good means to provide site-related information.

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    RA completion requires certification that all remedy performance standards have been met but post RA groundwater monitoring results show that while remedy implementation significantly reduced contaminant concentrations achievement of the 10 ppb arsenic groundwater standard in all compliance wells is unlikely. The ROD allowed the PRPs to seek waiver of the groundwater performance standards based on technical impracticability (TI) if these standards are not met within the 10 year time-frame provided in the ROD (i.e., by 2023). Consideration should be given to allowing the TI evaluation to proceed.

14. Do you have any comments, suggestions or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    Efficiencies could potentially be realized by consolidating weed control/O&M of PRP responsibility areas (i.e., repositories) with restoration/state park land management responsibilities.

15. Is there anything we have not covered that you would like to share?

    I've appreciated the productive working relationships brought to this project by all involved.

16. As a reminder, your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. If you are representing an organization, do you consent to have your name included along with your responses to this questionnaire in the Five-Year Review Report?

    Yes

Closing

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MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Interviewer name: Ken Champagne, Beth Archer and Kirby Webster	**Interviewer affiliation: EPA RPM, EPA CIC and Skeo**
Subject name: Carl Hamming	**Subject affiliation: Anaconda-Deer Lodge County**
Interview date: 10/21/2020	**Interview time: 12 p.m.**
Interview format (Select): Phone	
Interview category (Select): Local Government	

Interview Introduction

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As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

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Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   I am more familiar with the Clark Fork, though I have floated through the reservoir and know some of the history.

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes.

3. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   Some great work has been done in the past and continues to move forward. I am a little disappointed by the slow down on the Clark Fork because I have concern for the ongoing contamination from the upper phases and the long term ability of stretching the remaining funds to cover the remediation of the Clark Fork, for Reach A, not to mention Reaches B and C.

4. What is your assessment of the current performance of the remedy in place at the Site?

   I think it has been a learning process. Some phases seemed to prioritize cost and others complete removal. I think they have learned through the remediation of the upper phases so that they can bring back ecological function faster in the future phases. I think there are elements that they've learned that will be incorporated into remediation plans for future phases. I think they are trying to be as cost effective and efficient as possible, but I'm worried that in the long run as those funds are dwindling.

5. What have been the effects of this Site on the surrounding community, if any?

   I think a little bit of confusion by the local community, both Anaconda-Deer Lodge and Deer Lodge Valley about the progression of the cleanup, why they have moved from upstream to downstream and back up to upstream properties.

   There have been some local economic benefits from remediation work and local subcontractors coming into the town. There are obvious economic impacts. With Superfund in general there is a little bit of jadedness where some folks feel like their opinions or thoughts or preferences are not going to influence the actual process itself. So, they are shrugging their shoulders a little bit – thinking that they don't have a voice in the matter.

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   I am aware of concerns about which phases are prioritized and jumping downstream to do Grant-Kohrs Ranch when visible slickens exist upstream of Galen which seem like they should be tended to first, or sooner than further downstream phases where contamination doesn't appear to be as dramatic. There is general thinking that if downstream contamination is addressed before upstream, then the remediated downstream phases might be re-contaminated during high flows by the portions that have not yet been cleaned up.

   Arrowstone Park, I believe it is phases 13 and 14, has visible slickens and areas of no vegetative growth, yet it's open to the public for all sorts of recreational activities. There are some concerns about what the kids and regular users of the Park are being exposed to when they're playing in the river or on the riverbanks.

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   No.

8. Are you aware of any changes in projected land use(s) at the Site?

   None that I can think of.

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the

associated outstanding issues or recommended institutional controls?

I think Powell County still needs to adopt institutional control language into development regulations to increase awareness. Not that there will be a lot of development in the floodplain, but helping people understand what sort of controls can be implemented on the property. Especially as new folks are moving into the valley and purchasing agricultural properties.

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

    No.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

    None that I am aware.

12. How effective has EPA and/or the State's communication been in the past? Do you feel you have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    I think it has been a challenge for the State. They have had a few different initiatives. They tried a newsletter and email updates. They have run into an issue of staff turnover. It is an issue because you start to establish a relationship with a person if there is a question from a landowner. But with the loss of consistency, it presents a new challenge to feel as comfortable contacting or referring a landowner to them. I appreciated DEQ putting out newsletters and doing some email blasts to let people know what is being worked on and a general timeline. Those were easy to share and distribute with other folks.

    The DEQ personnel on the Clark Fork were very willing to present to the rotary, hospital board/foundation, planning board, and County Commissioners. People were able to see it on a publicized agenda and know they are going to be there. So, they knew they could ask questions in person, or allow the local paper, the Silver State Post to cover the meeting.

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    If funds start to run low – how are DEQ and EPA going to handle remediation work needing to get done. What if it gets political and controversial which phases will get proper treatment? Or if the State must try and stretch insufficient funds across numerous phases? Is there a strategy in place to deal with these issues? All the while wondering if the cleanup will still be able to do the river justice.

14. Do you have any comments, suggestions or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    One thing I learned through Deer Lodge and Anaconda is that the local politicians and stakeholders appreciate when local contractors or subcontractors are used for cleanup activities. I know there is a formal bid process and not absolute control of who secures the project and who their subs are, but there are a lot of complaints when it goes to an outfit that is out-of-state or the region. There is a lot of appreciation when the bid is awarded to a local outfit.

15. Is there anything we have not covered that you would like to share?

    No.

16. As a reminder, your responses will not be attributed to you unless you want to go on record in your

official position representing a local community group or organization. If you are representing an organization, do you consent to have your name included along with your responses to this questionnaire in the Five-Year Review Report?

Yes.

Closing

Thank you for participating in the interview process. We are grateful for the opportunity to learn from you. EPA expects to finalize the Five-Year Review in mid-2021. When complete, the Five-Year Review will be available on the site's web page, www.epa.gov/superfund/milltown-reservoir

MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Subject name: Travis Ross	**Subject affiliation: Missoula Valley Water Quality District/Msla County**
Interview date: 10/13/20	**Interview time: 8:30**
Interview format (Select): Email	
Interview category (Select): Local Government	

Interview Introduction

EPA conducts regular checkups, called Five-Year Reviews, at Superfund sites. A Five-Year Review is a way to evaluate the progress of cleanup actions and make sure they are protecting people and the environment.

As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

Site Orientation:

The Site currently consists of three operable units. Operable Unit 1 was focused on providing a safe water supply to Milltown area residents through establishment of a public water supply system for the town of Milltown. Operable Unit 2 is the Milltown Reservoir Sediments Operable Unit (MRSOU) and includes approximately 540 acres in the Clark Fork River and Blackfoot River floodplain. MRSOU consists of the area encompassed by the former Milltown Dam and Reservoir and the area where arsenic contamination exists in groundwater. Operable Unit 3 is the Clark Fork River Operable Unit (CFROU). It consists of approximately 120 river miles of the Clark Fork River and extends from the confluence of the old Silver Bow Creek channel with the reconstructed lower Mill-Willow bypass, near Anaconda, to the maximum former Milltown Reservoir pool elevation east of Missoula. The Milltown Reservoir/ Clark Fork River site is one of four contamination areas, jointly known as the Clark Fork Basin Sites.

Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   OU 1 and 2

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes

3. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   I feel this has been a successful cleanup, maintenance and reuse. The piers in the Blackfoot are the most

concerning aspect of the remediation.

4. What is your assessment of the current performance of the remedy in place at the Site?

   That it is performing as it was designed and is meeting the remediation objectives

5. What have been the effects of this Site on the surrounding community, if any?

   Increased public safety, better river health, better ecological health and improved access to natural resources

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   One issue has come up wherein someone wanted to drill a well within or in proximity of the arsenic plume on the former Stimson property. Milltown Water Users would not grant connection to the system which then forced the developer (fire station to use a private well). We would still prefer new developments connect to the tested PWS. This was a water rights issue reportedly.

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   No

8. Are you aware of any changes in projected land use(s) at the Site?

   No

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues or recommended institutional controls?

   Yes

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

    Yes, we have had big concerns with the piers that have been left in the Blackfoot River. MRL has objected to their removal, though modeling was completed during Proposed Plan selection and Montana Dept of Transportation has secured funding for their removal. They are a public safety concern.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

    No

12. How effective has EPA and/or the State's communication been in the past? Do you feel you have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    EPA has been responsive to requests for data. It would be nice to get cumulative testing data tables (Scribe) as they get updated

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    Public Safety risks of the piers in the Blackfoot and the objection of MRL to their removal, stating that

removing them would threated the upstream railroad bridge.

14. Do you have any comments, suggestions or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    Assistance with model review for pier removal and coordination with Montana Dept of Transportation would be helpful

15. Is there anything we have not covered that you would like to share?

    No

16. As a reminder, your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. If you are representing an organization, do you consent to have your name included along with your responses to this questionnaire in the Five-Year Review Report?

    Yes

Closing

Thank you for participating in the interview process. We are grateful for the opportunity to learn from you. EPA expects to finalize the Five-Year Review in mid-2021. When complete, the Five-Year Review will be available on the site's web page, www.epa.gov/superfund/milltown-reservoir

MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Subject name: Karen Knudsen	**Subject affiliation: Clark Fork Coalition**
Interview date: 11/2/2020	**Interview time:**
Interview format (Select): Email	
Interview category (Select): Community Organization	

Interview Introduction

EPA conducts regular checkups, called Five-Year Reviews, at Superfund sites. A Five-Year Review is a way to evaluate the progress of cleanup actions and make sure they are protecting people and the environment.

As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

Site Orientation:

The Site currently consists of three operable units. Operable Unit 1 was focused on providing a safe water supply to Milltown area residents through establishment of a public water supply system for the town of Milltown. Operable Unit 2 is the Milltown Reservoir Sediments Operable Unit (MRSOU) and includes approximately 540 acres in the Clark Fork River and Blackfoot River floodplain. MRSOU consists of the area encompassed by the former Milltown Dam and Reservoir and the area where arsenic contamination exists in groundwater. Operable Unit 3 is the Clark Fork River Operable Unit (CFROU). It consists of approximately 120 river miles of the Clark Fork River and extends from the confluence of the old Silver Bow Creek channel with the reconstructed lower Mill-Willow bypass, near Anaconda, to the maximum former Milltown Reservoir pool elevation east of Missoula. The Milltown Reservoir/ Clark Fork River site is one of four contamination areas, jointly known as the Clark Fork Basin Sites.

Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   OU2

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes

3. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   With the exception of the sawed-off piers still sitting in the Blackfoot River, I would give this project five

out of five stars. Milltown was a world-class cleanup that resulted in rich riparian and floodplain complexity, superb natural river function, and an ecologically-healthy, resilient river. The Milltown State Park is fast becoming a hub for public recreation (both active and passive), as well as river stewardship (lots of volunteer plantings) and nearby light industry is congruent with the history of the place and respectful of its revitalized natural assets. The public also appreciates that the story of Indigenous Peoples' connection to the site is upfront and center in the interpretive panels at both the park and on the bluff.

4. What is your assessment of the current performance of the remedy in place at the Site?

   The remedy is functioning extremely well. The rich and complex habitat that is now re-established at the site is a testament to the design and execution of this remedy.

5. What have been the effects of this Site on the surrounding community, if any?

   It's been a huge boon to surrounding communities, in terms of an improved physical environment, better access to tremendous ecological and recreational assets, and a revitalized local economy.

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   The issues that have crossed my radar include the bridge piers still sitting in the Blackfoot river and inundation and congestion from river recreationists during hot summer months.

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   No

8. Are you aware of any changes in projected land use(s) at the Site?

   No

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues or recommended institutional controls?

   Yes

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

    Yes. CFC has conducted many talks, tours (some floating, some from the bluff, some from the north-side park) and has collaborated with FWP on volunteer planting days. We routinely highlight Milltown in our communications right around the March 28 anniversary of the removal of the dam.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

    Not that I'm aware of.

12. How effective has EPA and/or the State's communication been in the past? Do you feel you have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    Communications were outstanding in the past. We'd like to be kept in the loop on testing of groundwater

and other monitoring data points, as well as the game plan for the bridge piers left in the Blackfoot.

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    The bridge piers in the Blackfoot pose a big risk to public safety, they interfere with natural river function and flows, they are trespassing on a riverbed that belongs to the public, and they are a visual blight. What is the plan for removing them?

14. Do you have any comments, suggestions or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    Hold MT Dept. of Transportation's feet to the fire to remove the bridge piers from the middle of the Blackfoot.

15. Is there anything we have not covered that you would like to share?

    No

16. As a reminder, your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. If you are representing an organization, do you consent to have your name included along with your responses to this questionnaire in the Five-Year Review Report?

    Yes

Closing

Thank you for participating in the interview process. We are grateful for the opportunity to learn from you. EPA expects to finalize the Five-Year Review in mid-2021. When complete, the Five-Year Review will be available on the site's web page, www.epa.gov/superfund/milltown-reservoir

MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Subject name: Alex Leone	**Subject affiliation: Clark Fork Coalition (CFC)**
Interview date: 11/2/2020	**Interview time:**
Interview format (Select): Email	
Interview category (Select): Community Organization	

Interview Introduction

EPA conducts regular checkups, called Five-Year Reviews, at Superfund sites. A Five-Year Review is a way to evaluate the progress of cleanup actions and make sure they are protecting people and the environment.

As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

Site Orientation:

The Site currently consists of three operable units. Operable Unit 1 was focused on providing a safe water supply to Milltown area residents through establishment of a public water supply system for the town of Milltown. Operable Unit 2 is the Milltown Reservoir Sediments Operable Unit (MRSOU) and includes approximately 540 acres in the Clark Fork River and Blackfoot River floodplain. MRSOU consists of the area encompassed by the former Milltown Dam and Reservoir and the area where arsenic contamination exists in groundwater. Operable Unit 3 is the Clark Fork River Operable Unit (CFROU). It consists of approximately 120 river miles of the Clark Fork River and extends from the confluence of the old Silver Bow Creek channel with the reconstructed lower Mill-Willow bypass, near Anaconda, to the maximum former Milltown Reservoir pool elevation east of Missoula. The Milltown Reservoir/ Clark Fork River site is one of four contamination areas, jointly known as the Clark Fork Basin Sites.

Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   OU3

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes

3. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   Although the State has made significant strides on the upper Clark Fork River, the cleanup is 20% complete and behind schedule. Fish populations in the upper portion of the river are near all-time lows and remain

depressed from Galen to Turah. Some of the most heavily contaminated reaches of river continue to leach toxic contamination into the river and just last year another major fish kill was documented near Galen. While the CFC has appreciated the recent proactive approach to mitigate some of these risks over the short-term, we also recognize the need to chart a new course forward that better integrates restoration and remediation actions and prioritizes cleanup of high risk areas.

4. What is your assessment of the current performance of the remedy in place at the Site?

   See comment #3.

5. What have been the effects of this Site on the surrounding community, if any?

   The superfund stigma in the upper Clark Fork continues to detrimentally impact and constrain community development in places like Drummond, Deer Lodge and Anaconda. Although there is growing interest in the recreational potential of the upper Clark Fork there continue to be barriers towards progress (such as the well publicized fish kill that occurred in September of 2019). The slow progress and lack of transparency has also led to many communities feeling left out disenchanted and fed-up with the process.

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   The CFC often acts as a conduit for relaying complaints and concerns from local community members related to the cleanup on the upper Clark Fork. Some of the most prominent complaints and concerns include the following. Fishing interests (both commercial and recreational) are worried that the cleanup is doing more harm to the fishery than good. As one long time fisher noted "they're creating a fish desert with the cleanup." These fishing interests would like to see more emphasis put on the recovery of the fishery and are concerned by the lack of aquatic habitat post cleanup. Local communities have also complained about the pace of the cleanup and lack of overall transparency. What's the plan after Phase 3 is completed? Where does design review stand? How will funding be prioritized going forward? How can the public comment on design? These are important questions that need to be addressed publicly.

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   no

8. Are you aware of any changes in projected land use(s) at the Site?

   no

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues or recommended institutional controls?

   This question needs much more background information that is specific to the UCF. What institutional controls? Feel free to give me a call if you'd like to explain further.

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

    The Clark Fork Coalition has been deeply engaged in Superfund cleanup on the upper Clark Fork River for over 30 years. As landowners, we witnessed firsthand the restoration and remediation of 4 miles of the mainstem and understand the challenges faced in this gargantuan cleanup effort. As a scientific advocacy organization, we have been tracking design processes, spearheading restoration projects and engaging local stakeholders. Over the last 5 years the CFC spearheaded several public outreach events in Deer Lodge and

Anaconda. We also initiated dozens of tours and floats with stakeholders, landowners and government representatives. We also regularly communicate with our supporters on the status of the cleanup and related activities.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

    The CFC was very heartened with the State's recent attempts to mitigate the risks associated with last year's fish kill near Galen (by installing emergency berms on high-risk slickens). We'd like to see more proactive approaches like this utilized in the future.

12. How effective has EPA and/or the State's communication been in the past? Do you feel you have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    Very poor. With the dissolution of CFRTAC and the slow down in clean up progress there has been very little attempt to meaningfully communicate with the general public. The CFC has been doing a much better job than the EPA or State related to outreach and communications.

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    We are concerned that there might not be enough funding to complete a thorough cleanup at the site.

14. Do you have any comments, suggestions or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    From an overarching design perspective the CFC supports diversifying floodplain designs and lowering floodplain elevations; the integration of more naturalized bank treatments; the use of woody debris as habitat; and the prioritization of contaminant removal in high-risk areas. The preservation of high value bank habitats, the use of large wood in bank treatments and the integration of instream habitat design features may help bridge the aquatic habitat void that occurs as a result of cleanup activities. The CFC is not alone in wanting to see more emphasis on aquatic habitat and both MT FWP and local users have expressed similar desires. We'd also like to see an emphasis on transparency going forward and would be more than willing to help the State/EPA communicate with local communities more effectively.

15. Is there anything we have not covered that you would like to share?

16. As a reminder, your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. If you are representing an organization, do you consent to have your name included along with your responses to this questionnaire in the Five-Year Review Report?

    Yes

Closing

Thank you for participating in the interview process. We are grateful for the opportunity to learn from you. EPA expects to finalize the Five-Year Review in mid-2021. When complete, the Five-Year Review will be available on the site's web page, www.epa.gov/superfund/milltown-reservoir

MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Subject name: Casey Hackathorn	**Subject affiliation: Trout Unlimited**
Interview date: 11/5/2020	**Interview time:**
Interview format (Select): Email	
Interview category (Select): Community Organization	

Interview Introduction

EPA conducts regular checkups, called Five-Year Reviews, at Superfund sites. A Five-Year Review is a way to evaluate the progress of cleanup actions and make sure they are protecting people and the environment.

As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

Site Orientation:

The Site currently consists of three operable units. Operable Unit 1 was focused on providing a safe water supply to Milltown area residents through establishment of a public water supply system for the town of Milltown. Operable Unit 2 is the Milltown Reservoir Sediments Operable Unit (MRSOU) and includes approximately 540 acres in the Clark Fork River and Blackfoot River floodplain. MRSOU consists of the area encompassed by the former Milltown Dam and Reservoir and the area where arsenic contamination exists in groundwater. Operable Unit 3 is the Clark Fork River Operable Unit (CFROU). It consists of approximately 120 river miles of the Clark Fork River and extends from the confluence of the old Silver Bow Creek channel with the reconstructed lower Mill-Willow bypass, near Anaconda, to the maximum former Milltown Reservoir pool elevation east of Missoula. The Milltown Reservoir/ Clark Fork River site is one of four contamination areas, jointly known as the Clark Fork Basin Sites.

Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   MRSOU and CFROU

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes.

3. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

   The Milltown Reservoir site appears to be very successful a decade after completion. The habitat is

recovering very well and the river system is functioning naturally. The improvements at Milltown State Park are being enjoyed by the public and the entire site is an asset to our community.

The Clark Fork River OU is a work in progress. I've been pleased by the results of the cleanup to date and the restoration is trending in the right direction. There have been limited opportunities for public participation in the last couple of years and I have only seen the most recent phase from floating through it. I'm concerned with the budget trajectory and hope that there is enough funding to complete high-quality remediation and restoration for the remainder of the work. Given the time scale of the work, I think there is ample opportunity for peer review and adaptive management to ensure the best possible outcomes by the time the project is completed.

4. What is your assessment of the current performance of the remedy in place at the Site?

   My impression of the Milltown is remedy is that it is performing as designed.

   On the Clark Fork, the remedy appears to be performing as designed and removing contaminants from the floodplain. The pace of the work is of some concern given that some contaminants continue to erode into the river during rain and high flow events.

5. What have been the effects of this Site on the surrounding community, if any?

   At Milltown, the area seems to be on a continual growth trajectory that may or may not be related to the cleanup but the amenities that came with redevelopment of the site and the adjoining areas certainly can't hurt.

   On the Clark Fork, it remains to be seen if there will be any change in the Deer Lodge Valley. There does seem to be an increase in recreational use but given that the larger project hasn't been completed and the fishery is still suffering, they are likely not related.

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   I have heard about some concerns with the active nature of the floodplain above Milltown on the Clark Fork River but that is largely the result of restored natural processes that are beneficial to the resource.

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   No.

8. Are you aware of any changes in projected land use(s) at the Site?

   No.

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues or recommended institutional controls?

   Yes.

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

    No.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

    No.

12. How effective has EPA and/or the State's communication been in the past? Do you feel you have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    I'd prefer to be more engaged on the CFROU. Since CFRTAC has become inactive, there really hasn't been a forum for public engagement on the site.

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    On the CFROU, it is ensuring efficient and cost effective remedy while maximizing restoration potential of the river corridor and recovering the fishery.

14. Do you have any comments, suggestions or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    Would like to see more opportunities for improving and innovating cost-effective approaches to maximizing habitat outcomes for restoration in combination with remedy on the CFROU.

15. Is there anything we have not covered that you would like to share?

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    Yes.

Closing

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MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Interviewer name:	**Interviewer affiliation:**
Subject name: Dr. Erick Greene	**Subject affiliation:** University of Montana
Subject contact information: Div. of Biol. Sciences, University of Montana, Missoula MT 59801	
Interview date: 28 Sept 2020	**Interview time:** 0900 h
Interview location: At home	
Interview format (Select): Email	
Interview category (Select): State	

Interview Introduction

EPA conducts regular checkups, called Five-Year Reviews, at Superfund sites. A Five-Year Review is a way to evaluate the progress of cleanup actions and make sure they are protecting people and the environment.

As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

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Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   I am most familiar with operable units 1 and 2.

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

Yes. I am the co-director of the Clark Fork Watershed Education Program (along with Rayelynn Brandl), and I am also the director of the Montana Osprey project. We receive funding from the Natural Resources damage program for educational programs that focus on the EPA superfund site. We also conduct ecotoxicology studies using ospreys (since they are at the top of the aquatic foodchain) to monitor levels of heavy metals throughout the Upper Clark Fork basin.

3. What is your overall impression of the project, including cleanup, maintenance and reuse activities (as appropriate)?

I have been incredibly impressed at how balanced, efficient and cost effective the project has been. There are lots of competing needs and requests for the money - everything from moving contaminated soils, re-vegetating huge areas, cleaning up water supplies, and educating the next generation of stewards of the river. I have felt that the process of having projects evaluated regularly by the Advisory Council has been extremely fair and balanced. In my view, the careful stewardship of the cleanup money has achieved a great "bang for the buck."

4. What is your assessment of the current performance of the remedy in place at the Site?

The remedy of operable unit 2 is pretty remarkable. The new Confluence State Park is a gem for the state, and what used to be a toxic sludge pit is now is a showcase for what can be done for remediation and restoration. The vegetation and wildlife at the site now are spectacular - I now take my classes and family there to learn and enjoy. The areas where we work in operable unit 3 are still undergoing cleanup, so these are definitely works in progress. I have been working mainly near Drummond, Deer Lodge, Race Track, Galen and Warm Springs. These areas are in various stages of remediation and restoration, but the trajectory for the cleanup is excellent in my opinion.

5. What have been the effects of this Site on the surrounding community, if any?

In my opinion the effects on the surrounding communities have been huge and positive. For our educational programs, we have taken many thousands of students and adults to the Clark Fork River to learn about aquatic ecology, the history of mining in the basin, and what is being done to clean things up. The interest from the communities has been great. Places like Confluence State Park are a huge boost to the nearby communities. Lots of people, both local and visitors, stop in at the park (about 35,000 last summer according to Mike Kustudia!). This is a showcase for the cleanup, and is a boost for the local communities.

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

Early on there were folks who were opposed to the removal of Milltown Dam and the cleanup. But now that the project is fairly far along, when I interact with people all along the Clark Fork River all I hear is positive.

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

No.

8. Are you aware of any changes in projected land use(s) at the Site?

   No.

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues or recommended institutional controls?

   I am comfortable with the institutional controls at the sites. In my experience, the leadership teams take their jobs really seriously - they spend a lot of time in the field, they have intimate knowledge of what is going on, and they are passionate about the cost-effective cleanup of the Clark Fork River.

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

    We conduct field trips and educational programs, as well as sampling blood and feathers from osprey chicks, from Butte to Missoula.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency response, vandalism or trespassing?

    No.

12. How effective has EPA and/or the State's communication been in the past? Do you feel have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    I consider the on-going clean-up of the UCFR as one of the great success stories in our area. In my experience, most people (local, regional and national) have virtually no idea of the scope of things that are going on with the cleanup. I would like to see more effective positive communication about the EPA Superfund project - there are lots of exciting things to crow about.

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    Now that we are entering the last phases of the cleanup, I would like to see some of the projects continue, and not just have the rug pulled out.

14. Do you have any comments, suggestions or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    Just keep on with the good work!

15. Is there anything we have not covered that you would like to share?

    No. As you can tell, I have been incredibly positive and supportive of the overall project. The job has been massive, and those guiding the process have so many balls in the air. My hat is off to them for what I consider a balanced and fair approach.

16. As a reminder, your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. If you are representing an organization, do you consent to have your name included along with your responses to this questionnaire in the Five-Year Review Report?

    Yes. I represent part of Clark Fork Watershed Education Program and the Montana Osprey Project.

Closing

Thank you for participating in the interview process. We are grateful for the opportunity to learn from you. EPA expects to finalize the Five-Year Review in mid-2021. When complete, the Five-Year Review will be available on the site's web page, www.epa.gov/superfund/milltown-reservoir

MILLTOWN RESERVOIR / CLARK FORK RIVER SUPERFUND SITE FIVE-YEAR REVIEW INTERVIEW FORM	
Site Name: Milltown Reservoir / Clark Fork River	
EPA ID: MTD980717565	
Interviewer name: Ken Champagne, Beth Archer and Kirby Webster	**Interviewer affiliation: EPA RPM, EPA CIC and Skeo**
Subject name: Joe Griffin	**Subject affiliation: Clark Fork Coalition, Clark Fork Watershed Education Program, Citizens Technical Environmental Committee, retired MDEQ**
Interview date: 10/19/2020	**Interview time: 9 a.m.**
Interview location: N/A	
Interview format (Select): Phone/Email	
Interview category (Select): Community Organization	

Interview Introduction

EPA conducts regular checkups, called Five-Year Reviews, at Superfund sites. A Five-Year Review is a way to evaluate the progress of cleanup actions and make sure they are protecting people and the environment.

As part of the Five-Year Review for the **Milltown Reservoir / Clark Fork River** Superfund site, EPA is speaking with community members to hear their concerns and gather more information about site conditions. We are interested in your opinions and would like you to be as candid as possible. Your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. Please answer the following questions as applicable to your knowledge or situation.

Site Orientation:

The Site currently consists of three operable units. Operable Unit 1 was focused on providing a safe water supply to Milltown area residents through establishment of a public water supply system for the town of Milltown. Operable Unit 2 is the Milltown Reservoir Sediments Operable Unit (MRSOU) and includes approximately 540 acres in the Clark Fork River and Blackfoot River floodplain. MRSOU consists of the area encompassed by the former Milltown Dam and Reservoir and the area where arsenic contamination exists in groundwater. Operable Unit 3 is the Clark Fork River Operable Unit (CFROU). It consists of approximately 120 river miles of the Clark Fork River and extends from the confluence of the old Silver Bow Creek channel with the reconstructed lower Mill-Willow bypass, near Anaconda, to the maximum former Milltown Reservoir pool elevation east of Missoula. The Milltown Reservoir/ Clark Fork River site is one of four contamination areas, jointly known as the Clark Fork Basin Sites.

Questions:

1. Which operable units are you most familiar with and would like to discuss during this interview?

   I'm most familiar with Clark Fork River (OU3), which is still being actively remediated. But I'm also familiar with the now complete Milltown Reservoir Sediments (OU2), which is re-naturalizing itself.

2. Are you aware of the former environmental issues at the Site and the cleanup activities that have taken place to date?

   Yes. I am becoming more familiar with the Clark Fork River remedy and restoration. I have been on several evaluation tours and float trips with the Clark Fork Coalition and MT Fish Wildlife and Parks. In most respects I have been watching at a distance with my main focus on the cleanup and restoration of the main tributaries to the Clark Fork - Warm Springs Creek and Silver Bow Creek.

   My background is in geology and I have an interest in natural stream morphology. Silver Bow Creek is now a wholly rebuilt stream and floodplain that over time appears to be re-naturalizing itself. There are lessons to be learned that can apply to the Clark Fork.

   On the Clark Fork, whether to preserve robust habitat at the expense of removing more of the streamside tailings seems to be a growing consideration. In the now complete Phases 1, 2, 4 and 5, there was a very aggressive approach which left little in the way of mature vegetation and hence good fish habitat such as overhanging banks and vegetation. There seems to be a willingness on the part of the stakeholders to reevaluate how to approach the next phases. I find that exciting. I believe adaptive management, learning from Silver Bow Creek, Warm Springs Creek, the now complete phases of the Clark Fork, is a robust approach to design, construction and restoration. Learning as you go, from the mistakes and successes.

   Ultimately, a river will heal itself, but can take a long time.

   An additional concern is the slickens that are directly connected to the river. In 2019, during a severe summer thunderstorm, one or more slickens ponded highly contaminated water that then overtopped containment berms, discharging to the river and causing a fish kill. That event triggered additional discussion on the need for more immediate actions for those streamside hot spots.

3. What is your overall impression of the project, including cleanup, maintenance, and reuse?

   I am impressed by the way people are working together. I'm seeing more flexibility in the cleanup approach. I'm fascinated by the evolving approaches and I'm trying to keep up on the recent documents. I work with Clark Fork Coalition. It is really an outside group having a big effect on how to do the cleanup. I find it very impressive.

4. What is your assessment of the current performance of the remedy in place at the Site?

   I take a long view. The main thing is there is a lack of habitat in rebuilt areas. Some of the design features didn't work as designed. Floods were supposed to spill out onto the floodplain, which really didn't happen, even during high flow years such as 2018. It is pretty hard to get the design exactly right. My long view is to give it some time and it will do better. What was learned from the performance of completed phases should help design and build the future phases. I think the balance between more aggressive removal and preserving good habitat with limited contamination is shifting, for good reason, toward preserving habitat.

5. What have been the effects of this Site on the surrounding community, if any?

   When I was still working with a consulting firm, we did some work on Arrowstone Park in Deer Lodge. I think that park is now a real asset for the community. As I've learned from the Greenway along Silver Bow

Creek, these amenities go a long way toward building community acceptance of the short-term disruption constructing the remedy for long-term amenities.

I have also taken part in a series of three meetings on the Warm Springs Ponds, in Anaconda, Deer Lodge and Butte. These communities have interest in these cleanups in general. But there is a difference between Butte/Anaconda, where issues are largely urban, and the Clark Fork cleanup, where the Agencies are largely dealing with agricultural communities and small towns. It is a quite different cleanup. There are many farmers and ranchers that own land along the Clark Fork and the Agencies are faced with completing floodplain cleanup with agricultural end land use requirements.

6. Are you aware of any complaints or inquiries regarding environmental issues or the remedial action from residents since implementation of the cleanup?

   If you were to go to Missoula and talk about Milltown, people love it and are amazed by the cleanup. It has been so successful, both as a cleanup and as restoring the confluence of the Clark Fork and the Blackfoot.

   But as for the Clark Fork (OU3) cleanup, sentiments runs the gamut. In the immediate past, Montana DEQ worked very closely with the National Park Service at Grant-Kohrs Ranch to craft a cleanup that is compatible with a national park. DEQ also worked with local ranchers in Phases 5 and 6, to preserve and enhance hay fields adjacent to the river. However, there is ongoing concern amongst anglers over losing fish habitat. One fishing guide expressed frustration that the lack of habitat in the rebuilt reaches has affected his guiding business.

7. Are you aware of any changes to state laws or local regulations that might affect the protectiveness of the Site's remedy?

   Under Superfund law, EPA must adopt relevant applicable laws and standards (ARARs) that frame the "protectiveness" of the remedy. But over the arc of the cleanup, EPA needs the flexibility to consider waivers of those adopted standards. EPA adopted the Montana's aquatic-life standard for copper, which is based on measuring the total recoverable fraction. EPA waived the State's standard and apply the Federal standard, which is based on the dissolved fraction, based on technical impracticability of meeting the State standard. Having been party to technical impracticability analyses at both the Anaconda NPL site and the Silver Bow Creek/Butte Area NPL site, I believe that the waiver decision for the Clark Fork was arbitrary.

8. Are you aware of any changes in projected land use(s) at the Site?

   EPA and DEQ have worked hard to address the concerns and needs of land owners.

9. Are you comfortable with the status of the institutional controls at the Site? If not, what are the associated outstanding issues or recommended institutional controls?

   At all the Clark Fork Basin Superfund Sites managers have learned to be cautious about closing the public lands out of sites using fences. The focus is on a remedy and institutional controls that does not preclude public access. The agencies have developed risk based action levels that recognize exposure to contaminates is different at residential as opposed to recreational areas. That allows broad access to public lands and recreational uses.

10. Has your office conducted any site-related activities or communications in the past five years? If so, please describe the purpose and results of these activities.

    Yes – as part of both the Clark Fork Watershed Education Program and the Clark Fork Coalition, I have helped with K-12 environmental education in Deer Lodge, Drummond, Philipsburg and Missoula.

11. Have there been any problems with unusual or unexpected activities at the Site, such as emergency

response, vandalism, or trespassing?

Not that I am aware of.

12. How effective has EPA or the State's communication been in the past? Do you feel you have been kept adequately informed? How can EPA and/or the State best provide site-related information in the future?

    I have been really involved here in Butte. It is a difficult thing. As part of Citizens Technical Environmental Committee (CTEC), we are given money to be an interface between the agencies and the public. A large part of that role is organizing and hosting public meetings. I have learned that it is an extremely difficult task. Generally, unless it is in their back yard, people are not engaged. Anaconda and Butte are large communities that have more direct health concerns than Clark Fork communities. I keep myself informed. EPA's websites have been getting better and better having site documents and site-related information. Community engagement and education can be difficult.

13. What is your greatest concern moving forward with the cleanup at the Site or in specific areas?

    I do not necessarily have a concern. There are no cookie-cutter approaches to cleaning up working with a river system. I have learned a fair amount of patience after 30-years Superfund work, so I will watch with interest the evolving adaptive management approach to the rest of the cleanup. And the river will play it's own role in long-term restoration - of that I am sure.

14. Do you have any comments, suggestions, or recommendations regarding any aspects of the project, including the management or operation of the Site's remedy?

    My recommendation goes beyond the Clark Fork cleanup and entails the entire Clark Fork Basin Superfund Complex. The success of the Clark Fork cleanup necessarily relies on the success of restoring Silver Bow Creek and the four streams of Anaconda.

    The lack of a comprehensive approach to restoring the streams of the three NPL sites is disturbing. At this point in the cleanup, we should be taking a watershed approach. And while recognizing that CERCLA is not responsible for all watershed ills, CERCLA work has focused scientific energy on the watershed, albeit in piecemeal fashion.

    I strongly recommend that EPA, DEQ, the Natural Resource Damage Program, and Montana Fish Wildlife and Parks begin a broader collaboration between stakeholders and begin to evaluate the robust environmental database that is currently available to understand what is limiting ecologic restoration of the watershed. The endeavor should begin with a thorough evaluation of the current monitoring programs with the intent of identifying gaps, coordinating data collection, and assuring that the data is readily available to all interested parties. EPA, Atlantic Richfield, DEQ and FWP are currently collecting data, it is piecemeal and much of it is hard to access. The data collection should be enhanced to address related, but not specifically CERCLA issues such as temperature, nutrients and tributary flows.

    I suggest that EPA and the State of Montana set up an upper Clark Fork Basin Commission or Working Group to evaluate the watershed's ecologic restoration using the enhanced database and help to guide the various agencies working to find solutions.

15. Is there anything we have not covered that you would like to share?

    At some point it will be really important to take an integrated watershed approach to the cleanups at all three Superfund sites since they all affect each other.

16. As a reminder, your responses will not be attributed to you unless you want to go on record in your official position representing a local community group or organization. If you are representing an

organization, do you consent to have your name included along with your responses to this questionnaire in the Five-Year Review Report?

Please use my name, Joe Griffin, DEQ - Retired. I am only speaking for myself. But I am the vice president of Citizens Technical Advisory Committee, a technical advisor to Clark Fork Watershed Education Program, and a member of the Clark Fork Coalition Technical Advisory Board.

Thank you,
Joe Griffin

Closing

Thank you for participating in the interview process. We are grateful for the opportunity to learn from you. EPA expects to finalize the Five-Year Review in mid-2021. When complete, the Five-Year Review will be available on the site's web page, www.epa.gov/superfund/milltown-reservoir

APPENDIX G – SITE INSPECTION CHECKLISTS

MRSOU Inspection Checklist

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site Name: Milltown Sediments OU	**Date of Inspection:** 9/21/2020
Location and Region: Milltown, Missoula County, Montana, EPA Region 8	**EPA ID:** MTD980717565
Agency, Office or Company Leading the Five-Year Review: EPA	**Weather/Temperature:** Sunny and 80°F

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☒ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls
- ☒ Other: establish public water system for Milltown; remove contaminated sediment; streambank stabilization

Attachments: ☒ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (check all that apply)

1. **O&M Site Manager** Don Booth (Name) | PRP Contractor (Title) | 10/07/2020 (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems, suggestions ☐ Report attached: _____

2. **O&M Staff** _____ (Name) | _____ (Title) | _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems/suggestions ☐ Report attached: _____

3. **Local Regulatory Authorities and Response Agencies** (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply.

   Agency MDEQ
   Contact Keith Large (Name) | Project Manager (Title) | 10/06/2020 (Date) | _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency Missoula Valley Water Quality District
   Contact Travis Ross (Name) | Environmental Health Supervisor (Title) | 10/13/2020 (Date) | _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____ (Name) | _____ (Title) | _____ (Date) | _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone No.
Problems/suggestions ☐ Report attached: _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone No.
Problems/suggestions ☐ Report attached: _____

4. **Other Interviews** (optional) ☐ Report attached: _____

Dr. Erick Greene, Joe Griffin, Doug Martin, Karen Knudsen and Casey Hackathorn

III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)

1. **O&M Documents**

☒ O&M manual	☐ Readily available	☐ Up to date	☐ N/A
☐ As-built drawings	☐ Readily available	☐ Up to date	☒ N/A
☒ Maintenance logs	☐ Readily available	☐ Up to date	☐ N/A

Remarks: _____

2. **Site-Specific Health and Safety Plan**	☐ Readily available	☐ Up to date	☒ N/A
☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

3. **O&M and OSHA Training Records**	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

4. **Permits and Service Agreements**

☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
☐ Other permits: _____	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

5. **Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

6. **Settlement Monument Records**	☒ Readily available	☐ Up to date	☐ N/A

Remarks: _____

7. **Groundwater Monitoring Records**	☒ Readily available	☒ Up to date	☐ N/A

Remarks: _____

8. **Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

9. **Discharge Compliance Records**

☐ Air ☐ Readily available ☐ Up to date ☒ N/A

☐ Water (effluent) ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

10. **Daily Access/Security Logs** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

IV. O&M COSTS

1. **O&M Organization**

☒ State in-house ☐ Contractor for state

☐ PRP in-house ☒ Contractor for PRP

☐ Federal facility in-house ☐ Contractor for Federal facility

☐ _____

2. **O&M Cost Records**

☐ Readily available ☐ Up to date

☐ Funding mechanism/agreement in place ☒ Unavailable

Original O&M cost estimate: _____ ☐ Breakdown attached

Total annual cost by year for review period if available

From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs during Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing Damaged** ☐ Location shown on site map ☐ Gates secured ☒ N/A

Remarks: _____

B. Other Access Restrictions

1. **Signs and Other Security Measures** ☐ Location shown on site map ☒ N/A

   Remarks: _____

C. Institutional Controls (ICs)

1. **Implementation and Enforcement**

   Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

   Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

   Type of monitoring (e.g., self-reporting, drive by): _____

   Frequency: _____

   Responsible party/agency: _____

   Contact _____ _____ _____ _____

   Name Title Date Phone no.

   Reporting is up to date ☐ Yes ☐ No ☒ N/A

   Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

   Specific requirements in deed or decision documents have been met ☐ Yes ☒ No ☐ N/A

   Violations have been reported ☐ Yes ☒ No ☐ N/A

   Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☐ ICs are adequate ☒ ICs are inadequate ☐ N/A

   Remarks: Some institutional controls are in place to protect the remedy and to prevent exposure to contaminated groundwater and soil. A 2017 Institutional Controls Agreement for state-owned property restricts residential use and the installation of drinking water wells. The 2017 Institutional Controls Agreement also prohibits disturbing the repositories and using them for residential use. The southwestern portion of the MRSOU is not subject to the 2017 ICs Agreement; residential use is prevented in that area by state laws prohibiting/restricting residential development in floodways and floodplains. Most of the MRSOU is now part of Milltown State Park. The Missoula Valley Water Quality Ordinance prohibits installing public water wells in the vicinity of the arsenic plume. Additional institutional controls may be needed for areas of the MRSOU not included in the 2017 ICs Agreement to restrict private well installation in the Milltown area.

D. General

1. **Vandalism/Trespassing** ☐ Location shown on site map ☒ No vandalism evident

   Remarks: Rafting is now allowed.

2. **Land Use Changes On Site** ☐ N/A

   Remarks: Milltown State Park opened in 2018. Blackfoot River will be widened under I-90 as part of highway project.

3. **Land Use Changes Off Site** ☒ N/A

   Remarks: _____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☒ N/A

1. **Roads Damaged** ☐ Location shown on site map ☐ Roads adequate ☐ N/A

   Remarks: _____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS ☒ Applicable ☐ N/A

A. Landfill Surface

1. **Settlement** (low spots) ☐ Location shown on site map ☒ Settlement not evident
   Area extent: _____ Depth: _____
   Remarks: _____

2. **Cracks** ☐ Location shown on site map ☒ Cracking not evident
   Lengths: _____ Widths: _____ Depths: _____
   Remarks: _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Area extent: _____ Depth: _____
   Remarks: Slough on hillside above Tunnel Pond Repository due to heavy rains

4. **Holes** ☐ Location shown on site map ☒ Holes not evident
   Area extent: _____ Depth: _____
   Remarks: _____

5. **Vegetative Cover** ☒ Grass ☒ Cover properly established
   ☒ No signs of stress ☐ Trees/shrubs (indicate size and locations on a diagram)
   Remarks: _____

6. **Alternative Cover** (e.g., armored rock, concrete) ☒ N/A
   Remarks: _____

7. **Bulges** ☐ Location shown on site map ☒ Bulges not evident
   Area extent: _____ Height: _____
   Remarks: _____

8. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident

   ☐ Wet areas ☐ Location shown on site map Area extent: _____
   ☐ Ponding ☐ Location shown on site map Area extent: _____
   ☐ Seeps ☐ Location shown on site map Area extent: _____
   ☐ Soft subgrade ☐ Location shown on site map Area extent: _____
   Remarks: _____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map
   ☒ No evidence of slope instability
   Area extent: _____
   Remarks: _____

B. Benches ☐ Applicable ☒ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay

   Remarks: _____

2. **Bench Breached** ☐ Location shown on site map ☐ N/A or okay

   Remarks: _____

3. **Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay

   Remarks: _____

C. Letdown Channels ☒ Applicable ☐ N/A

(Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** (Low spots) ☐ Location shown on site map ☒ No evidence of settlement

   Area extent: _____ Depth: _____

   Remarks: _____

2. **Material Degradation** ☐ Location shown on site map ☒ No evidence of degradation

   Material type:_____ Area extent: _____

   Remarks: _____

3. **Erosion** ☐ Location shown on site map ☒ No evidence of erosion

   Area extent: _____ Depth: _____

   Remarks: _____

4. **Undercutting** ☐ Location shown on site map ☒ No evidence of undercutting

   Area extent: _____ Depth: _____

   Remarks: _____

5. **Obstructions** Type: _____ ☐ No obstructions

   ☐ Location shown on site map Area extent: _____

   Size: _____

   Remarks: Sediment from slough on hillside above Tunnel Pond Repository allowed vegetation to grow in ditch

6. **Excessive Vegetative Growth** Type: _____

☐ No evidence of excessive growth

☐ Vegetation in channels does not obstruct flow

☐ Location shown on site map Area extent: _____

Remarks: Sediment from slough on hillside above Tunnel Pond Repository allowed vegetation to grow in ditch

D. Cover Penetrations ☐ Applicable ☒ N/A

1. **Gas Vents** ☐ Active ☐ Passive

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A

Remarks: _____

2. **Gas Monitoring Probes**

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A

Remarks: _____

3. **Monitoring Wells** (within surface area of landfill)

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A

Remarks: _____

4. **Extraction Wells Leachate**

☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition

☐ Evidence of leakage at penetration ☐ Needs maintenance ☐ N/A

Remarks: _____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A

Remarks: _____

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. **Gas Treatment Facilities**

☐ Flaring ☐ Thermal destruction ☐ Collection for reuse

☐ Good condition ☐ Needs maintenance

Remarks: _____

2. **Gas Collection Wells, Manifolds and Piping**

☐ Good condition ☐ Needs maintenance

Remarks: _____

3. **Gas Monitoring Facilities** (e.g., gas monitoring of adjacent homes or buildings)

☐ Good condition ☐ Needs maintenance ☐ N/A

Remarks: _____

F. Cover Drainage Layer ☐ Applicable ☒ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A

   Remarks: _____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A

   Remarks: _____

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** Area extent: _____ Depth: _____ ☐ N/A

   ☐ Siltation not evident

   Remarks: _____

2. **Erosion** Area extent: _____ Depth: _____

   ☐ Erosion not evident

   Remarks: _____

3. **Outlet Works** ☐ Functioning ☐ N/A

   Remarks: _____

4. **Dam** ☐ Functioning ☐ N/A

   Remarks: _____

H. Retaining Walls ☒ Applicable ☐ N/A

1. **Deformations** ☐ Location shown on site map ☒ Deformation not evident

   Horizontal displacement: _____ Vertical displacement: _____

   Rotational displacement: _____

   Remarks: _____

2. **Degradation** ☐ Location shown on site map ☒ Degradation not evident

   Remarks: _____

I. Perimeter Ditches/Off-Site Discharge ☒ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident

   Area extent: _____ Depth: _____

   Remarks: Sediment from slough on hillside above Tunnel Repository allowed vegetation to grow in ditch

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A

   ☐ Vegetation does not impede flow

   Area extent: _____ Type: _____

   Remarks: Sediment from slough on hillside above Tunnel Repository allowed vegetation to grow in ditch

3. **Erosion** ☐ Location shown on site map ☒ Erosion not evident

   Area extent: _____ Depth: _____

   Remarks: _____

4. **Discharge Structure** ☐ Functioning ☒ N/A

Remarks: _____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident

Area extent: _____ Depth: _____

Remarks: _____

2. **Performance Monitoring** Type of monitoring: _____

☐ Performance not monitored

Frequency: _____ ☐ Evidence of breaching

Head differential: _____

Remarks: _____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☒ Applicable ☐ N/A

A. Groundwater Extraction Wells, Pumps and Pipelines ☐ Applicable ☒ N/A

B. Surface Water Collection Structures, Pumps and Pipelines ☐ Applicable ☒ N/A

C. Treatment System ☐ Applicable ☒ N/A

D. Monitoring Data

1. **Monitoring Data**

☒ Is routinely submitted on time ☒ Is of acceptable quality

2. **Monitoring Data Suggests:**

☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)

☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition

☐ All required wells located ☐ Needs maintenance ☐ N/A

Remarks: _____

X. OTHER REMEDIES

If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS	
A.	**Implementation of the Remedy**
	Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions). The MRSOU remedial action continues to function as designed. The primary objectives of the remedial action are to reduce or eliminate the groundwater arsenic plume, and reduce the threat to aquatic life below the dam from the release of contaminated sediments. The EPA replaced Milltown's public water supply systems and provided permanent maintenance funding. Public and private water supply wells monitored by the local health department have been consistently below the arsenic drinking water standard. The Milltown Dam was removed, contaminated sediments were excavated or capped, and the Clark Fork River is flowing in the new channel with no sedimentation or erosion issues identified. Floodplain vegetation has achieved performance standards and monitoring continues. Contaminated sediments were excavated and placed in the Tunnel Pond Repository, which was then covered. The on-site repositories, Interstate 90 bank improvements, removal and re-grading of the Bypass Channel, bridge replacements and strengthening of the Interstate 90 Bridge abutments on the Blackfoot River are completed and functioning as designed.
B.	**Adequacy of O&M**
	Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. O&M appears to be adequate.
C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future. Arsenic concentrations in groundwater have decreased significantly since the cleanup began, but still exceed the cleanup goal. Over the past five years, the arsenic concentration has decreased in the most highly contaminated well; other wells have had stable, increasing or decreasing trends. The ROD anticipated that the cleanup goals would be achieved about four to 10 years after completion of dam and sediment removal. It has now been about nine years since substantial construction was completed in 2012. Based on the concentration trends over the past five years, the EPA does not expect groundwater to achieve the arsenic standard within the next several years. Therefore, this FYR retains the recommendation from the 2016 FYR to determine whether additional measures are needed to reduce arsenic concentrations below the cleanup goal.
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None identified.

MRSOU Site Inspection Participants:

Ken Champagne, EPA
Michael Kustudia, Milltown State Park
Don Booth (PRP contractor)
Kris Cook and Michael Langguth (PRP subcontractor)
Treat Suomi, Skeo (EPA's FYR contractor)
Doug Martin, Montana Natural Resource Damage Program

CFROU Inspection Checklist

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site Name: Clark Fork River OU	**Date of Inspection:** 9/22/2020
Location and Region: Milltown, Missoula County, Montana, EPA Region 8	**EPA ID:** MTD980717565
Agency, Office or Company Leading the Five-Year Review: EPA	**Weather/Temperature:** Low 70s and hazy

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☐ Access controls
- ☒ Institutional controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☒ Other: in-situ treatment of soil and sediment
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☒ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (check all that apply)

1. **O&M Site Manager** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems, suggestions ☐ Report attached: _____

2. **O&M Staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone: _____
   Problems/suggestions ☐ Report attached: _____

3. **Local Regulatory Authorities and Response Agencies** (i.e., state and tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices). Fill in all that apply.

   Agency Anaconda-Deer Lodge County
   Contact Carl Hamming (Name) _____ (Title) 10/21/2020 (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency MDEQ
   Contact Joel Chavez (Name) Project Manager (Title) 10/06/2020 (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency Missoula Valley Water Quality District
   Contact Travis Ross (Name) Environmental Health Supervisor (Title) 10/13/2020 (Date) _____ (Phone No.)
   Problems/suggestions ☐ Report attached: _____

   Agency _____
   Contact _____ (Name) _____ (Title) _____ (Date) _____ (Phone No.)

Problems/suggestions ☐ Report attached: _____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone No.
Problems/suggestions ☐ Report attached: _____

4. **Other Interviews** (optional) ☐ Report attached: _____

Dr. Erick Greene, Joe Griffin, Doug Martin, Alex Leone, Casey Hackathorn, Jeffrey Johnson

III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)

1. **O&M Documents**

☒ O&M manual	☐ Readily available	☐ Up to date	☐ N/A
☒ As-built drawings	☐ Readily available	☐ Up to date	☐ N/A
☒ Maintenance logs	☐ Readily available	☐ Up to date	☐ N/A

Remarks: _____

2.	**Site-Specific Health and Safety Plan**	☒ Readily available	☐ Up to date	☐ N/A
	☐ Contingency plan/emergency response plan	☒ Readily available	☐ Up to date	☐ N/A
	Remarks: _____			
3.	**O&M and OSHA Training Records**	☒ Readily available	☐ Up to date	☐ N/A
	Remarks: _____			
4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☒ N/A
	☐ Other permits: _____	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
7.	**Groundwater Monitoring Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☒ N/A
	Remarks: _____			

9. **Discharge Compliance Records**

☐ Air ☐ Readily available ☐ Up to date ☒ N/A

☐ Water (effluent) ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

10. **Daily Access/Security Logs** ☐ Readily available ☐ Up to date ☒ N/A

Remarks: _____

IV. O&M COSTS

1. **O&M Organization**

☒ State in-house ☒ Contractor for state

☐ PRP in-house ☐ Contractor for PRP

☐ Federal facility in-house ☐ Contractor for Federal facility

☐ _____

2. **O&M Cost Records**

☐ Readily available ☐ Up to date

☐ Funding mechanism/agreement in place ☒ Unavailable

Original O&M cost estimate: _____ ☐ Breakdown attached

Total annual cost by year for review period if available

From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached
From: _____ Date	To: _____ Date	_____ Total cost	☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs during Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing Damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A

Remarks: Fencing is present to protect new vegetation.

B. Other Access Restrictions

1. **Signs and Other Security Measures** ☐ Location shown on site map ☐ N/A

Remarks: Access along much of Reach A is open and available for recreation. Access in the Grants-Kohr area is restricted by gates and fencing.

C. Institutional Controls (ICs)

1. **Implementation and Enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (e.g., self-reporting, drive by): _____

Frequency: _____

Responsible party/agency: _____

Contact _____ _____ _____ _____

Name Title Date Phone no.

Reporting is up to date ☐ Yes ☐ No ☒ N/A

Reports are verified by the lead agency ☐ Yes ☐ No ☒ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☒ No ☐ N/A

Violations have been reported ☐ Yes ☒ No ☐ N/A

Other problems or suggestions: ☐ Report attached

2. **Adequacy** ☐ ICs are adequate ☒ ICs are inadequate ☐ N/A

Remarks: Powell County's Superfund Overlay District restricts installation of wells and requires permits for land use changes. Institutional controls are needed for segments of the CFROU that are in other counties. Additional institutional controls may also be needed; as stated in the ROD, these could include deed restrictions, permanent funding for Arrowstone Park, and groundwater sampling and use controls.

D. General

1. **Vandalism/Trespassing** ☐ Location shown on site map ☒ No vandalism evident

Remarks: _____

2. **Land Use Changes On Site** ☒ N/A

Remarks: _____

3. **Land Use Changes Off Site** ☒ N/A

Remarks: _____

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads Damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A

Remarks: _____

B. Other Site Conditions

Remarks: _____

VII. LANDFILL COVERS	☒ Applicable ☐ N/A	
A. Landfill Surface		
1. **Settlement** (low spots)	☐ Location shown on site map	☒ Settlement not evident
Area extent: _____		Depth: _____
Remarks: _____		
2. **Cracks**	☐ Location shown on site map	☒ Cracking not evident
Lengths: _____	Widths: _____	Depths: _____
Remarks: _____		
3. **Erosion**	☐ Location shown on site map	☒ Erosion not evident
Area extent: _____		Depth: _____
Remarks: _____		
4. **Holes**	☐ Location shown on site map	☒ Holes not evident
Area extent: _____		Depth: _____
Remarks: _____		
5. **Vegetative Cover**	☐ Grass	☒ Cover properly established
☐ No signs of stress	☐ Trees/shrubs (indicate size and locations on a diagram)	
Remarks: _____		
6. **Alternative Cover** (e.g., armored rock, concrete)		☒ N/A
Remarks: _____		
7. **Bulges**	☐ Location shown on site map	☒ Bulges not evident
Area extent: _____		Height: _____
Remarks: _____		
8. **Wet Areas/Water Damage**	☒ Wet areas/water damage not evident	
☐ Wet areas	☐ Location shown on site map	Area extent: _____
☐ Ponding	☐ Location shown on site map	Area extent: _____
☐ Seeps	☐ Location shown on site map	Area extent: _____
☐ Soft subgrade	☐ Location shown on site map	Area extent: _____
Remarks: _____		
9. **Slope Instability**	☐ Slides	☐ Location shown on site map
☒ No evidence of slope instability		
Area extent: _____		
Remarks: _____		

B. Benches ☐ Applicable ☒ N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)	
C. Letdown Channels ☐ Applicable ☒ N/A (Channel lined with erosion control mats, riprap, grout bags or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)	
D. Cover Penetrations ☐ Applicable ☒ N/A	
E. Gas Collection and Treatment ☐ Applicable ☒ N/A	
F. Cover Drainage Layer ☐ Applicable ☒ N/A	
G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A	
H. Retaining Walls ☐ Applicable ☒ N/A	
I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☒ N/A	
VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A	
IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☒ N/A	
X. OTHER REMEDIES	
If there are remedies applied at the site and not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.	
XI. OVERALL OBSERVATIONS	
A. Implementation of the Remedy	
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is designed to accomplish (e.g., to contain contaminant plume, minimize infiltration and gas emissions). Cleanup is underway in Reach A of the CFROU. Reach B will be cleaned up after cleanup is complete in Reach A. The EPA determined that Reach C requires no further action. Long-term monitoring is underway to assess groundwater, surface water and vegetation during and after cleanup. Additional monitoring efforts include streambed sediments, macroinvertebrates, periphyton, nutrients and fish populations. During the September 2020 FYR site inspection, participants observed some eroded riverbanks where stabilization is planned.	
B. Adequacy of O&M	
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy. O&M appears to be adequate.	
C. Early Indicators of Potential Remedy Problems	
Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future. None identified	
D. Opportunities for Optimization	
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. None identified	

CFROU Site Inspection Participants:

Ken Champagne, EPA
Joel Chavez, MDEQ
Jeffrey Johnson, National Park Service at Grant-Kohrs Ranch National Historic Site

Don Booth (PRP contractor)
Tim Riley, MDEQ
Brian Bartkowiak, Montana Natural Resource Damage Program
Bo Downing, Montana Natural Resource Damage Program
Treat Suomi, Skeo

APPENDIX H – SITE INSPECTION PHOTOS

MRSOU Inspection Photos

Figure H-1: Tunnel Pond Repository

Left: Tunnel Pond Repository; Right: Tunnel Pond Repository drainage ditch

Figure H-2: Tunnel Pond Repository Erosion

Left: Eroded area above Tunnel Pond Repository; Right: Vegetation in perimeter ditch as a result of eroded area above Tunnel Pond Repository

Figure H-3: Confluence of Blackfoot and Clark Fork Rivers

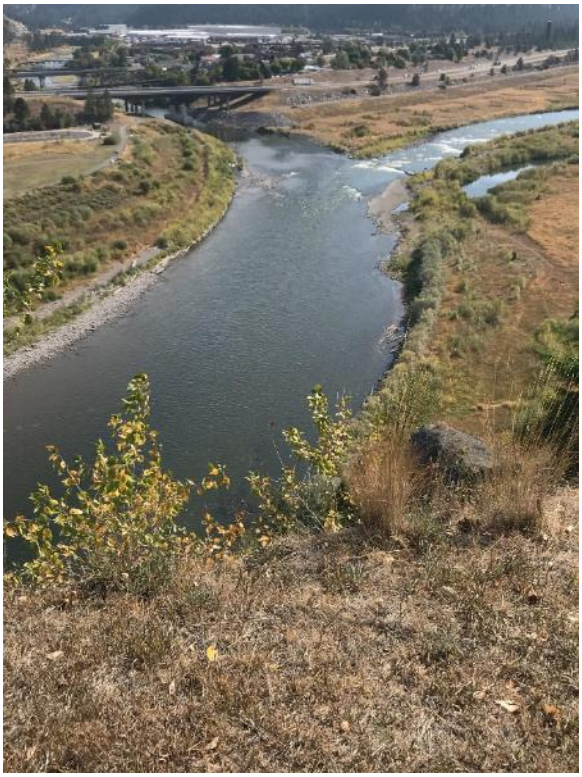

Figure H-4: Buttress Along Interstate 90

Figure H-5: Lower Part of Right Bank Repository

Figure H-6: Milltown State Park

View of new Milltown State Park from overlook

Figure H-7: Milltown State Park Signage

Figure H-8: View of Tunnel Pond Repository from Milltown State Park Overlook

Figure H-9: Right Bank Repository

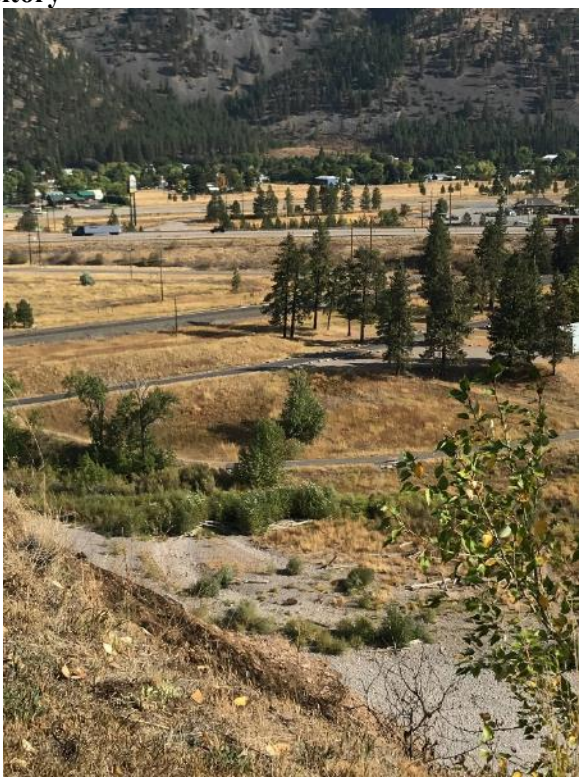

Figure H-10: Interstate 90 Bridges Above Blackfoot River

Figure H-11: River Safety Warning Sign

CFROU Inspection Photos

Figure H-12: Area with Remediation Underway

Figure H-13: Arrowstone Park

Figure H-14: Bank Stabilization on Clark Fork River

Figure H-15: Bank Stabilization on Clark Fork River with Sediment Deposition on Inside Curve

Figure H-16: Eroded Bank Where Stabilization is Planned

Figure H-17: Clark Fork Phase 1 Below Warm Springs Ponds

Figure H-18: MDEQ Enclosures to Protect Plants

Figure H-19: Signs Posted at Site

Figure H-20: Grant-Kohrs Ranch National Historic Site

Figure H-21: Slickens Area Left in Place for Education at Grants-Kohr Ranch

Figure H-22: Oxbow Pond Left in Place

Figure H-23: New Fencing to Exclude Cattle from Vegetation

Figure H-24: Newly Planted Vegetation

Figure H-25: Phase 1

Figure H-26: Phase 2

Figure H-27: Phase 3

Figure H-28: Phase 4

Figure H-29: Phase 5

Figure H-30: Phase 6

Figure H-31: Phase 7

Figure H-32: Recreation on Clark Fork River in the Area of Grant-Kohrs Ranch

Figure H-33: Remediated Residential Yard

APPENDIX I – ARAR REVIEW

Section 121 (d)(2)(A) of CERCLA specifies that Superfund remedial actions must meet any federal standards, requirements, criteria or limitations that are determined to be ARARs. ARARs are those standards, criteria or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance at a CERCLA site. Chemical-specific ARARs are specific numerical quantity restrictions on individually listed contaminants in specific media. Examples of chemical-specific ARARs include the MCLs specified under the Safe Drinking Water Act as well as the Ambient Water Quality Criteria enumerated under the Clean Water Act.

Groundwater ARARs

The decision documents established federal MCLs and Montana Water Quality Standards as ARARs for groundwater at the Site. This FYR compared the numerical values listed in the Site's decision documents against the current federal and state standards to identify any changes that could affect protectiveness of the remedy (Table I-1). The state standard for arsenic is now the same as the federal standard, which was selected in the 2004 ROD.

Table I-1: Previous and Current ARARs for Groundwater COCs

COC	ARAR Values in 2004 ROD (µg/L)		Current ARAR Values (µg/L)		ARAR Change?
	State[a]	Federal[b]	State[c]	Federal[d]	
Arsenic	20	10	10	10	State standard now matches federal standard
Cadmium	5	5	5	5	No change
Copper	1,300	1,300	1,300	1,300	No change
Lead	15	15	15	15	No change
Zinc	2,000	N/A	2,000	N/A	No change

Notes:

a) Sources: April 2004 CFROU ROD, page A-22; December 2004 MRSOU ROD, page A-21
b) Sources: April 2004 CFROU ROD, page A-6; December 2004 MRSOU ROD, page A-6
c) Human health standards for groundwater from Montana Numeric Water Quality Standards – Circular DEQ-7. June 2019. Accessed 10/15/2020 at https://deq.mt.gov/Portals/112/Water/WQPB/Standards/PDF/DEQ7/DEQ-7.pdf.
d) Federal MCLs accessed 10/15/2020 at https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations.

Surface Water ARARs

The decision documents established federal ambient water quality criteria and Montana Water Quality Standards as ARARs for surface water at the Site. Numerical values listed in decision documents were compared to current federal and state standards to identify any changes that could affect protectiveness of the remedy (Table I-2). For each COC, this FYR compared the most stringent surface water ARAR value identified in the 2004 RODs against the most stringent current surface water ARAR value. This comparison shows that none of the COCs now have a more stringent surface water ARAR value than they had at the time of the 2004 RODs.

Table I-2: Previous and Current ARARs for Surface Water COCs

COC	ARAR Values in 2004 RODs (µg/L)						Current ARAR Values (µg/L)						ARAR Change?
	State[a]			Federal[b]			State[c]			Federal			
	Aquatic Life		Human Health	Aquatic Life		Human Health	Aquatic Life		Human Health	Aquatic Life[d]		Human Health[g]	
	Acute	Chronic		CMC[e]	CCC[f]		Acute	Chronic		CMC[e]	CCC[f]		
Arsenic	340	150	18	340	150	10	340	150	10	340	150	10	No change
Cadmium	2.1*	0.27*	N/A	2.0*	0.25*	5	1.9*	0.79*	5	1.8*	0.72*	5	No change
Copper	18*[h]	12*[h]	1,300*[h]	13*	9.0*	1,300	14*[h]	9.3*[h]	1,300[h]	N/A	N/A	1,300	No change
Lead	81*	3.2*	15	65*	2.5*	15	82*	3.2*	15	65*	2.5*	15	No change
Zinc	119*	119*	2,000	120*	120*	N/A	120*	120*	7,400	120	120	N/A	No change

Notes:

* = value indicated is for a hardness of 100 mg/L

a) Sources: April 2004 CFROU ROD, pages A-19 through A-20; December 2004 MRSOU ROD, page A-18. In cases of slight numerical differences between the two RODs, the more stringent standard is presented.

b) Source: April 2004 CFROU ROD, page A-7

c) Montana Numeric Water Quality Standards – Circular DEQ-7. June 2019. Accessed 10/15/2020 at https://deq.mt.gov/Portals/112/Water/WQPB/Standards/PDF/DEQ7/DEQ-7.pdf. Values corresponding to a hardness of 100 mg/L were calculated using the equations in DEQ-7.

d) National Recommended Water Quality Criteria – Aquatic Life Criteria for freshwater. Accessed 10/15/2020 at https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table.

e) CMC = Criterion Maximum Concentration is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect.

f) CCC = Criterion Continuous Concentration is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect.

g) Federal MCLs accessed 10/15/2020 at https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations.

h) The state surface water standards for copper apply only to the MRSOU. The state surface water standards for copper were waived in the CFROU ROD and replaced with these federal water quality criteria measured only on the dissolved portion of the sample: acute 13 µg/L, chronic 9 µg/L, human health 1,300 µg/L.