

**FOURTH FIVE-YEAR REVIEW REPORT FOR
MILLTOWN RESERVOIR SEDIMENTS SUPERFUND SITE
MISSOULA, GRANITE, POWELL AND ANACONDA-DEER LODGE COUNTIES, MONTANA**



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Table of Contents

LIST OF ABBREVIATIONS AND ACRONYMS	iv
I. INTRODUCTION.....	1
Site Background.....	1
FIVE-YEAR REVIEW SUMMARY FORM	3
II. RESPONSE ACTION SUMMARY.....	5
Basis for Taking Action	5
Response Actions.....	5
Status of Implementation	10
Systems Operations/Operation and Maintenance (O&M)	20
III. PROGRESS SINCE THE PREVIOUS REVIEW.....	21
IV. FIVE-YEAR REVIEW PROCESS.....	23
Community Notification, Community Involvement and Site Interviews	23
Data Review.....	23
Site Inspection.....	33
V. TECHNICAL ASSESSMENT	35
QUESTION A: Is the remedy functioning as intended by the decision documents?	35
QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels and RAOs used at the time of the remedy selection still valid?.....	37
QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?.....	39
VI. ISSUES/RECOMMENDATIONS	39
OTHER FINDINGS.....	43
VII. PROTECTIVENESS STATEMENT.....	43
VIII. NEXT REVIEW	44
APPENDIX A – REFERENCE LIST	A-1
APPENDIX B – SITE CHRONOLOGY	B-1
APPENDIX C – SITE MAPS	C-1
APPENDIX D – PRESS NOTICE	D-1
APPENDIX E – INTERVIEW FORMS	E-1
APPENDIX F – MRSOU SITE INSPECTION CHECKLIST	F-1
APPENDIX G – CFROU SITE INSPECTION CHECKLIST	G-1
APPENDIX H – SITE INSPECTION PHOTOS	H-1
APPENDIX I – DATA REVIEW TABLES AND FIGURES	I-1
APPENDIX J – DETAILED ARARS REVIEW	J-1
APPENDIX K – 2017 INSTITUTIONAL CONTROLS AGREEMENT (MRSOU).....	K-1

Tables

Table 1: MRSOU Groundwater and Surface Water Performance Standards.....	7
Table 2: CFROU Groundwater and Surface Water Performance Standards.....	10
Table 3: CFROU Soil Arsenic Cleanup Goals	10
Table 4: Summary of Planned and/or Implemented Institutional Controls (ICs).....	17
Table 5: Protectiveness Determinations/Statements from the 2021 FYR Report	21
Table 6: Status of Recommendations from the 2021 FYR Report.....	22
Table 7: Groundwater Dissolved Arsenic Concentration in MRSOU, Spring 2020 to Winter 2026.....	24
Table 8: Maximum Total and Dissolved Metals Concentrations in Surface Water at USGS Gaging Stations	26
Table 9: Maximum Total and Dissolved Metals Concentrations in Surface Water at USGS Gaging Stations	31

Table 10: Summary of Post-Remedial Action Vegetation Monitoring, Phases 1 through 6.....	32
Table B-1: Site Chronology.....	B-1
Table I-1: Dissolved Arsenic Concentrations reported in µg/L in MRSOU Wells, 2008-2026.....	I-19
Table I-2: Mann-Kendall Trend Test for Evidence of Decreasing Concentrations in MRSOU Wells	I-20
Table I-3: 2024 CFROU Total Recoverable Arsenic Concentrations, Surface Water	I-20
Table I-4: 2024 CFROU Total Recoverable Cadmium Concentrations, Surface Water.....	I-21
Table I-5: 2024 CFROU Total Recoverable Copper Concentrations, Surface Water.....	I-21
Table I-6: 2024 CFROU Total Recoverable Lead Concentrations, Surface Water.....	I-22
Table I-6: 2024 CFROU Total Recoverable Lead Concentrations, Surface Water.....	I-22
Table I-7: Mann-Kendall Test Results for Declining Trends for Surface Water COCs in CFROU from 2010-2023	I-23
Table J-1: Previous and Current Groundwater COC Standards	J-1
Table J-2: Previous and Current Surface Water COC Standards	J-2

Figures

Figure 1: Site Vicinity Map.....	4
Figure 2: Detailed CFROU Map	14
Figure 3: MRSOU Institutional Control Map.....	19
Figure 4: Detailed MRSOU Map	28
Figure C-1: MRSOU Sediment Accumulation Areas	C-1
Figure C-2: Powell County Superfund Overlay District, Upstream Section.....	C-2
Figure C-3: Powell County Superfund Overlay District, Downstream Section.....	C-3
Figure C-4: Arrowstone Park Parcel Map	C-4
Figure C-5: USGS Monitoring Locations in the Upper Clark Fork River Basin	C-5
Figure C-6: MRSOU 10-Year Geomorphic Monitoring	C-6
Figure C-7: Montana FWP Fish Sampling Locations	C-7
Figure I-1: Dissolved Arsenic Time-Concentration Graphs for MRSOU Wells.....	I-1
Figure I-2: Example Greenline Photos, 2011 to 2025	I-7
Figure I-3: Total Recoverable Arsenic Time-Concentration Graphs for CFROU Surface Water	I-8
Figure I-4: Total Recoverable Cadmium Time-Concentration Graphs for CFROU Surface Water	I-9
Figure I-5: Total Recoverable Copper Time-Concentration Graphs for CFROU Surface Water	I-10
Figure I-6: Total Recoverable Lead Time-Concentration Graphs for CFROU Surface Water.....	I-11
Figure I-7: Total Recoverable Zinc Time-Concentration Graphs for CFROU Surface Water.....	I-12
Figure I-8: Total Arsenic (Dry Weight) Time-Concentration Graphs for CFROU Sediment.....	I-13
Figure I-9: Total Cadmium (Dry Weight) Time-Concentration Graphs for CFROU Sediment	I-14
Figure I-9: Total Copper (Dry Weight) Time-Concentration Graphs for CFROU Sediment	I-15
Figure I-10: Total Lead (Dry Weight) Time-Concentration Graphs for CFROU Sediment.....	I-16
Figure I-11: Total Zinc (Dry Weight) Time-Concentration Graphs for CFROU Sediment.....	I-17
Figure I-12: Fish Population Estimates in the Clark Fork River, 2010 to 2024.....	I-18

LIST OF ABBREVIATIONS AND ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
ARCO	Atlantic Richfield Company
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CFROU	Clark Fork River Operable Unit
COC	Contaminant of Concern
CSM	Conceptual Site Model
DEQ	Department of Environmental Quality
EPA	United States Environmental Protection Agency
FWP	Fish, Wildlife and Parks
FYR	Five-Year Review
I-90	Interstate 90
IC	Institutional Control
ICIAP	Institutional Controls Implementation and Assurance Plan
LiDAR	Light Detection and Ranging
LOESS	Locally Estimated Scatterplot Smoothing
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilogram
µg/dL	micrograms per deciliter
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
NRDP	Natural Resource Damage Program
OU	Operable Unit
O&M	Operation and Maintenance
PEC	Probable Effect Concentration
PRP	Potentially Responsible Party
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation and Feasibility Study
RipES	Riparian Evaluation System
ROD	Record of Decision
RML	Removal Management Level
RPM	Remedial Project Manager
RSL	Regional Screening Level
SAA	Sediment Accumulation Area
TEC	Threshold Effect Concentration
TI	Technical Impracticability
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 Section 121 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 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 fourth FYR for the Milltown Reservoir Sediments 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. OU-1 (the Milltown Drinking Water Supply OU) is now part of OU-2. OU-2 is the Milltown Reservoir Sediments OU (MRSOU), which includes the area encompassed by the former Milltown dam and reservoir. OU-3 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.

The EPA's remedial project managers (RPMs) Molly Roby and Lauren Murphy led the FYR. Participants included EPA hydrogeologist Angela Frandsen, Montana Department of Environmental Quality (DEQ) project managers Breana Pabst, Logan Dudding and Jessica Banaszak, and Alison Cattani and Kim Johnson Chase from EPA FYR support contractor Skeo. The potentially responsible parties (PRPs) were notified of the initiation of the FYR; their contractor Pioneer Technical Services provided support during the site inspection of the MRSOU with Zach Archibald's attendance. The review began on 9/29/2025.

The EPA has determined in the five-year review that the cleanup at the Milltown Reservoir Sediments 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 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 still underway at the Clark Fork River Operable Unit 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. The EPA is determining whether additional land use and groundwater use restrictions are needed.

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 the Milltown Reservoir Sediments site (including the Clark Fork River Operable Unit, discussed further below). Figure 1 is a map of the Site.

In the Butte area, upstream of the Site, 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 areas into the upper Clark Fork River channel and floodplain and transported large quantities of waste to the newly constructed Milltown Reservoir.

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 nearby fields. The EPA added the Site to the National Priorities List (NPL) in 1983.

The MRSOU (OU-2) is located at the confluence of the Clark Fork and Blackfoot rivers in Missoula County (Figure 1). The MRSOU includes about 540 acres in the Clark Fork River and Blackfoot River floodplain. It consists of the former Milltown dam and reservoir, including on-site disposal areas and the associated groundwater contamination. The Milltown Dam (which was removed in 2009 as part of the Site's cleanup) was owned and operated as a hydroelectric generating facility by NorthWestern Energy Corporation. The alluvial aquifer under and downstream of the former reservoir became contaminated with arsenic, primarily coming from contaminated reservoir sediments. OU-1, where an interim remedy was selected, is now part of the MRSOU. OU-1 focused on providing a safe water supply to Milltown area residents through the establishment of a public water supply system in Milltown as an alternative to the use of private, domestic wells previously used for drinking water in the Milltown area. The potentially responsible parties (PRPs) for the MRSOU are the Atlantic Richfield Company (ARCO) and NorthWestern Energy Corporation.

The CFROU (OU-3) is a portion of the Clark Fork River downstream of the Silver Bow Creek/Butte Area site and the Anaconda Co. Smelter site up to the MRSOU (Figure 2). 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. Reach A, the farthest upstream reach, flows north for approximately 43 river miles past the towns of Galen and Deer Lodge. Reach B is 31 river miles from upstream of Garrison to downstream of Drummond. Reach C then flows 47 river miles past Clinton to the former Milltown Reservoir area near Bonner (Figure 1). 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 78,000) is located about seven river miles downstream of Milltown and Bonner, Montana and the MRSOU. 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. The Clark Fork River in the vicinity of the MRSOU is used for recreational rafting, kayaking and fishing. The town of Deer Lodge (population approximately 3,000) is within and adjacent to Reach A of CFROU. Arrowstone Park and Grant-Kohrs Ranch National Historic Site are in Deer Lodge.

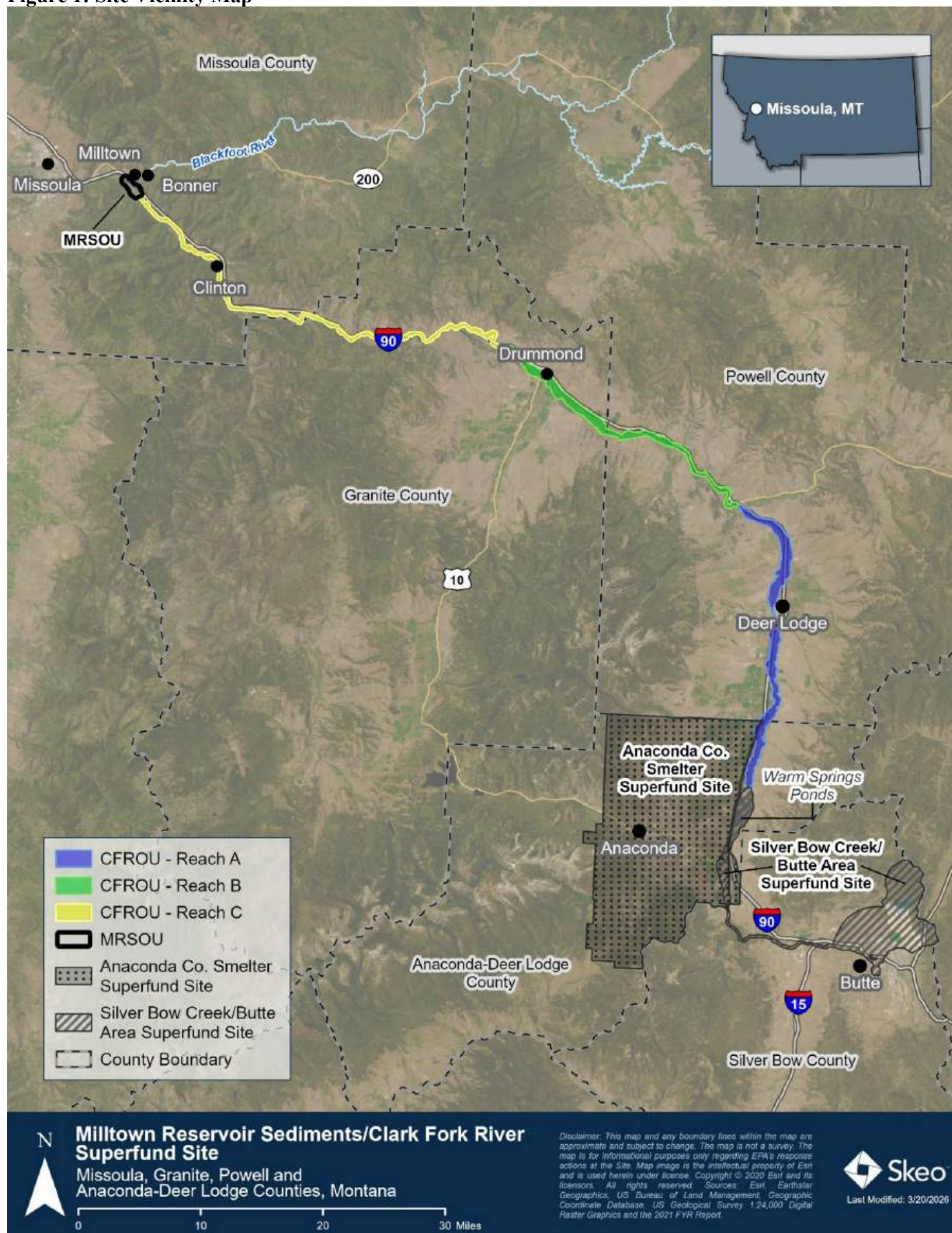
Assisted by an EPA Superfund Redevelopment Initiative pilot grant and with EPA technical support, nearby communities developed the Conceptual Redevelopment Plan for the MRSOU in 2005, with revisions in 2008. The plan called for the creation of a state park with trails, river access, wildlife habitat and interpretive areas celebrating the region's history and heritage. In 2010, the state of Montana acquired portions of the MRSOU. The 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		
EPA ID: MTD980717565		
Region: 8	State: Montana	City/County: Milltown/Missoula, Granite, Powell and Anaconda-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: Molly Roby and Lauren Murphy with contractor support provided by Skeo		
Author affiliation: EPA Region 8 and Skeo		
Review period: 9/29/2025 – 7/20/2026		
Date of site inspection: 10/21/2025		
Type of review: Statutory		
Review number: 4		
Triggering action date: 8/5/2021		
Due date (<i>five years after triggering action date</i>): 8/5/2026		

Figure 1: Site Vicinity Map



II. RESPONSE ACTION SUMMARY

Basis for Taking Action

OU-1

In 1981, local public health authorities found arsenic in drinking water wells in the Milltown area at concentrations up to 900 micrograms per liter ($\mu\text{g/L}$), exceeding the federal drinking water standard, which was 50 $\mu\text{g/L}$ at that time.

MRSOU

In 1990, 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 DEQ, 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 that surface 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

The EPA issued an amendment to Administrative Order on Consent to ARCO initiating the RI/FS process for the CFROU. The 1998 CFROU 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 risk assessment also concluded that arsenic levels in fish from the Clark Fork River and locally produced beef are within the acceptable risk range.

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, the 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 OU-1 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, including a water supply well, replacement of household water supply appurtenances and ongoing sampling of individual residences. OU-1 was later combined with the MRSOU remedy.

The Montana Power Company, a predecessor of the NorthWestern Energy Corporation, improved the Milltown spillway and dam from 1986 through 1990. A total of 14,500 cubic yards of reservoir sediments and debris were transported and encapsulated in the Upland Disposal site (Figure 3).

MRSOU

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

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 Figure C-1 in Appendix C for a map of SAAs).
- Isolating SAA I sediments from flowing surface water by creating a bypass channel through SAA I, 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, removing the sediments in SAA I down to a predetermined contour surface using mechanical excavation techniques, hauling the waste (approximately 90 miles via rail cars), and placing that waste in the Opportunity Ponds disposal area 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.
- Replacing any drinking water supply that exceeds the drinking water standard of 10 µg/L for arsenic due to remedial action implementation (if appropriate, a temporary controlled groundwater area may be established until the Milltown aquifer recovers using monitored natural attenuation).
- Replacing or retrofitting 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 (I-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.
- Undertaking bridge stability mitigation for certain bridges near the MRSOU.
- Monitoring and maintenance of borrow and staging areas revegetated during remedial action.

¹ Consistent with the ROD and Consent Decree, contaminated sediments were left in place beneath portions of the Interstate 90 (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.

- Monitoring surface water and groundwater.
- Implementing 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 DEQ, if temporary construction-related surface water quality standards are exceeded.
- Taking measures to reduce harm to fish, wildlife and wetlands due to cleanup construction in consultation with the U.S. Fish and Wildlife Service.

The MRSOU ROD noted that several institutional controls were already in effect and contributing to protection of public health and the environment, including private land use controls, Missoula County land use plans, floodplain and subdivision regulations, zoning, county development regulations for utility service extensions, as well as the Missoula Valley Aquifer Protection Ordinance, which controls well use in the county. The MRSOU ROD also identified the need for the following institutional controls:

- Continue funding for maintaining the existing replacement water supply for Milltown residents (installed under the OU-1 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 December 2004 MRSOU ROD indicated that groundwater standards were expected to be met within 4 to 10 years following completion of dam and sediment removal. Tables 1 lists the cleanup goals for the MRSOU.

Table 1: MRSOU Groundwater and Surface Water Performance Standards

COC	Groundwater Performance Standard ^a (µg/L)	Surface Water Performance Standards ^{b,c} (µg/L)		
		Aquatic Life		Human Health
		Acute	Chronic	
Arsenic	10	340	150	10 ^d (federal) 18 (state)
Cadmium	5	2.10	0.27	5 ^d
Copper ^e	1,300	13	9	1,300
Lead	15	81	3.2	15
Zinc	2,000	119	119	2,000
<i>Notes:</i> - 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. - Source: Exhibit 2-34 of the December 2004 ROD - Based on a hardness of 100 mg/l using a total recoverable method, except as noted. - Based on dissolved concentration. - The MRSOU ROD stated that the 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. Based on dissolved concentration. µg/L = micrograms per liter				

CFROU

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. In some cases, ARCO re-incorporated the contaminated soil 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.

Prior to it becoming a public park, the area encompassed by Arrowstone Park was developed in a joint project between ARCO and Powell County to demonstrate alternate remedial technologies and aesthetically enhance the southern entrance into Deer Lodge. The majority of this work happened between 1995 and 1999. Because the work was completed prior to the ROD for the CFROU, one subarea of the project was conducted as an approved demonstration project with EPA and DEQ review and approval. The work in two additional subareas was completed by ARCO as voluntary demonstration projects; nonetheless, all planning and design documents were submitted to the agencies for their review and comment. The project was called the South Deer Lodge Entryway Improvement Project (SDLEIP). Objectives of the SDLEIP were to demonstrate technologies for remediating fluvially deposited mine tailings/impacted soils while providing recreational amenities for the community. Various treatment applications were applied to different subareas of the SDLEIP; applications included cement kiln dust, lime kiln dust and/or limerock prior to revegetation with native plant species. Streambanks were stabilized as a result of this effort as well. Other objectives were to provide recreational amenities including fishing access points, parking areas, picnic areas, a raft/boat launch, handicap river fishing access, a restroom facility, pedestrian trails with benches, and interpretive signs.

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

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 applicable or relevant and appropriate requirements (ARARs).

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, will 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 future land use. Severely impacted soils, also known as slickens, will be removed and revegetated, with limited exception.
- 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. A 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 (Figure 2) 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 National Park Service.

The CFROU ROD expected that removal of tailings and contaminated soil, along with establishment of vegetation, would reduce the transport of COCs to groundwater. The ROD also stated that if the selected remedy fails to achieve full compliance with groundwater performance standards, the EPA will consider alternatives to meet the standards or, if warranted, invoke appropriate waivers of standards.

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 to an issuance of an Explanation of Significant Differences 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 Explanation of Significant Differences 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 because there were no feasible remedial alternatives due to higher flows and widespread contamination that is thoroughly mixed with fluvial soils.

Tables 2 and 3 list the cleanup goals for the CFROU.

Table 2: CFROU Groundwater and Surface Water Performance Standards

COC	Groundwater Performance Standard ^a (µg/L)	Surface Water Performance Standards ^{b,c} (µg/L)		
		Aquatic Life ^c		Human Health
		Acute	Chronic	
Arsenic	10	340	150	10 (federal) 18 (state)
Cadmium	5	2	0.25	5
Copper ^d	1,300	13	9	1,300
Lead	15	81	3.2	15
Iron	300	--	--	--
Zinc	2,000	119	119	2,000
<i>Notes:</i> - Source: Section 13.11.2 of the April 2004 ROD. - Source: Exhibit 2-29 of the April 2004 ROD. - Based on water hardness of 100 milligrams per liter (mg/L) using the total recoverable concentration, except as noted for copper. - EPA waived the state standard for copper in the CFROU and substituted federal water quality criteria promulgated under the Clean Water Act. The replacement standard is measured as the dissolved component. µg/L = micrograms per liter -- = not applicable because iron is not a COC for surface water				

Table 3: CFROU Soil Arsenic Cleanup Goals

Land Use	CFROU ROD Soil Arsenic Cleanup Goal ^a (mg/kg)
Residential	150
Recreational	680 for children at Arrowstone Park and other recreational scenarios
	1,600 for fishermen, swimmers and tubers along the river
Ranching/Farming	620
<i>Notes:</i> Arsenic concentration in soil averaged over exposure units. Source: April 2004 ROD (Exhibit 2-11 and page 2-50) mg/kg = milligrams per kilogram	

Status of Implementation***MRSOU***

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

Milltown Water Supply

In 1984, the EPA funded the replacement of a complete public water supply system used by Milltown residents. The EPA initially provided funding for maintenance of this water supply well. Following a settlement agreement in 1995 with the Milltown Water Users Association, the PRPs provided funding for maintenance to the Milltown Water User's Association for this system. The EPA also provided funding for 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 and is described in the 2018 Remedial Action Construction Completion Report (CCR). 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. If wells were found to be unusable because of dam removal, the EPA drilled a replacement, deeper well or connected the affected well user to an alternate water supply system. Based on modeling results, the EPA replaced 82 private and small public water supply wells in the Milltown area and reconfigured numerous additional wells.²

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.

As described in the 2018 CCR, using funds from the PRPs, the EPA funded or performed bridge stability actions for three bridges. 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, located upgradient and south of the former reservoir area on the location of the former Tunnel Lake.

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

² The general information about the well replacement activities were included in the 2018 CCR.

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 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 after June 2014 with EPA approval. The USGS conducts surface water sampling in the area, both at upstream and downstream stations. Conditions contained in a 2004 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 (NRDP) 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 CCR for the MRSOU documents the steps taken to protect wetlands during the cleanup.

Updated Groundwater Conceptual Site Model (CSM)

Due to ongoing arsenic exceedances beyond the 10 years anticipated by the MRSOU ROD for meeting groundwater performance standards, the 2021 FYR recommended determining whether additional measures were needed to reduce arsenic concentrations or if a technical impracticability (TI) waiver of the arsenic performance standard is warranted. The EPA requested that the PRPs update the CSM as a preliminary step to mapping the current extent of remaining arsenic contamination in groundwater. The PRPs developed a Quality Assurance Project Plan (QAPP) in August 2025 describing sampling to update the CSM and how the resulting and existing data would be applied to fulfill the study's objectives. The EPA approved the QAPP in September 2025. The initial sampling event occurred in early 2026. Data from the initial sampling effort is being used by the PRPs to update the CSM which will undergo agency review to determine the next steps.

CFROU

Pursuant to a 2008 Consent Decree, DEQ, as lead agency and in consultation with the EPA and the National Park Service (for Grant-Kohrs Ranch National Historic Site), oversees, manages, coordinates, designs and implements remedial actions for the CFROU. DEQ coordinates with the NRDP of the Montana Department of Justice for implementation and integration of restoration components to supplement the remedial actions. DEQ 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 in 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 (Figure 2). Reach A contains extensive exposed tailings and unstable streambanks, as well as stressed vegetation, in this area. Reach B extends from upstream of Garrison, where the Little Blackfoot River enters the Clark Fork, to downstream of Drummond at river mile 76, for a total of 31 river miles. The floodplain in Reach B is more narrow and the gradient higher than Reach A, and exposed tailings were observed to be far less extensive, therefore the remedy is to be applied in localized areas of Reach B. The remedy does not anticipate that streambank removal and reconfiguration will be necessary in Reach B. Reach C extends 47 river miles from Drummond to the northwest tip of the OU area. Through this reach the floodplain is constrained by a narrow valley, roads, and railroad grades. Here, the flow is augmented by several tributaries and the reach is farther away from historic mining sites. No exposed tailings are evident. Studies performed for the Remedial Investigation and the Feasibility Study have shown that a focused cleanup effort in Reach A results in the greatest reduction in mine waste contamination. Efforts in Reach B would be expected to provide limited additional benefit. Reach C has more limited risks and no clear clean-up alternatives because of the mixing of the contamination with fluvial soils. The Remedy for Reach C is no action.

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. DEQ began its remedial design activities in 2008, following entry of the Consent Decree, which designated DEQ as lead agency for remedy

implementation and O&M using PRP settlement funds. DEQ focused its first remedial actions on immediate human health and irrigated lands concerns and is now proceeding with geographically defined phases. The ROD specifically highlighted that restoration activities to be completed should be coordinated with the Selected remedy to avoid duplication of effort and unnecessary costs and maximize benefits to the area. In a separate settlement, the State of Montana received additional compensation for natural resource damages. The Consent Decree describes the integration of remedial action activities and restoration activities to be performed in the CFROU.

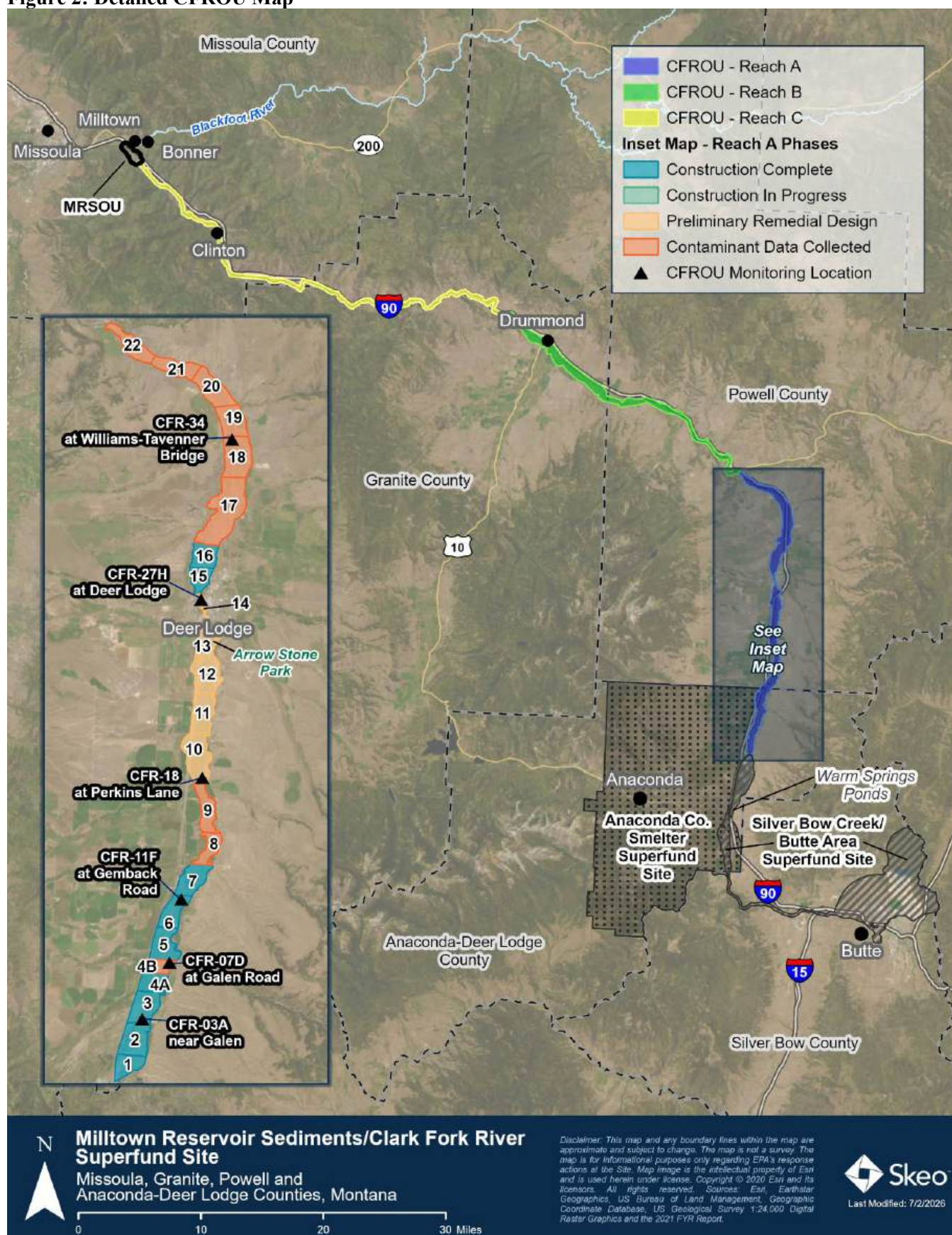
Remedial actions in Reach A began in 2011 and were originally expected to take a total of 10 years to complete. Construction best practices have evolved through the remedial design process and remedial action implementation; the current timeline projection for remedial action activities to be complete at the Site in 2038. While the general approach is to work from the headwaters downstream, the EPA and DEQ believe remediation will have less threat to river stability when 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 remedial action period.

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 64-acre project area. Revegetation was completed in fall 2014.
- Phase 2: Cleanup began in summer 2015 and was completed in 2016. About 472,000 cubic yards of contaminated material were removed from a 133-acre project area. Revegetation was completed in 2016.
- Phases 3 and 4: Cleanup in Phase 3 and Phase 4A was completed in 2023. About 719,000 cubic yards of contaminated material were removed. Revegetation of Phase 4A was completed in spring of 2024. A preliminary design of Phase 4B has been completed, but a final design has not been approved for this portion of Phase 4 was de-prioritized.
- Phases 5 and 6: Cleanup began in summer 2014. Cleanup and revegetation were completed in 2016. About 539,000 cubic yards of contaminated material were removed from a 136-acre project area.
- Phase 7: Cleanup began in early winter 2025 and was complete November 2025. Revegetation is anticipated to be completed in Fall 2026. Approximately 135,050 cubic yards of contaminated material were removed from a 52-acre project area.
- Phases 8 and 9: Site characterization was completed in 2016; remedial design activities are expected to begin in 2026.
- Phases 10, 11 and 12: Characterization and remedial design activities are expected to begin in 2026.
- Eastside Road pasture areas (adjacent to Phases 12 and 13): Cleanup in these areas adjacent to Phases 12 and 13 was completed in 2015. In an area of about 150 acres that had been flood-irrigated with contaminated water from the Clark Fork River, soil was tilled, fertilized, and/or revegetated as required. Ongoing monitoring of vegetation establishment and weed control was conducted until about 2018.
- Trestle area and residential yards in Deer Lodge (part of Phase 14) and Eastside Road (near Phases 12 and 13): Cleanup was completed in 2012. About 10,000 cubic yards of contaminated soils were removed from residential yards and a recreational area along the Clark Fork River in Deer Lodge and along Eastside Road.
- Arrowstone Park area (in Deer Lodge) (part of Phases 13 and 14): Cleanup is in the remedial design and site characterization process. In 2023, DEQ added soil cover over suspect slickens areas in high-traffic areas of the park as a temporary measure (removal action) to reduce potential human exposure. However, other slickens areas within Arrowstone Park remain exposed.
- Phases 15 and 16 (part of Grant-Kohrs Ranch National Historic Site): Cleanup began in 2019 and was completed in 2021. About 310,000 cubic yards of contaminated material were removed.

To date, no work has been completed for Phases 17 through 22 of Reach A or within Reach B (see Figure 2). DEQ will coordinate and schedule the completion of remedial design and remedial action activities at Reach A, Phases 17 through 22 in addition to Reach B as the Phases identified above reach remedial action completion. No remedial action is defined for Reach C.

Figure 2: Detailed CFROU Map



Institutional Control (IC) Review

The EPA is in the process of creating an Institutional Controls Implementation and Assurance Plan (ICIAP) for the Site. Table 4 summarizes institutional controls required, implemented or planned for both the CFROU and the MRSOU.

MRSOU

The MRSOU ROD stated that institutional controls were required at the Site, addressing groundwater use, land use and protection of waste repositories. The ROD also noted that sediments containing higher metals concentrations underneath and adjacent to the eastbound lane of the I-90 would need appropriate institutional controls to ensure long-term protection. The MRSOU ROD identified the need for temporary institutional controls during the period when groundwater COC concentrations remained above performance standards. These included:

- Providing continued funding for maintaining the existing replacement water supply for Milltown residents.
- Making contingency funds available to reconfigure, expand or update replacement water supplies.
- Establishing a controlled groundwater area to ban future wells within or immediately adjacent to the arsenic plume.

The MRSOU ROD expected groundwater to meet cleanup goals within 4 to 10 years. Though arsenic concentrations in groundwater have decreased notably since the cleanup began, they still exceed the cleanup goal in some designated compliance wells 13 years after dam and sediment removal completion.

The MRSOU ROD also stated that additional land use limitations could consist of dedicated land use, local ordinances, deed restrictions, conservation easements and future agreements with landowners.

In August 2017, DEQ, Montana NRDP and Montana Fish, Wildlife and Parks (FWP) recorded an Institutional Controls Agreement for state-owned property at the Site. Figure 3 shows the areas subject to the 2017 Institutional Controls Agreement and Appendix K is a copy of the Agreement. The Agreement prohibits disturbing the Right Bank Repository, the Tunnel Pond Repository, the Staging Area Repository, the Upland Disposal Site Repository and the I-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 (see Figure 3).

The southwestern portion of the MRSOU is not subject to the 2017 Institutional Controls Agreement. However, most 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 3). 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 and places restrictions on construction in the 100-year floodplain. State law also prohibits new septic systems within the 100-year 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.³ In addition, the Missoula County subdivision regulations prohibit new subdivisions within the floodplain.

The Missoula Valley Water Quality Ordinance, which was updated in 2022, (Ordinance 3699, Missoula Municipal Code Chapter 13.26.090) prohibits installation of “wells of new community and non-community non-transient water systems⁴” within 1,000 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 13.26.036 of

³ Montana Code Annotated 76-5-403 and Administrative Rules of Montana 17.36.106.

⁴ A non-community, non-transient water system is a water system that serves 25 or more people at a facility such as a school, factory or office building. The Missoula Valley Water Quality Ordinance is available at: <https://www.ci.missoula.mt.us/DocumentCenter/View/62096/Ordinance-3699>.

this code, chemical manufacturing facility, regulated substance tank not meeting the requirements of section 13.26.036 of this code, and any site where a release to groundwater has been reported to a state or federal agency.” However, this ordinance does not preclude private well installation in the plume area. Figure 3 shows monitoring wells that exceed the arsenic performance standard. No known use of groundwater wells for domestic purposes is occurring.

CFROU

The CFROU ROD required the following institutional controls for Reach A and Reach B:

- Continued implementation, including funding, will be provided for Powell County’s and Anaconda Deer Lodge County’s zoning ordinances, which prohibit building a permanent residence within the floodplain of the Clark Fork River in that county. The ROD also called for funding the county to monitor and report on any use of the Clark Fork River floodplain for residential yards associated with residences that are located just outside the floodplain. Appropriate remedial action will be taken if such yards are found or created, and if arsenic levels exceed the EPA’s residential action level.
- Permanent deed restrictions and use funding for Arrowstone Park near Deer Lodge to ensure that it is maintained and dedicated for use as a recreational area.
- Appropriate institutional controls to address groundwater use in the shallow aquifer. This includes a survey of well use in Reach A, well sampling and appropriate actions to ensure safe water supply for new and previously sampled domestic wells that exceed MCLs. Institutional controls could include a groundwater control area, ordinances or deed restrictions, depending on land use and severity of contamination.

The CFROU ROD also stated that supplemental institutional controls, such as conservation easements or deed restrictions, could be useful for lands addressed by the remedy.

DEQ has placed signs at Arrowstone Park that provide specific precautions to visitors to reduce contact with contaminated soil; these signs can be referenced in Appendix H.

Powell County has established a Superfund Overlay District to ensure that future land use is compatible with the remedy and any remaining contamination (Figures C-2 and C-3 in Appendix C).⁵

- **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 soil testing, as required by Powell County, and detailed plans (if necessary) for 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.”

As stated above, the state of Montana prohibits residential construction in a floodway and restricts new septic systems within the 100-year floodplain, which prevents residential development in areas where a municipal sewer is not available.

⁵ Powell County Superfund Overlay District regulation text: <https://www.powellcountymt.gov/media/1866>.

Anaconda-Deer Lodge County has a development permit system and requires a development permit for a wide variety of activities, including construction, excavation, demolition and fencing. Anaconda-Deer Lodge County ordinances also prohibit residential and non-residential development in the floodway.⁶ Granite County does not require building permits but does require a floodplain permit before any alteration to a property within the floodplain, such as adding or removing dirt, bank stabilizations or construction. Granite County also prohibits new residential and non-residential construction in the floodway.⁷

Table 4: Summary of Planned and/or Implemented Institutional Controls (ICs)

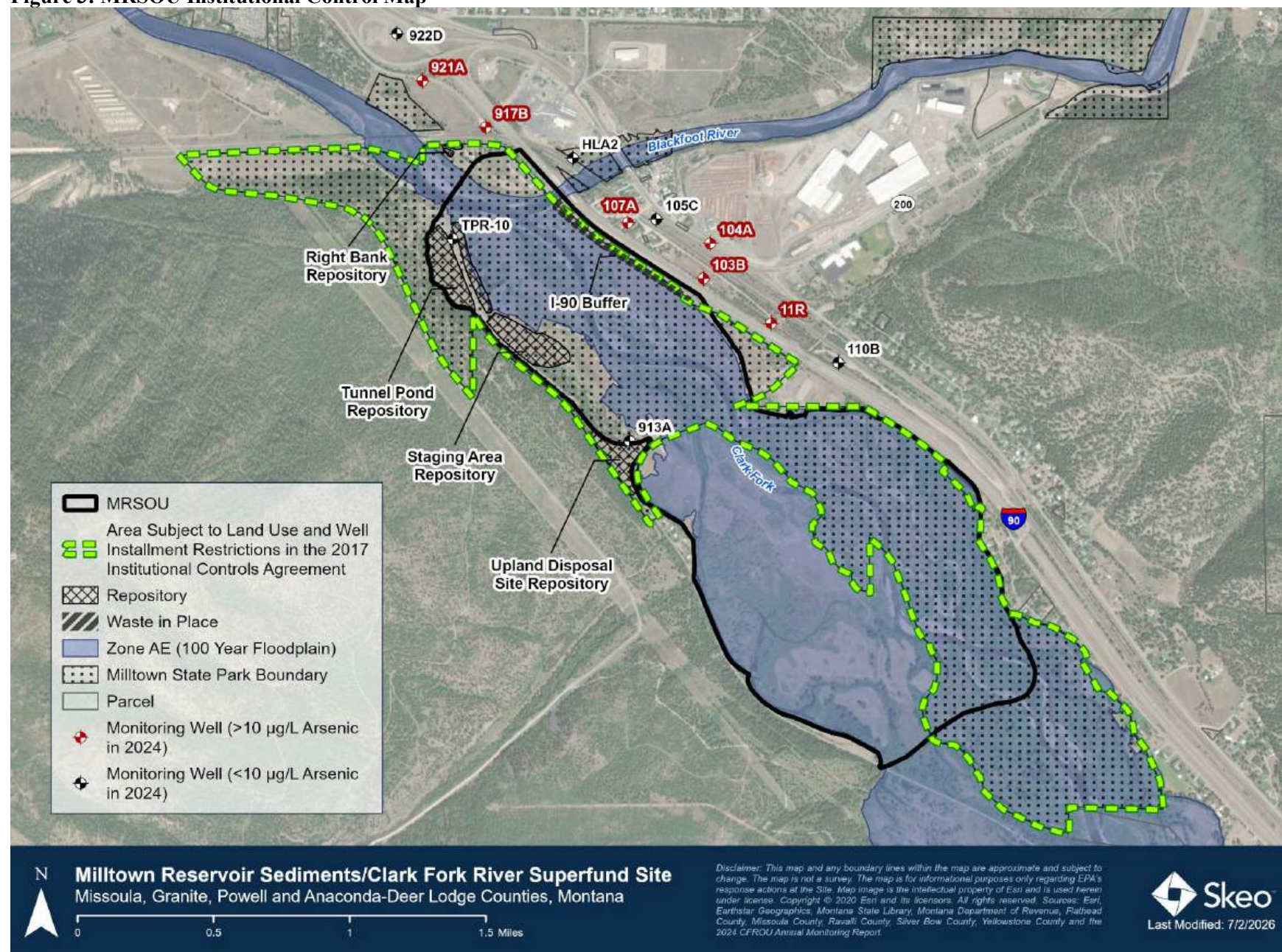
Media, Engineered Controls and Areas That Do Not Support UU/UE Based on Current Conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
MRSOU Repositories, Land Use	Yes	Yes	Site property owned by the state (see Figure 3)	Prevent activities that could affect the integrity of the remedy. Prevent residential use.	2017 Institutional Controls Agreement prohibits disturbing repositories and the I-90 Buttress, restricts residential use.
MRSOU Land Use	Yes	Yes	Zone AE (100 Year Floodway) or Zone AE (100 Year Floodplain - With Elevations) See Figure 3	Prevent residential use.	Missoula County Zoning Ordinances restrict residential use in floodplains and floodways.
MRSOU Groundwater	Yes	Yes	Area of arsenic plume	Prevent consumption of contaminated groundwater.	Missoula Valley Water Quality Ordinance prohibits installing new public water wells in the vicinity of the arsenic plume. 2017 Institutional Controls Agreement Restricts installation of groundwater wells for drinking water. Additional institutional controls may be needed to prohibit private well installation in areas of the plume not included in the 2017 Institutional Controls Agreement.

⁶ Anaconda-Deer Lodge County's development permit system: https://library.municode.com/mt/anaconda-deer_lodge_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH24DEPESY. Floodplain regulations: https://library.municode.com/mt/anaconda-deer_lodge_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH6BUCCO_ARTIIIIFLRE.

⁷ Granite County Planning Department: <https://www.granitecountymt.gov/588/Planning>. Floodplain provisions: <https://www.granitecountymt.gov/DocumentCenter/View/227/Granite-County-Subdivision-Regulations-PDF>.

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 Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land Use (sitewide)	Yes	Yes	100-year floodplain	Prevent residential use.	Montana Code Annotated 76-5-403 and Administrative Rules of Montana 17.36.106. Missoula County Zoning Ordinances restrict residential in floodplains and floodways.
CFROU Soil and Groundwater	Yes	Yes	See Figures C-2 and C-3 in Appendix C	Prevent consumption of contaminated groundwater. Prevent activities that could affect the integrity of the remedy or cause unacceptable human health exposures.	Powell County Superfund Overlay District requires permits for land use changes with soil testing requirements and restricts well installation. Additional institutional controls are needed for other counties.
CFROU - Arrowstone Park	Yes	Yes	See Figure C-4	Ensure that Arrowstone Park is maintained for recreational use. Reduce exposure to contaminated soil.	Deed Restrictions (planned). Multiple signs in Arrowstone Park provide specific precautions to reduce contact with contaminated soil.

Figure 3: MRSOU Institutional Control Map



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 requirements for the constructed repositories and buttress areas. The PRPs sample groundwater twice each year, during high and low flow. The USGS continues to monitor surface water upstream and downstream of the MRSOU (see Figure C-5 in Appendix C). Groundwater and surface water monitoring results for the MRSOU are discussed further in the Data Review section of this FYR Report.

In accordance with the Long-Term Post Remedial Action Construction Monitoring Plan, the PRPs are responsible for annual maintenance and monitoring of the Tunnel Pond and Right Bank repositories, as well as the buttress and railroad berm adjacent to the Tunnel Pond Repository, and the I-90 slope and buttress. The PRPs have conducted vegetation monitoring annually since 2013.

Repository Inspection and Maintenance

Visual inspections in 2024 found that the Tunnel Pond stormwater conveyance system was generally clean and functioning, except for a large, downed tree blocking the east perimeter stormwater ditch and some small trees and bushes that had started growing in the east ditch. In October 2024, the PRPs removed the downed tree and the small trees and bushes. Inspections in 2025 noted a few very small willow/shrub suckers, minor deposition areas in the east ditch, and minor siltation in the east ditch berm. Blockages noted in 2024 were no longer a concern.

In April 2025, visual inspection of the Tunnel Pond Repository stormwater conveyance system, conducted by representatives from the PRPs, the EPA and DEQ, found that the system was functioning appropriately, despite some minor sediment deposition in the east ditch and east ditch stilling basin.

September 2025 inspections found that the repository caps, the Tunnel Pond Repository buttress (east of the railroad berm) and I-90 Buttress are generally in good condition with no visible evidence of settlement, subsidence or erosion. The Tunnel Pond Repository buttress and main slope had some mammal dens and small areas of bare soil due to animals, such as deer, consuming soil. A 2025 survey of settlement monuments on the Tunnel Pond Repository to identify lateral movement showed less than one inch of horizontal displacement since 2020. Monuments will be surveyed again in 2030, before the next FYR.

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. Sampling results are shown in Table 7. No groundwater monitoring is required for the Right Bank Repository. The repositories are shown in Figure 3.

Vegetation Inspection and Maintenance

The performance standards for vegetation on the reclaimed areas include establishment of a diverse, effective and permanent plant community with similar species to the surrounding areas that can regenerate naturally under the prevailing conditions of the Site and prevent soil erosion. 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 in 2015. Therefore, current vegetation inspection and maintenance focuses on weed control and assessment/monitoring of vegetation cover as it relates to cap integrity/stormwater system functioning at the repositories and I-90 Buttress.

The September 2025 vegetation inspection results for each of the areas inspected are as follows:

- I-90 Buttress: Uniform vegetative cover of approximately 45% coverage with isolated patches of weeds in need of spot spraying only.
- Right Bank Repository: Uniform vegetative cover of approximately 55% coverage with minimal weed occurrence in need of spot spraying.

- Tunnel Pond Repository buttress: Somewhat variable vegetative cover around 30% coverage with occurrences of weeds in need of continued weed control. Revegetation was not a design objective for the Tunnel Pond Repository buttress.
- Tunnel Pond Repository main slope: Somewhat uniform vegetative cover around 30% coverage with occurrences of weeds in need of continued weed control. Near the west perimeter ditch, scouring rush is becoming the dominant species.

Restoration Monitoring and Maintenance

Montana NRDP performs maintenance and monitoring of the restored floodplain area of the MRSOU according to the 2008 State Restoration Monitoring and Maintenance Plan.⁸ NRDP monitors channel and floodplain morphology and floodplain vegetation. Geomorphic and vegetation monitoring are discussed further in the Data Review section of this FYR Report.

NRDP also performs weed management activities in the MRSOU at least once a year according to the 2007 Milltown Restoration Weed Management Plan. In 2024, NRDP completed weed treatments in May through October, treating 63 acres of the MRSOU. Leafy spurge, Canada thistle, and Dalmatian toadflax are the most common and widespread noxious weeds in the MRSOU.

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 USGS additionally monitors surface water at several locations within CFROU (see Figure C-5).

Phases of the CFROU that have reached remedial action completion are in the O&M phase. While inspections, maintenance, surface water monitoring and vegetation monitoring are conducted, a comprehensive long-term O&M plan will be developed and implemented by DEQ. DEQ will develop best management practice plans that create reasonable and attainable objectives 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 previous FYR Report as well as the recommendations from the previous FYR Report and the status of those recommendations.

Table 5: Protectiveness Determinations/Statements from the 2021 FYR Report

OU #	Protectiveness Determination	Protectiveness Statement
2 (MRSOU)	Short-term Protective	The remedy at MRSOU (OU-2) 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).

⁸ More information on NRDP activities in MRSOU are available at: <https://dojmt.gov/NRDP-sites/milltown/>

OU #	Protectiveness Determination	Protectiveness Statement
3 (CFROU)	Will be Protective	The remedy at CFROU (OU-3) 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.

Table 6: Status of Recommendations from the 2021 FYR Report

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date (if applicable)
2 (MRSOU)	Arsenic concentrations in groundwater have decreased significantly since the cleanup began, but still exceed the cleanup goal.	Determine whether additional measures are needed to reduce arsenic groundwater concentrations below the cleanup goal or if a Technical Impracticability ARAR waiver is warranted.	Ongoing	The EPA requested that the PRPs update the CSM as a preliminary step to potentially performing a Technical Impracticability evaluation. The PRPs have developed a QAPP in August 2025 describing sampling to update the CSM and begun sampling. EPA approved the QAPP in September 2025. Groundwater sampling occurred in the winter of 2026.	Not Applicable
2 (MRSOU) and 3 (CFROU)	Additional institutional controls may need to be implemented to protect the remedy and to prevent exposure to contaminated groundwater and soil.	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).	Ongoing	The EPA is in the process of determining the most appropriate institutional controls for CFROU and MRSOU and developing an ICIAP. The EPA expects to finalize the ICIAP and implement institutional controls during the next FYR period.	Not Applicable

The 2021 FYR also identified additional recommendations that do not affect protectiveness. The recommendations and their current status are listed below.

- For the MRSOU, the 2019 vegetation inspection and 2020 FYR site inspection identified several items to address, including weed control, reclaiming an area on the I-90 Buttress affected by heavy equipment, addressing the slide above the Tunnel Pond Repository, and streambank stabilization.
 - The PRPs addressed weed control throughout this FYR period and cleaned out sediment affecting flow in the perimeter ditches due to the slide above the Tunnel Pond Repository. The PRPs addressed the upgradient drainage above the Tunnel Pond Repository. The area had another slope failure in 2023, partially obstructing the east perimeter ditch. The area was stable in 2024 and 2025. The state reclaimed the affected area of the I-90 Buttress in 2019 and vegetation is now well-established.
- Consider providing more communication on the status of the CFROU cleanup and the remedial strategy to determine the order of the proposed cleanup actions.
 - DEQ released its CFROU Strategic Plan: State of Montana's Remedy and Restoration Approach in October 2023. DEQ also released phase status maps for Reach A in 2025.

- The CFROU annual monitoring reports should be updated to include the current state standard for arsenic in surface water and groundwater.
 - The CFROU annual monitoring reports now include the updated state standard for arsenic in surface water.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Community Involvement and Site Interviews

A public notice was made available on the Site profile page: www.epa.gov/superfund/milltown-reservoir (Appendix D). 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 online and at the Site's information repositories:

- EPA Superfund Records Center, Montana Office, 10 West 15th Street, Suite 3200, Helena, MT.
- Missoula Public Library, 301 East Main, Missoula, MT 59802.
- Montana Tech Library, West Park, Butte, MT 59701.
- Grant-Kohrs Ranch, National Historic Site, 266 Warren Lane, Deer Lodge, MT 59722.
- Powell County Courthouse, Planning Office, 409 Missouri, Deer Lodge, MT 59722.

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

MRSOU

Interviewees were broadly satisfied with the Milltown Reservoir Sediments OU: they said cleanup and O&M are performing well, Milltown State Park is heavily used, and the remedy remains protective even as groundwater arsenic persists and is being managed through the replacement water supply and ongoing monitoring. Common suggestions included removing the old bridge/piers in the confluence area, tidying up remnants from early work (e.g., plastic fencing and dilapidated signage), and strengthening floodplain revegetation in places to improve riparian function. Several noted that many newer residents and visitors may be unaware of the Site's history and encouraged clearer signage and periodic public meetings or briefings to share new information. Participants also asked for continued well-communicated updates on the groundwater plume, including an updated conceptual site model.

CFROU

Respondents stated that remedial action on the Clark Fork River OU is progressing but emphasized schedule length and coordination. Several urged more simultaneous design and construction to reduce delays and asked for more frequent, clearer public communications, including expanding web content for the CFROU. Interviewees highlighted ongoing ecological concerns: sustained declines in trout (especially brown trout above Deer Lodge), questions about habitat simplification and channel migration monitoring, and potential downstream influences from Warm Springs Ponds. They recommended coordinated investigations across agencies if possible. Local stakeholders also pointed to Arrowstone Park as a priority for more comprehensive cleanup. They raised concerns about visible "hot spots" and the order of upstream-to-downstream work and asked for reassurance that settlement funds and schedules are aligned to complete the remedy. Overall, interviewees praised agency collaboration and the progress to date while encouraging transparent schedules, targeted outreach, and adaptive monitoring to sustain remedy performance and public trust.

Data Review

MRSOU

This FYR reviewed groundwater, surface water and vegetation monitoring for the MRSOU. The PRPs conduct groundwater monitoring twice a year, according to the 2013 Long-Term Post Remedial Action Construction Monitoring Plan. The USGS conducts surface water monitoring several times per year upstream of the MRSOU in the Upper Clark Fork and Blackfoot Rivers, as well as downstream of the Site (see Figure C-5 in Appendix C).

Post-restoration, Montana NRDP conducts geomorphic and vegetation monitoring in the MRSOU in specified years as indicated in the 2008 State Restoration Monitoring and Maintenance Plan.

Overall conclusions of this data review include:

- Dissolved arsenic concentrations in most MRSOU monitoring wells show decreasing trends over their period of record. However, monitoring wells 104A (north of the MRSOU), and 921A (northwest and downstream of the MRSOU) appear to show increasing dissolved arsenic concentrations.
- Surface water quality monitoring shows continued sporadic exceedances of arsenic and lead performance standards in the Clark Fork River. Total copper concentrations generally exceed the state acute and/or chronic aquatic life standards for copper; however, these standards were waived in the 2004 MRSOU ROD.

Groundwater Monitoring

The objectives of groundwater monitoring at the MRSOU are to: 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 met when the compliance monitoring wells have attained the water quality standards for a period of two years.

The PRPs, through contractors Pioneer Technical Services (Pioneer) and Respec, performs groundwater monitoring twice per year during high-flow conditions in the summer and low-flow conditions during the winter. Figure 4 shows the MRSOU monitoring wells, which include the 10 original compliance wells in the alluvial aquifer (104A, 921A, 917B, 922D, 105C, 107A, 110B, HLA-2, 11R and 103B) plus the Upland Disposal Site monitoring well (913A) and the Tunnel Pond Repository monitoring well (TPR10). In 2015, the EPA approved discontinuing monitoring for COCs except arsenic because two years of data showed compliance with state standards. Dissolved arsenic is the only monitored analyte.

As shown in Table 7, which summarizes dissolved arsenic concentrations from June 2020 to January 2026, dissolved arsenic concentrations in seven of the wells (103B, 917B, 921A, 11R, 104A, 107A and TPR-10) exceeded the performance standard of 10 µg/L during this FYR period. Figure I-1 in Appendix I depicts time-concentration plots of arsenic concentrations in each well for the available period of record with a locally estimated scatterplot smoothing (LOESS) line.

Table 7: Groundwater Dissolved Arsenic Concentration in MRSOU, Spring 2020 to Winter 2026

Date	Dissolved Arsenic (µg/L)											
	105C	110B	922D	103B	HLA-2	917B	921A	11R	104A	107A	913A	TPR-10
June 2020	2	6	10	14	9	29	10	21	14	22	1	5
Dec 2020	2	7	9	13	9	29	10	20	15	17	1	9
June 2021	2	6	10	14	8	28	10	17	14	17	1	5
Dec 2021	2	7	8	13	9	27	9	19	16	16	1	8
June 2022	2	5	8	13	7	24	8	17	14	14	<1	5
Dec 2022	2	3	8	13	8	29	10	17	18	16	1	12
May 2023	1	6	8	14	8	27	9	17	17	15	0.7	4
Dec 2023	2	5	7	11	7	24	9	14	16	12	<0.08	12
May 2024	2	7	8	14	8	25	27	18	18	13	1	9
Nov 2024	2	6	7	12	8	24	9	17	18	14	1	5
May 2025	2	6	8	13	8	24	8	13	17	12	1	5
Jan 2026	2	6	8	13	8	23	9	17	19	12	1	5

Source: Milltown 2025 Operation, Maintenance and Monitoring Report, Pioneer.

Bold values exceed the performance standard of 10 µg/L.

< denotes that dissolved arsenic was not detected above the stated detection limit.

Mann-Kendall trend tests performed for evidence of decreasing concentrations, summarized in Table I-2, show decreasing dissolved arsenic concentrations over the period of record for all wells except 921A, 104A and 913A. The Mann-Kendall trend tests are applied only to determine decreasing concentration trends, but dissolved arsenic concentrations appear to be increasing at monitoring wells 104A, north of the Site, and 921A, northwest and downstream of the Site (see Figure 4). The arsenic concentration in 921A was at or just below the performance standard throughout the FYR period, except in June 2024. Dissolved arsenic concentrations at 913A are relatively stable and have remained well below the MCL.

Surface Water Monitoring

The USGS has performed surface water monitoring throughout the Upper Clark Fork River basin since 1985, expanding the network of sampling stations in 1992 in cooperation with the EPA. This monitoring includes sampling for COC metals and other water quality parameters several 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), which are shown on Figure C-5 in Appendix C. The USGS surface water data for the CFROU is discussed in the CFROU subsection of this Data Review.

Table 8 shows maximum total and dissolved COC metals concentrations at the USGS stations for each year since 2021. The USGS has been evaluating cadmium data discrepancies and has not yet reported cadmium results during this FYR period. Arsenic concentrations exceeded the human health performance standard at both Clark Fork River stations in April 2023. At Clark Fork River at Turah Bridge, arsenic concentrations continued to exceed the human health performance standard over the next three sampling events before dropping below the performance standard in July 2023 and remaining below it for the remainder of the FYR period. The current federal human health action level for lead is 10 µg/L under the National Primary Drinking Water Regulations (though the state human health standard remains 15 µg/L). This value was exceeded in both Clark Fork River stations in April 2023. Total recoverable copper concentrations exceeded the chronic and acute aquatic performance standards at the two Clark Fork River stations at least once during this FYR period. Total recoverable lead also exceeded the chronic aquatic performance standards at least once at each of the Clark Fork River stations. Maximum COC concentrations generally occur during the spring each year and are higher at Turah Bridge upstream of the MRSOU than at the Clark Fork above Missoula station, due to dilution from the Blackfoot River.

Table 8: Maximum Total and Dissolved Metals Concentrations in Surface Water at USGS Gaging Stations

Station Name (Station ID)	Year	Maximum Concentration (µg/L)							
		Arsenic		Copper		Lead		Zinc	
		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Clark Fork at Turah Bridge near Bonner (USGS-12334550)	2021	5.4	7.4	3.8	18.3	0.11	2.76	5	28
	2022	6.1	7.3	3.3	26.5	0.18	4.17	3.6	36
	2023	7.9	19.6	7.8	97.1	0.429	20.8	6.3	164
	2024	5.5	6.9	4.2	17.2	0.132	2.88	4	28
	2025	5.2	6	2.7	12.3	0.11	1.99	2.8	18
Blackfoot River near Bonner (USGS-12340000)	2021	1.3	1.3	0.99	2	0.059	0.59	NS	3
	2022	1.4	1.3	1.2	1.7	NS	0.45	NS	3
	2023	1.3	1.4	1.1	2.4	0.049	0.79	NS	3
	2024	1.4	1.4	0.57	0.7	NS	0.18	NS	4
	2025	1.2	1.2	0.75	0.8	NS	0.14	NS	NS
Clark Fork above Missoula (USGS-12340500)	2021	5	5.1	9.8	10.4	1.67	1.81	17.3	18
	2022	4	4.2	1.8	13.3	0.095	2.22	2.4	19
	2023	5.7	12.4	5.7	58.5	0.339	12.2	4.5	90
	2024	3.7	4.6	3	11.6	0.091	1.94	4	19
	2025	3.4	4.1	3.6	6.9	0.05	1.12	2.1	12
<i>Notes:</i> Source: USGS Water Data for the Nation, available at: https://waterdata.usgs.gov/ (accessed 1/5/2026). Bold values exceed the 2004 MRSOU ROD chronic aquatic life performance standard. Bold italic values exceed the 2004 MRSOU ROD acute aquatic life performance standard. Highlighted values exceed the 2004 MRSOU ROD human health performance standard. Note that performance standards are applicable to the total recoverable concentration only, except for the copper performance standard, which is applicable to the dissolved concentration only. NS = not sampled µg/L = micrograms per liter									

Geomorphic and Vegetation Monitoring

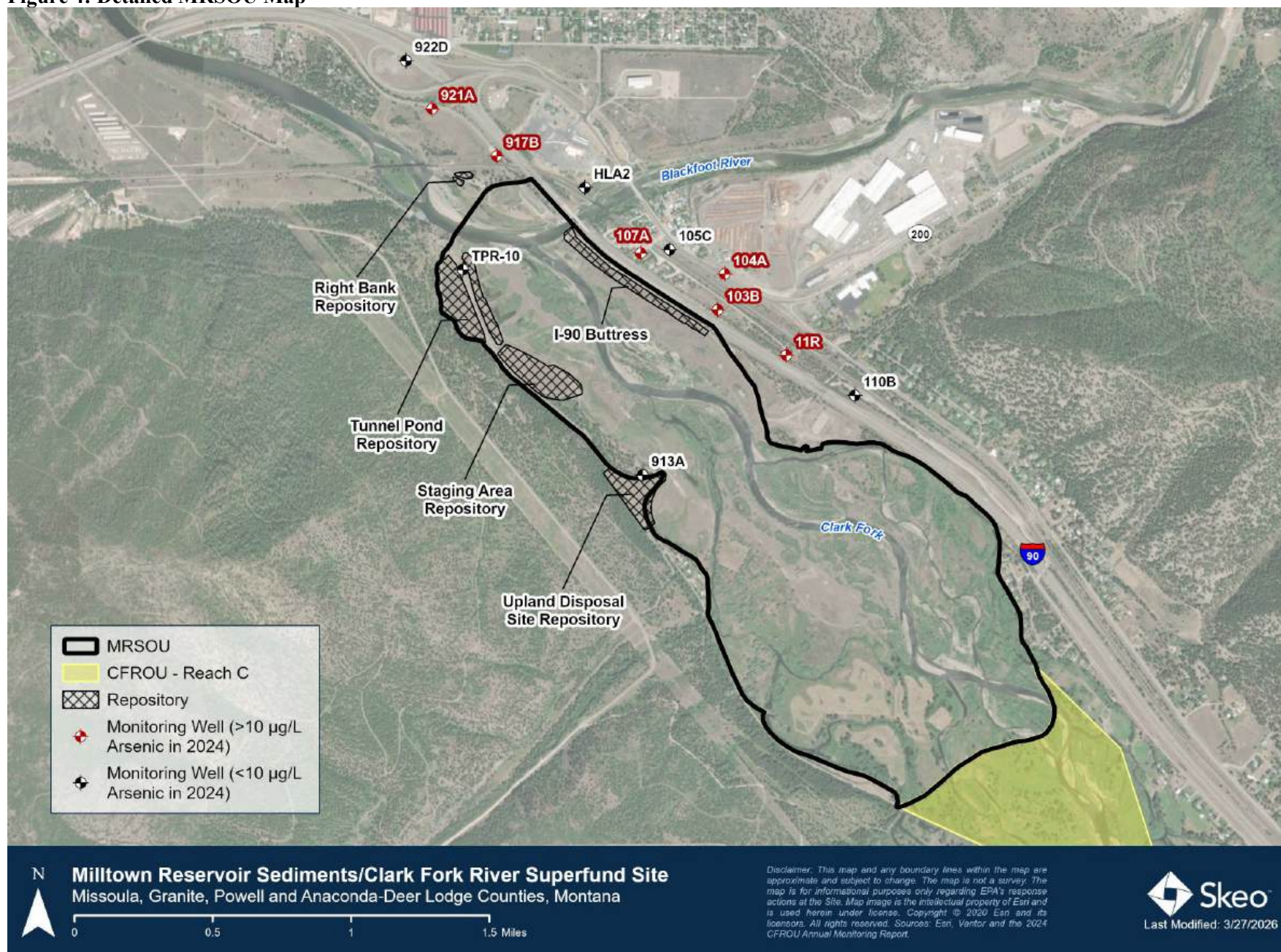
Montana NRDP, which performed channel construction for the Clark Fork and Blackfoot Rivers as restoration activities, as well as floodplain and wetlands revegetation and reconstruction following PRP remedial action construction activities, monitors the restored areas for geomorphic metrics and riparian and floodplain vegetation at specified intervals post-restoration. NRDP performed the 10-year monitoring in 2021 from the Turah Bridge, about four miles upstream of the confluence with the Blackfoot River, to just below the confluence.

The objective of geomorphology monitoring is to ensure that the channel and floodplain maintain dynamic equilibrium (meaning that the planform, profile and cross-section remain close to desired conditions while allowing for morphological adjustment) and sediment transport continuity and that the river can access the floodplain at flows above bankfull discharge. Geomorphic monitoring consists of aerial imagery analysis, hydrologic analysis, light detection and ranging (LiDAR) comparative analysis to evaluate channel alignment, sediment transport patterns, large wood distribution, beaver activity, and inundation extents, as well as field reconnaissance.

Sediment transport analyses found that three of the six study areas, specifically the three downstream reaches that, as seen on Figure C-6 in Appendix C, had reached dynamic equilibrium. Floodplain connectivity has been maintained through much of the study area except in one area (Reach CFR3A on Figure C-6) where the channel incised in response to flooding. Overall, the study reaches are satisfying the geomorphic goals and objectives.

Vegetation monitoring objectives are to ensure functional wetland and riparian plant communities for floodplain and streambank stability, habitat, and species composition. Vegetation monitoring in 2021 consisted of floodplain transects, remote sensing for vegetative cover and woody vegetation, and greenline photo monitoring. Example greenline photos are included in Figure I-2 in Appendix I. Vegetation monitoring found an increase in total vegetation cover and in native and woody vegetation since a 2015 monitoring event. At the time of the report, most of the study area's vegetation was trending toward meeting project floodplain and wetland objectives.

Figure 4: Detailed MRSOU Map



CFROU

Cleanup is underway in the CFROU. Montana DEQ has conducted annual monitoring since 2010 to assess surface water and vegetation before, during and after cleanup of the Phases in Reach A. This FYR reviews CFROU Annual Monitoring Reports from 2021 to 2024. Montana DEQ carries out performance monitoring. Some sampled environmental media vary each year, but surface water, in-stream sediment and vegetation were monitored each year during this FYR period. Additional sampled media include periphyton, macroinvertebrates and birds. The objectives of annual performance monitoring are to (1) to assess changes over time for monitoring metrics of specific environmental media (e.g., surface water, groundwater, vegetation); (2) establish objective monitoring protocols for each environmental medium; and (3) identify the monitoring locations, schedule, and parameters for each environmental medium.

Additional data reviewed in this FYR Report include USGS surface water monitoring at six stations throughout the CFROU and fisheries monitoring conducted by Montana FWP. Overall conclusions of this data review include:

- Though concentrations of several COCs in surface water continue to exceed performance standards, statistically significant declining concentration trends were found for all COCs at the furthest upstream sampling location and for several COCs at other stations.
- Vegetation monitoring shows that some post-remediation benchmarks are being met while others have not been met. Below average precipitation in critical months for vegetation growth may contribute to low ground cover. Additional revegetation efforts may be necessary in some project phases to meet canopy cover goals. Noxious weeds, however, have remained well controlled.
- Fisheries monitoring shows that brown trout populations have been near historic lows in the Clark Fork River upstream of Deer Lodge. However, populations are near historic average downstream of Deer Lodge and above historic averages further downstream. There are multiple possible factors for the decline in brown trout populations, so additional studies are being conducted by other agencies to determine the primary cause or causes.

DEQ Surface Water Monitoring

DEQ currently samples surface water quarterly at six locations on the Clark Fork River, one location on Warm Springs Creek, and one on Silver Bow Creek, which combine to form the Clark Fork River. Samples are analyzed for dissolved and total recoverable metals, nutrients, common ions and field parameters. Analytical results are compared to the performance standards for surface water established in the CFROU ROD. For sampling locations that are not co-located with a USGS stream gaging site, streamflow is also measured. Figure 2 shows 2024 sample locations. Tables I-3 through I-6 summarize 2024 total recoverable concentrations for arsenic, cadmium, copper, lead and zinc, respectively. Figures I-3 through I-6 are time-concentration graphs for the same constituents over their period of record.

Of the Site surface water COCs, arsenic concentrations exceed the performance standard most frequently. All exceedances during this FYR period were during second or third quarter sampling events (typically May and September), which appear to be at least partially due to mobilization of arsenic in the Warm Springs Ponds during the spring and summer. The sampling location where arsenic concentrations most frequently exceed the performance standards is Silver Bow Creek, which is downstream of the Warm Springs Ponds, three historic tailings ponds that treat Silver Bow Creek water as part of the Silver Bow Creek/Butte Area Superfund Site. Silver Bow Creek also had the highest dissolved arsenic concentrations during this FYR period, at a maximum dissolved concentration of 24 µg/L (estimated, third quarter of 2022). However, the highest total recoverable arsenic concentrations during this FYR period were at the Clark Fork River at Williams-Tavener Bridge (maximum concentration of 35 µg/L in second quarter of 2022), which is downstream of Deer Lodge, and the Clark Fork River at Deer Lodge (maximum concentration of 34 µg/L in second quarter of 2022), indicating the mobilization of arsenic-contaminated sediment in the downstream direction through Reach A.

Total recoverable cadmium concentrations exceeded the chronic aquatic performance standard during the second quarters of 2022 and 2023 in the Clark Fork River at the Deer Lodge and Williams-Tavener Bridge sampling

locations. Total recoverable lead concentrations also exceeded the chronic aquatic performance standard in the second quarter of 2021, 2022 and 2023 in the Clark Fork River at the Deer Lodge and Williams-Tavener Bridge sampling locations, as well as the Clark Fork River at Galen Road sampling location in 2022. Copper and zinc did not exceed any of the performance standards during this FYR period.

DEQ performed a Mann-Kendall trend test for all COCs, as well as for nitrogen and phosphorus in 2023 to identify statistically significant declining trends at all the sample locations. Table I-7 in Appendix I summarizes the results of the analysis. Declining trends were identified for all COCs at the Clark Fork River near Galen, the most upstream Clark Fork River sampling location. Declining trends were also identified for arsenic at Clark Fork River sampling locations at Galen Road and at the William-Tavener Bridge. Copper concentrations were also declining at William Tavener Bridge. Arsenic and lead concentrations were also found to be declining in Silver Bow Creek at Warm Springs.

USGS Surface Water Monitoring

The USGS also performs surface water quality monitoring throughout the CFROU. This monitoring includes sampling for COC metals and other water quality parameters several times per year at the six current sampling stations in the CFROU (see Figure C-5), listed from upstream to downstream:

- Clark Fork near Galen (Reach A).
- Clark Fork at Deer Lodge, Montana (Reach A).
- Clark Fork above Little Blackfoot River near Garrison (in Reach A, near the transition to Reach B).
- Clark Fork at Goldcreek (Reach B)
- Clark Fork near Drummond (Reach C, near the transition from Reach A).
- Clark Fork at Turah Bridge near Bonner (Reach C). This station also functions as the upstream station for the MRSOU.

Additional stations were sampled historically. The USGS surface water monitoring in the Upper Clark Fork River basin includes stations on several tributaries to the Clark Fork.⁹ Table 9 summarizes the maximum concentrations of the COC metals for each year from 2021 to 2025.

⁹ USGS's website for long-term surface water monitoring in the Upper Clark Fork River Basin is available at: <https://www.usgs.gov/centers/wyoming-montana-water-science-center/science/long-term-surface-water-monitoring-upper-clark>.

Table 9: Maximum Total and Dissolved Metals Concentrations in Surface Water at USGS Gaging Stations

Station Name (Station ID)	Year	Maximum Concentration (µg/L)							
		Arsenic		Copper		Lead		Zinc	
		Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total
Clark Fork near Galen USGS-12323800	2021	8.4	NS	2.9	NS	0.111	NS	7.5	NS
	2022	12.9	NS	6.9	NS	1.08	NS	17	NS
	2023	14.6	7.6	35.3	2.7	4.26	0.076	NS	2.9
	2024	NS	10.6	NS	5.4	NS	0.64	NS	8
	2025	NS	19.3	NS	22.2	NS	1.9	NS	11
Clark Fork at Deer Lodge USGS-12324200	2021	13.2	13.6	6.7	29.6	0.427	6.24	7	39
	2022	14.3	24.4	7.2	92.4	0.324	11.5	7	78
	2023	15.9	28.9	13.8	158	0.259	19.9	10	131
	2024	11.5	13.6	6.5	34.1	0.154	4.24	7.2	28
	2025	16	16.6	7.5	31.5	0.214	3.8	5	26
Clark Fork above Little Blackfoot River near Garrison USGS-12324400	2021	13.9	20.1	8.2	76.3	0.174	9.43	6.8	55
	2022	15.5	23.9	8.2	98.9	0.269	12.7	5.9	81
	2023	17	31.8	16.2	168	0.341	20.8	8.1	154
	2024	13.9	15	9.2	39.3	0.168	4.05	5.4	32
	2025	16.1	16.6	8.2	37.7	0.209	4.75	5.2	34
Clark Fork at Goldcreek USGS-12324680	2021	9.8	11.5	5.6	33.9	0.114	4.24	5.2	29
	2022	10.9	16.2	5.8	60.5	0.244	8.17	4.9	51
	2023	10.9	20.1	9.5	84.6	0.306	11.2	6.8	66
	2024	9.7	11.4	6.5	49.4	0.184	6.09	5.1	44
	2025	12	12.1	5.3	23.3	0.138	2.93	4.5	23
Clark Fork near Drummond USGS-12331800	2021	10.4	12.1	5.7	32	0.136	4.65	5.4	34
	2022	11.3	19.5	7.6	85.1	0.392	12.5	5.7	88
	2023	12.4	34.1	10.7	164	0.742	42.5	7.9	263
	2024	10.2	10.6	6.4	34.6	0.19	5.45	5.2	43
	2025	11.3	11.6	5.2	32.2	0.163	4.89	5.2	39
Clark Fork at Turah Bridge near Bonner USGS-12334550	2021	5.4	7.4	3.8	18.3	0.11	2.76	5	28
	2022	6.1	7.3	3.3	26.5	0.18	4.17	3.6	36
	2023	7.9	19.6	7.8	97.1	0.429	20.8	6.3	164
	2024	5.5	6.9	4.2	17.2	0.132	2.88	4	28
	2025	5.2	6	2.7	12.3	0.11	1.99	2.8	18
<i>Notes:</i> Source: USGS Water Data for the Nation, available at: https://waterdata.usgs.gov/ (accessed 2/20/2026). Bold values exceed the 2004 CFROU ROD chronic aquatic life performance standard. Bold italic values exceed the 2004 CFROU ROD acute aquatic life performance standard. Highlighted values exceed the 2004 CFROU ROD human health performance standard. Note that performance standards are applicable to the total recoverable concentration only, except for the copper performance standard, which is applicable to the dissolved concentration only. NS = not sampled µg/L = micrograms per liter									

Sediment Monitoring

DEQ samples in-stream sediment twice per year, during the first and third quarters, at all surface water sampling locations (see Figure 2). Samples are sieved and the fine fraction (less than 0.063 millimeters) is analyzed for dry

weight total metal concentrations for site COCs. There are no sediment performance standards, so results are compared to the Threshold Effect Concentration (TEC) and Probable Effect Concentration (PEC).¹⁰ Figures I-8 through I-11 show time-concentration graphs over the period of record.

Generally, samples exceed the TEC and/or the PEC at all sample locations. A 2023 Mann-Kendall trend test showed that concentrations of all COCs were declining at Clark Fork River near Galen and Clark Fork River at Williams-Tavener Bridge. The sample location near Galen is at the downstream end of Phase 1 and Phase 2, which were remediated in 2015 and 2017, respectively. The Williams-Tavener Bridge is downstream of all the Phases where remedial action has been performed. Declining trends were also identified for copper in Silver Bow Creek and for cadmium in Warm Springs Creek. Mann-Kendall trend tests results are summarized in Table I-8 in Appendix I.

Post-Remediation Vegetation Monitoring

In reaches where remedial action and revegetation is completed, DEQ performs vegetation monitoring to assess vegetation conditions by specific metrics and to evaluate progress toward attainment of vegetation performance targets. As of 2025, ongoing monitoring includes those Phases where remedial action has been completed, specifically Phases 1, 2, 3, 4A, 5, and 6. Monitoring is performed each year after remediation until the fifth year and then repeated at 7 years and 10 years post-remediation. Monitoring consists of transects with sixty 1-square-meter ground cover plots and five plots of 100 square meters where tree canopy cover, tree survival and species richness are measured. Monitoring includes plots in the riparian zone, transition zone and upland zone.

Ten-year monitoring in Phase 1 found that performance targets were met for noxious weeds across all zones, and total canopy cover and species richness in the upland zone. Performance targets for preferred woody species canopy cover and total canopy cover in the riparian zone were not met. Additional revegetation efforts may be necessary to meet these targets. Table 10 summarizes vegetation monitoring during this FYR period.

Table 10: Summary of Post-Remedial Action Vegetation Monitoring, Phases 1 through 6

Phase, Years Past Remedial Action	Zone	Performance Target	
		Passed	Failed
Phase 1, Year 10	Riparian	Noxious Weeds	Tree Canopy Cover Ground Cover
	Transition	Noxious Weeds	--
	Upland	Noxious Weeds Ground Cover Species Richness	--
Phase 2, Year 7	Riparian	Noxious Weeds	Tree Canopy Cover Ground Cover
Phase 3, Year 1	Riparian	Woody Species Survival	Ground Cover
	Transition	--	Ground Cover
Phase 5, Year 7	Riparian	Noxious Weeds	Tree Canopy Cover Ground Cover
Phase 6, Year 7	Riparian	Noxious Weeds	Tree Canopy Cover Ground Cover
<i>Notes:</i> Table includes most recent monitoring for phases 1 through 6. Year 1 and 2 monitoring for Phase 15 and 16 (Grant-Kohrs Ranch National Historic Site) is monitored separately and with different methodology. Source: 2023 and 2024 CFROU Annual Monitoring Reports, RESPEC. -- = None			

Phases 15 and 16 are monitored separately using Qualitative Rapid Assessment (QRA) as agreed upon by DEQ and National Park Service staff. The QRA assesses herbaceous species cover, native species richness and woody species cover on the floodplain, as well as woody species cover on streambanks. Performance targets for these

¹⁰ TEC and PEC are from MacDonald, D. D., C. G. Ingersoll, and T. A. Berger, 2000. "Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems," Archives of Environmental Contamination and Toxicology, Vol. 39, pp. 20–31, available at: <https://semspub.epa.gov/work/07/40168746.pdf>.

metrics are established for Year 5 with monitoring annually prior to that to determine whether adaptive management actions may be needed to meet these targets.

Year 1 monitoring (2022) indicated positive trends in QRA metrics and no adaptive management or additional maintenance was recommended. However, issues were noted for future observations such as low herbaceous cover in former haul roads, expansion of aggressive, introduced grasses, some toe scour on streambanks, and animals browsing on planted woody vegetation.

Macroinvertebrate Monitoring

Macroinvertebrates were also most recently monitored in August 2023. There has been little change over time in measures of taxa richness or Shannon diversity index. Other biotic indices specific to macroinvertebrates indicate mild to moderate impairment or are near the threshold for impairment. Invasive species New Zealand mudsnails were observed in Silver Bow Creek for the first time in 2022. Montana FWP also observed New Zealand mudsnails in CFROU in 2023. New Zealand mudsnails have only recently been observed west of the Continental Divide.

Montana FWP Fisheries Monitoring¹¹

Since 2008, Montana FWP has been monitoring fisheries in the Clark Fork River in CFROU, as well as multiple tributaries. Monitoring in CFROU in 2023 consisted of population surveys conducted by electrofishing. Figure C-7 shows sample locations. Figure I-12 shows graphs of brown trout populations over time at six long-term monitoring locations.

During this FYR period, brown trout populations have been near historic lows in the Clark Fork River upstream of Deer Lodge. However, downstream of Deer Lodge at the Williams-Tavener Bridge and Phosphate monitoring sections, 2024 population estimates are near the long-term average and further downstream at Morse Ranch and Bearmouth sections, above the long-term average. Populations upstream of Deer Lodge began declining between 2015 and 2017.

Prior to 2018, the variations in the population of 3-year-old brown trout at the most upstream section (pH Shack) could be explained by minimum flow conditions for the three prior years. However, minimum flow conditions are no longer strongly tied to brown trout recruitment.

According to the 2024 Fisheries Monitoring Report, one possible explanation for the decline in brown trout populations in the upper reaches of the CFROU is that remediation efforts reduced the amount of undercut streambanks and the amount of vegetation overhanging the river, both of which reduced cover for fish. However, brown trout are a generalist species that can often survive degraded habitat conditions. Additionally, targeted sampling has found that declines in brown trout populations have occurred in remediated and unremediated reaches. Notably, brown trout declines have also recently been reported on several other southwest Montana rivers. A specific factor has not been identified to account for these regional declines, but aspects of flow regime have been identified in some basins.

Montana NRDP has funded additional studies, which will focus on fish production and survival, water quality and habitat. The EPA was not consulted in the plans for these studies. Coordination across agencies will ensure that future work is planned and implemented consistently and meets all required quality assurance protocols.

Site Inspection

The site inspection took place on 10/20/2025 for the MRSOU and 10/21/2025 for the CFROU. The purpose of the inspection was to assess the protectiveness of the remedy. The site inspection checklist for the MRSOU is included in Appendix F and for the CFROU in Appendix G. Inspection photos are included in Appendix H.

¹¹ Montana FWP Upper Clark Fork River Fisheries Monitoring Reports can be found at: <https://dojmt.gov/NRDP-sites/upper-clark-fork-river-basin/>

MRSOU

Site inspection participants for the MRSOU included EPA RPMs Molly Roby and Lauren Murphy, EPA hydrogeologist Angela Frandsen, DEQ project manager Breana Pabst, Zach Archibald with PRP contractor Pioneer Technical Services, and Kim Johnson Chase with EPA FYR contractor Skeo.

Participants met at the Milltown State Park Overlook and proceeded down the trail to the Tunnel Pond Repository. The repository cover was generally well vegetated with grasses and showed no signs of significant erosion. Near the bottom of the main repository there were some small bare areas on the side slope that are vulnerable to erosion and should be revegetated. Near the top of the repository slope (west) there was an area of scouring rush, also known as rough horsetail, which may be a sign of frequently saturated soil. Drainage channels run along the top of the repository to the east and west. The channels are in good condition with no significant erosion or vegetation that could impede flow.

Participants proceeded to the Staging Area Repository, the Upland Disposal Repository and the Right Bank Repository. All three were well vegetated and showed no signs of erosion. The I-90 Buttress was also in good condition with no apparent erosion. Rip-rap along the Blackfoot River above its confluence with the Clark Fork River was also in good condition. All monitoring wells observed were properly secured.

CFROU

Site inspection participants for the CFROU inspection included EPA RPMs Molly Roby and Lauren Murphy, EPA hydrogeologist Angela Frandsen, DEQ project managers Logan Dudding and Jessica Banaszak, Brian Bartkowiak of Montana NRDP, as well as Alison Cattani, Peri Bowser and Kim Johnson Chase of Skeo.

Participants could not access the portion of the Site in Grant-Kohrs Ranch because the National Historic Site (Phases 15 and 16) was closed due to a government shutdown. Therefore, participants met at Arrowstone Park in Deer Lodge. The park has signs warning visitors of high arsenic concentrations in some areas of soil in the park and recommending steps visitors can take to avoid exposure. In 2023, DEQ placed soil over slickens areas in the most visited parts of the park as a temporary measure to prevent exposure before remediation can take place. Exposed slickens remain in areas of the park with less traffic. There is active bank erosion along the Clark Fork River in Arrowstone Park, which is in Phases 13 and 14. DEQ plans to begin remediation of Phases 13 and 14 and Arrowstone Park during the next FYR period.

Inspection participants proceeded to Phase 7, which was undergoing construction. During the inspection, the channel and streambank construction was complete, but removal of floodplain sediments and backfilling was ongoing. The channel was constructed to contain the 1.5-year flood, and the banks were constructed with brush and dormant willow cuttings that will establish in the streambank to provide stability and shade for aquatic life, with additional streambank protection when necessary due to high shear stress. Rip-rap is used where infrastructure needs to be protected.

Participants also observed Phases 5 and 6, where construction was completed in 2016 before DEQ adjusted remedial designs to allow the river to access the floodplain and provide additional shade and habitat for aquatic life. The channel in these Phases was constructed to contain the 2-year flood. Stream banks were constructed with layers of coir fabric wrapped around 1-foot-thick soil layers. Willow and other woody vegetation were planted at the top of the streambank.

In Phase 1, participants observed Montana FWP equipment designed to collect fish that are too small to be collected via electro-fishing. There were also coolers with fish eggs designed to cycle through water from the Clark Fork River. This equipment is part of investigations aimed at determining why fish populations in the Clark Fork have been declining. These investigations were described in the Data Review section of this FYR Report.

V. TECHNICAL ASSESSMENT

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

Question A Summary:

MRSOU

The MRSOU remedial action continues to generally 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. MRSOU decision documents called for provision of public water supply in Milltown and removal of contaminated sediment, followed by removal of the Milltown Dam, reconstruction and restoration of the Clark Fork and Blackfoot River channels and floodplain, long-term O&M of repositories, surface water and groundwater monitoring and implementation of institutional controls. Remedy components were implemented per the decision documents, as discussed below, although additional institutional controls may be necessary. Because arsenic concentrations in groundwater have not declined within the expected timeframe, the PRPs are updating the CSM as a preliminary step to determining appropriate next steps to address arsenic in groundwater.

Remedial Action Performance

The EPA constructed Milltown's public water supply system and provided or required permanent maintenance funding. 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, I-90 bank improvements, removal and re-grading of the Bypass Channel, bridge replacements and strengthening of the I-90 Bridge abutments on the Blackfoot River are completed and functioning as designed. However, bare patches on the Tunnel Pond Repository should be revegetated to reduce the risk of erosion.

Arsenic concentrations in groundwater have decreased significantly since the cleanup began, but some compliance wells sampled still exceed the performance standard. Over the past five years, the arsenic concentrations in wells that still exceed the performance standard have variously increased, decreased or remained stable. The ROD anticipated that the performance standard would be achieved about 4 to 10 years after completion of dam and sediment removal. The primary construction activities were completed in 2012. Groundwater has not achieved the arsenic standard within the timeframe anticipated in the ROD. The 2021 FYR recommended determining whether additional measures were needed to reduce arsenic concentrations or if a TI waiver of the arsenic performance standard was warranted. At the EPA's request, the PRPs began sampling in order to update the CSM as a preliminary step to inform a TI evaluation. The EPA will utilize the data from the sampling to understand the CSM and any remaining arsenic exceedances of the identified performance standards in the ROD. The evaluation will assist in determining if meeting ARARs for groundwater is not possible from an engineering standpoint and if the performance standard for arsenic in groundwater should be waived or if additional action could be taken to address the arsenic plume. Initial sampling is complete and the preliminary results are expected in late summer 2026.

System Operations/O&M

Vegetation performance standards have been met for all areas where the PRPs retained responsibility for revegetation. PRP monitoring found that vegetation remains mostly uniform on the repositories and I-90 Buttress, with small areas of weeds in need of spot spraying. An area of scouring rush near the top of the Tunnel Pond Repository was noted during PRP inspections and during the FYR site inspection. This may indicate that soil in this area remains at or near saturation for significant periods of time. There were also some small bare patches that are vulnerable to erosion and should be revegetated. Monitoring the condition of the repository caps and stormwater systems shows that they continue to function as designed. However, the EPA will evaluate whether possible excessive soil moisture could compromise the function of the repository or the integrity of the cap. A

survey of settlement monuments on the Tunnel Pond Repository in 2025 showed very little displacement over the last five years.

Montana NRDP performs maintenance, monitoring and weed management in the restored channel and floodplain area of MRSOU. Ten-year performance monitoring in 2021 showed that the study reaches from Turah Bridge to below the confluence with the Blackfoot River are generally meeting geomorphic goals and objectives, and vegetation is trending toward meeting floodplain and wetland objectives.

Implementation of Institutional Controls and Other Measures

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 Institutional Controls 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. The EPA is in the process of creating an ICIAP and working with DEQ and local partners to implement appropriate institutional controls sitewide where additional institutional controls may be needed to protect human health. The groundwater evaluation of arsenic will inform where additional institutional controls may be needed.

CFROU

The remedy for CFROU is in progress. The CFROU decision documents called for treatment or removal of contaminated soil and sediment, streambank stabilization through “soft” engineering techniques, and implementation of weed control, best management practices, institutional controls and monitoring.

Remedial Action Performance

Cleanup is underway in Reach A of the CFROU. Remedial and removal actions have been completed in residential yards and some pasture areas, as well as river Phases 1, 2, 3, 4A, 5, 6, 7, 15 and 16. Reach B will be assessed for any remediation once Reach A remediation is complete. When completed, the remedy is expected to achieve remedial goals contained in the ROD. The EPA determined that Reach C requires no further action.

Phases 13 and 14 of Reach A, which contain Arrowstone Park, are in the remedial design phase. As a temporary measure, DEQ covered several high-use areas of suspect slickens with clean soil in 2023. However, many areas of Arrowstone Park have exposed slickens, and the streambanks near the park are actively eroding with exposed tailings. DEQ, in coordination with the EPA, will complete additional characterization of Arrowstone Park to support remedial design in 2026 and expedite cleanup in this area to the extent possible, due to the potential for human exposure.

Ongoing surface water monitoring has been conducted since 2010 to assess surface water and vegetation during and after cleanup. There has been limited groundwater monitoring of domestic wells in CFROU from 2007 to 2010. A more robust groundwater monitoring program is necessary to determine if groundwater quality is progressing toward meeting RAOs. Additional monitoring efforts include streambed sediments, macroinvertebrates, periphyton, nutrients and fish populations.

Montana FWP fisheries monitoring has found that brown trout populations began declining in about 2015 and have been near historic lows in the Clark Fork River upstream of Deer Lodge during this FYR period. Downstream of Deer Lodge, however, population estimates are close to or above the long-term average. The cause of the decline is not known. Montana NRDP has funded additional studies focusing on fish production and survival, water quality, and habitat. The 2004 *Biological Opinion and Conference Opinions for Bull Trout and Proposed Bull Trout Critical Habitat* identified specific coordination terms and conditions for remedial action work plan development and implementation. The goal of the terms and conditions is to minimize adverse impacts

to trout habitat in the Clark Fork River. The coordination with U.S. Fish and Wildlife Service should be re-established with each remedial action in the CFROU.

System Operations/O&M

The CFROU remedy is not complete; however, some portions of the cleanup have been complete for over 10 years. Inspections and maintenance are ongoing, completed under monitoring plans, but there is no formalized O&M plan to ensure consistency and appropriate record-keeping. Therefore, an O&M plan should be developed to synchronize ongoing inspection and maintenance activities to ensure that appropriate maintenance is addressed and to formalize O&M processes.

Implementation of Institutional Controls and Other Measures

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, additional measures 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 use controls, if impacted groundwater is identified. The EPA is in the process of creating an ICIAP and working with DEQ and local partners to implement appropriate institutional controls statewide.

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

Question B Summary:

The exposure assumptions and RAOs used at the time of remedy selection remain valid for both the MRSOU and the CFROU. However, toxicity information has changed for arsenic and lead which may affect cleanup goals as discussed below.

Changes in Standards and To-Be-Considered Criteria

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 National Priority Drinking Water Regulations (maximum contaminant level). 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 MRSOU and CFROU RODs established human health groundwater and surface water performance standard for lead based on the federal action level and state human health standard of 15 µg/L. In 2024, the federal action level was updated to 10 µg/L; however, the state human health standard remains at 15 µg/L. The federal and state acute aquatic life surface water standard for cadmium is slightly more stringent now than at the time of the 2004 RODs. The EPA and DEQ should determine whether the lead performance standard for the Site should be updated to the federal action level of 10 µg/L and whether the cadmium aquatic water quality performance standard should be updated. 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 J).

The MRSOU remedy may not 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.

Changes in Toxicity and Other Contaminant Characteristics

Arsenic: 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. In January 2025, the EPA finalized the IRIS Toxicological Review of Inorganic Arsenic, updating the toxicity values. In April 2026, *Future Development and Use of Risk Assessments* memo recommends program offices to determine if "IRIS information... was developed in a manner consistent with statutory and regulatory obligations." Based on the updated guidance for arsenic, more evaluation is warranted to assess the impact of these changes on the protectiveness of the soil cleanup remedy and to determine if cleanup goals should be revised to address any future soil cleanups.

Lead: Lead was not identified as a human health COC in either of the 2004 RODs for the CFROU and MRSOU. The CFROU ROD concluded that, based upon the understanding that no residential development exists within the floodplain, and that exposures are limited to ranch (or farm) workers and recreators (fishermen, tubers, and children at parks), the human health risks are acceptable. The MRSOU ROD did not identify any soil COCs based on the human health risks associated with residential and recreational exposures around the reservoir. The risk assessment found that if new homes were to be built immediately surrounding the MRSOU reservoir, it would pose an unacceptable risk.

In October 2025, the EPA released the Residential Lead Directive for CERCLA Sites and RCRA Hazardous Waste Cleanup Program Facilities to accelerate cleanup of Superfund and hazardous waste sites across the nation. The 2025 directive establishes a new residential-screening level (RSL) of 200 milligram per kilogram (mg/Kg) and a 600 mg/Kg removal-management level (RML) for lead in residential soils. The 2025 directive also established 5 micrograms per deciliter ($\mu\text{g/dL}$) as the target children's blood-lead level to determine preliminary remediation goals.

The 2004 CFROU ROD shows that the geometric mean of lead is 665 mg/kg in the tailings, 359 mg/kg in the mixed soil/tailings and 318 mg/kg in cover soil. The 2025 Lead Directive does not currently affect the remedy in either OU because residential use is not expected to be a future use scenario of the floodplain because of institutional controls currently in place.

Changes in Risk Assessment Methods

No other changes in risk assessment methods beyond the toxicity value changes discussed above have occurred since the previous FYR.

Changes in Exposure Pathways

The exposure assumptions remain valid, with the exception of Arrowstone Park. The Agencies are currently evaluating the exposure scenario for Arrowstone Park. There have not been any land use changes that would affect the exposure assumptions used in the historical risk assessments.

Expected Progress Toward Meeting RAOs

MRSOU: The RAO of returning contaminated groundwater to its beneficial use within a reasonable timeframe has not been achieved. At EPA's request, the PRPs are developing the CSM as a first step in determining if meeting ARARs for groundwater is not possible from an engineering standpoint and the performance standard for arsenic in groundwater should be waived or if additional action should be taken. However, institutional controls currently in place ensure that no public water supply wells are installed within the vicinity of the arsenic plume.

The remedy is making progress toward meeting surface water RAOs. Although surface water COC concentrations have periodically exceeded performance standards, especially under high flow conditions, concentrations are generally much lower than in previous years.

CFROU: The floodplain tailings and impacted soils RAOs are progressing as the cleanup proceeds. However, the RAOs are not being met at Arrowstone Park where current, unacceptable risk to human health exists because of the slickens and exposed tailings. Arrowstone Park has a unique use as a public park, that receives daily use from

the public, while the other portions of the river receive less public use. Likewise, surface water RAOs are progressing toward being met as the cleanup continues. Brown trout populations have declined near Deer Lodge since 2017, but the cause or causes of this decline have not been determined. The status of groundwater RAOs is unknown as groundwater monitoring is not being conducted in CFROU.

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(s): 3 (CFROU)	Issue Category: Remedy Performance			
	Issue: Arrowstone Park, which is in Phases 13 and 14 of Reach A, is in the remedial design phase. In 2023, DEQ covered several areas of slickens with clean soil in high-use areas. However, many areas of the park have exposed slickens and the streambanks near the park are actively eroding with exposed tailings. Prominent signage at Arrowstone Park warns visitors of high arsenic in soils and steps to take to avoid exposure. Community members have been advocating for a lower arsenic cleanup number. Arrowstone Park is used daily by the residents of Deer Lodge and therefore, the Agencies are determining whether the residential action level for arsenic should be applied at the Park, similar to how the residential action level for arsenic is applied at parks and playgrounds at the neighboring Silver Bow Creek/Butte Area Superfund Site.			
	Recommendation: Perform the remedial action in Arrowstone Park as soon as practical and simultaneously evaluate the arsenic action level to determine if a residential scenario is more applicable than the exposure assumptions applied in the 2001 Human Health Risk Assessment Addendum for Recreational Visitors at Arrowstone Park.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	State	EPA	10/1/2028

OU(s): 3 (CFROU)	Issue Category: Other			
	Issue: Brown trout populations began declining since about 2015 and have been near historic lows in the Clark Fork River upstream of Deer Lodge during this FYR period. The cause of the decline is not currently known.			
	Recommendation: Ensure the terms and conditions in the U.S. Fish and Wildlife Service biological opinion are being met for each remedial action work plan developed. Coordinate with partner agencies (FWP, U.S. Fish and Wildlife Service, USGS, NRDP, DEQ) to develop a strategy to assess whether there are remedial action- related impacts that may be contributing to fish population decline.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	State	EPA	10/1/2031

OU(s): 3 (CFROU)	Issue Category: Operations and Maintenance			
	Issue: The CFROU remedy includes portions of the river (“phases”) that are in the O&M phase. While inspections and maintenance are ongoing in some areas, some areas are not being monitored or are being monitored infrequently, such as the Eastside Road pasture area. Additionally, there is no formalized O&M plan to ensure consistency and appropriate record-keeping. The CFROU O&M Plan should also identify corrective action activities for those areas where revegetation observed is not meeting performance targets (see Table 10).			
	Recommendation: Coordinate with DEQ to develop the O&M plan for CFROU to ensure that appropriate maintenance is addressed and to formalize operation, maintenance, and monitoring processes, progress tracking and reporting in addition to corrective action requirements. The O&M Plan should identify the roles and responsibilities for maintenance and monitoring activities, specifically identifying those activities to be completed by DEQ and those that are to be completed by NRDP.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	State	EPA	10/1/2028

OU(s): 3 (CFROU)	Issue Category: Monitoring			
	Issue: Annual monitoring in CFROU has been ongoing since 2010 but does not currently include groundwater. Groundwater monitoring is critical to determine if groundwater is meeting RAOs within the CFROU.			
	Recommendation: Design a groundwater monitoring program and incorporate into a groundwater sampling plan as part of CFROU annual monitoring and in support of the operation and maintenance activities. Determine whether additional wells are required to support the groundwater monitoring of the CFROU.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	State	EPA	10/1/2029

OU(s): 2 (MRSOU), 3 (CFROU)	Issue Category: Institutional Controls			
	Issue: Both the MRSOU ROD and the CFROU ROD called for institutional controls, some of which are not yet in place. MRSOU may need additional institutional controls to human health exposure to the arsenic plume. The CFROU needs institutional controls to ensure that Arrowstone Park is maintained and dedicated for use as a recreational area and to restrict groundwater use and land use.			
	Recommendation: Finalize the ICIAP and implement appropriate institutional controls in cooperation with DEQ and local governments.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	EPA/State	EPA	10/1/2030

OU(s): 2 (MRSOU)	Issue Category: Operations and Maintenance			
	Issue: An increasingly dominant area of Scouring Rush has been observed at the top of the Tunnel Pond Repository, a potential indicator of soil that is saturated frequently or for long periods of time.			
	Recommendation: Evaluate whether excessive soil moisture could compromise the function of the repository or the integrity of the cap.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA	10/1/2028

OU(s): 2 (MRSOU)	Issue Category: Remedy Performance			
	Issue: Arsenic concentrations in groundwater in MRSOU continue to exceed the performance standard beyond the 10-years-post-remedial action anticipated in the MRSOU ROD. The PRPs are updating the CSM at the EPA's request.			
	Recommendation: Following completion of the CSM update, determine whether an evaluation for a potential TI waiver of the arsenic performance standard is necessary or if additional action could be taken to address the arsenic plume.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	PRP	EPA	10/1/2030

OU(s): 2 (MRSOU), 3 (CFROU)	Issue Category: Other			
	Issue: The MRSOU and CFROU RODs established human health groundwater and surface water performance standards for lead based on the federal action level and state human health standard of 15 µg/L. In 2024, the federal action level was updated to 10 µg/L; however, the state human health standard remains at 15 µg/L. Additionally, federal and state acute aquatic life standards for cadmium, which were the basis of MRSOU and CFROU ROD surface water performance standards, are slightly more stringent than they were in 2004.			
	Recommendation: Evaluate the human health groundwater and surface water performance standards for lead and determine if they should be updated to the current federal action level in a decision document. Evaluate the need to update the cadmium acute aquatic life surface water performance standard. If an update to the decision document is required, update the performance standard in an amendment to the decision documents.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	EPA	EPA	10/1/2031

OU(s): 3 (CFROU)	Issue Category: Other			
	Issue: The CFROU ROD established risk-based cleanup goals for arsenic in soil. In January 2025, the EPA finalized updates to the toxicity values for inorganic arsenic for both cancer and noncancer adverse health effects, which assess arsenic as more toxic than previous toxicity values.			
	Recommendation: Evaluate the effect of the change in arsenic toxicity values on protectiveness of the soil cleanup remedy. Determine if cleanup goals should be revised for soil cleanups.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
Yes	Yes	EPA	EPA	10/1/2028

OU(s): 3 (CFROU)	Issue Category: Monitoring			
	Issue: Post-remediation vegetation monitoring in Phases 15 and 16 (Grant-Kohrs Ranch National Historic Site) in 2022, the first year after remediation, but has not been performed since. There is not a Phase 15-and-16-specific O&M plan for vegetation monitoring currently in place for these phases. Additionally, there are areas of apparent metals salts visible within the construction area that have not been evaluated.			
	Recommendation: Develop the Phase 15 and 16 O&M plan and implement more robust post-remediation vegetation monitoring in Phases 15 and 16. Evaluate and, if needed, address areas of apparent metals salts in the construction area of Phase 15 and 16.			
Affect Current Protectiveness	Affect Future Protectiveness	Party Responsible	Oversight Party	Milestone Date
No	Yes	EPA	EPA	10/1/2029

OTHER FINDINGS

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

- Revegetate small bare patches on the side slope near the bottom of the main Tunnel Pond Repository.
- Update CFROU Monitoring Reports to the current state standard for arsenic for both total recoverable and dissolved surface water concentrations.
- Work with the USGS to evaluate cadmium data from the USGS surface water monitoring program once reporting issues have been remedied by the USGS.
- Address any unlocked monitoring wells to ensure that they are appropriately maintained and kept.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)	
<i>Operable Unit:</i> 2 (MRSOU)	<i>Protectiveness Determination:</i> Short-term Protective
<i>Protectiveness Statement:</i> The remedy at the MRSOU (OU-2) 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: • Following completion of the CSM update, determine whether an evaluation for a potential TI waiver of the arsenic performance standard is necessary or if additional action could be taken to address the arsenic plume. • Finalize the ICIAP and implement appropriate institutional controls in cooperation with DEQ and local governments. • Evaluate whether excessive soil moisture could compromise the function of the Tunnel Pond repository or the integrity of the cap. • Evaluate the human health groundwater and surface water performance standards for lead and determine whether they should be updated to the current federal action level in a decision document. Evaluate the need to update the cadmium acute aquatic life surface water performance standard and determine if it should be updated in a decision document.	

Protectiveness Statement(s)	
<i>Operable Unit:</i> 3 (CFROU)	<i>Protectiveness Determination:</i> Will be Protective
<i>Protectiveness Statement:</i> The remedy at the CFROU (OU-3) 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. For the remedy to be protective over the long term, the following actions need to be taken: • Perform the remedial action in Arrowstone Park as soon as practical and evaluate the arsenic action level to determine whether a residential scenario is more applicable than the exposure assumptions applied in the 2001 Human Health Risk Assessment Addendum for Recreational Visitors at Arrowstone Park. • Ensure the terms and conditions in the U.S. Fish and Wildlife Service biological opinion are being met for each remedial action work plan developed. Coordinate with partner agencies (FWP, U.S. Fish and Wildlife Service, USGS, NRDP, DEQ) to develop a strategy to assess whether there are remedial action- related impacts that may be contributing to fish population decline. Coordinate with DEQ to develop an O&M plan to ensure that appropriate maintenance is addressed and to formalize O&M processes, progress tracking and reporting. • Design and initiate a groundwater monitoring plan as part of CFROU annual monitoring. • Finalize the ICIAP. Implement appropriate institutional controls in cooperation with DEQ and local governments. • Evaluate the human health groundwater and surface water performance standards for lead and determine whether they should be updated to the current federal action level in a decision document. Evaluate the need to update the cadmium acute aquatic life surface water performance standard and determine whether it should be updated in a decision document. • Evaluate the effect of the change in arsenic toxicity values on protectiveness of the soil cleanup remedy. Determine whether cleanup goals should be revised and applied to soil cleanups. • Develop an SAP for and implement more robust post-remediation vegetation monitoring in Phases 15 and 16. Evaluate and, if needed, address areas of apparent metals salts in the construction area of Phase 15 and 16.	

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

2020 Monitoring and Maintenance Annual Report: Milltown Reservoir Sediments Operable Unit. Envirocon. July 19, 2023. SEMS #100013693

2021 Monitoring and Maintenance Annual Report: Milltown Reservoir Sediments Operable Unit. Envirocon. July 19, 2023. SEMS #100013694

2022 Monitoring and Maintenance Annual Report: Milltown Reservoir Sediments Operable Unit. Envirocon. July 19, 2023. SEMS #100013695.

Clark Fork River Operable Unit Strategic Plan. Milltown Reservoir/Clark Fork River Superfund Site. Natural Resource Damage Program & Montana Department of Environmental Quality. October 2023.
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APPENDIX B – SITE CHRONOLOGY

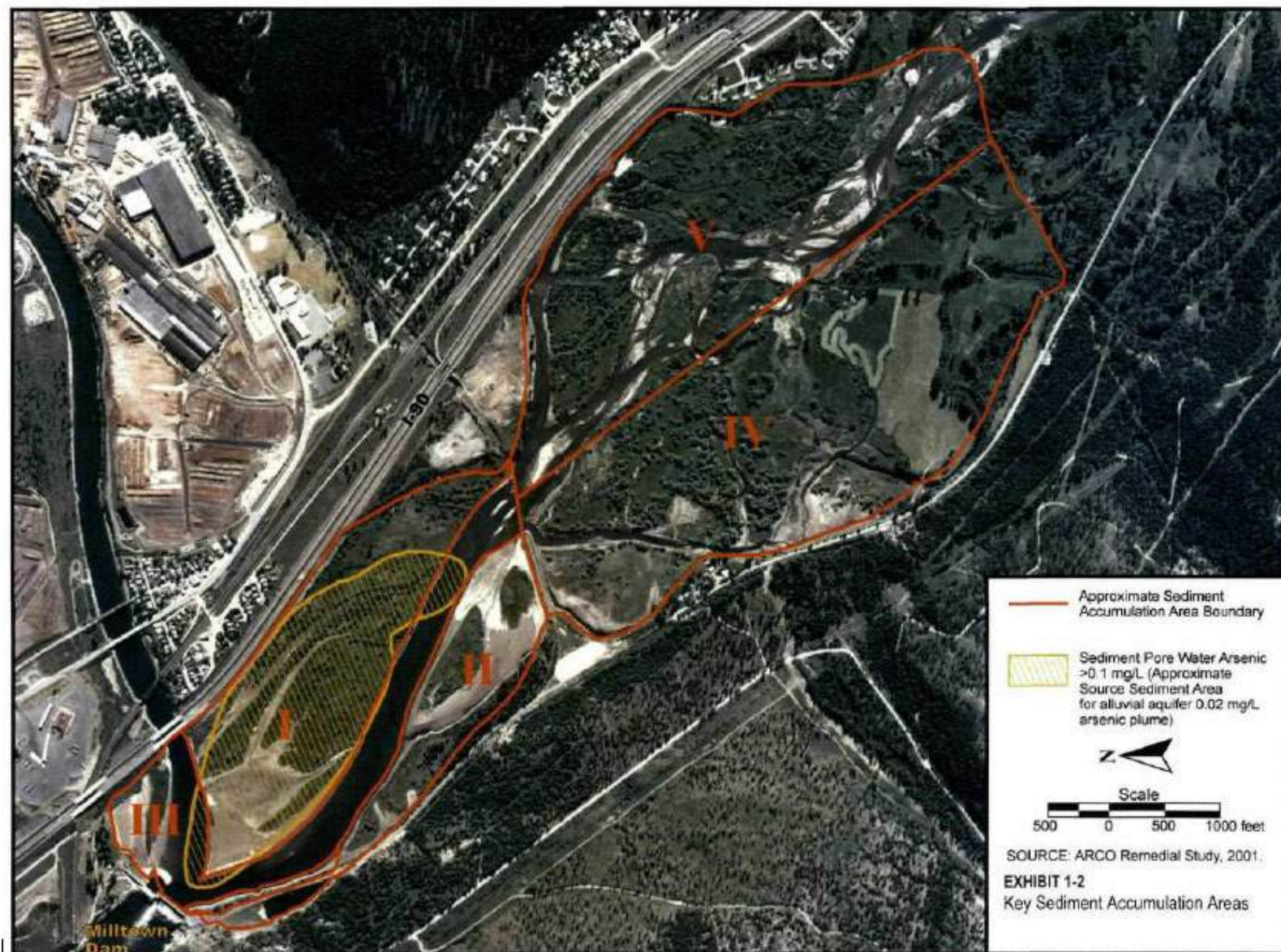
Table B-1: Site Chronology

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 OU-1, requiring construction of a deep well and water tank to serve as an alternative water supply for Milltown residents	April 14, 1984
EPA issued an amendment to the OU-1 ROD	August 7, 1985
Remedial action construction for OU-1 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
EPA issued an Administrative Order on Consent to ARCO initiating the RI/FS process for the CFROU	1994
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
EPA Superfund Redevelopment Program pilot grant to assist communities in development of a reuse plan for the site.	2005
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 the CFROU remedy and O&M entered by federal court. This provided for the performance of the CFROU remedy and O&M by the DEQ using the cashout money, and funding and performance of natural resource damage actions by the state of Montana NRDP.	August 21, 2008
Removal of the Milltown Dam completed within the MRSOU.	2009
EPA approved Draft Repository O&M Plan and changes to the Remedial Action Monitoring Plan for MRSOU	March 2010
DEQ 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 the MRSOU	September 2011
MRSOU remedial action construction activities were significantly completed	June 2012
DEQ conducted cleanup at Eastside Road pasture areas (adjacent to Phases 12 and 13)	2012 and 2015
DEQ conducted cleanup at CFROU Reach A, Phase 1	March 2013 to April 2014
DEQ conducted cleanup at CFROU Phase 5 and 6	July 2014 to 2016
EPA and DEQ released Explanation of Significant Differences for CFROU	June 12, 2015
DEQ conducted cleanup at CFROU Phase 2	June 2015 to Fall 2016

Event	Date
EPA completed the second FYR	September 29, 2016
Institutional Controls Agreement recorded for property owned by state of Montana at the MRSOU	August 9, 2017
Remedial Action Construction Completion Report completed for MRSOU	December 5, 2018
DEQ performed cleanup at Phases 15 and 16 (part of Grant-Kohrs Ranch National Historic Site)	2019-2021
EPA issued the third FYR	August 5, 2021
DEQ completed the Phase 3 and Phase 4A cleanup	2023
DEQ placed soil cover over slickens in high traffic areas of Arrowstone Park as a temporary measure	2023
Powell County received reuse planning assistance through the Superfund Redevelopment Program in support of the County's master plan for Arrowstone Park	2023-2024
DEQ began the Phase 7 cleanup	2025
EPA approved the PRP's QAPP to update the MRSOU groundwater CSM	September 2025

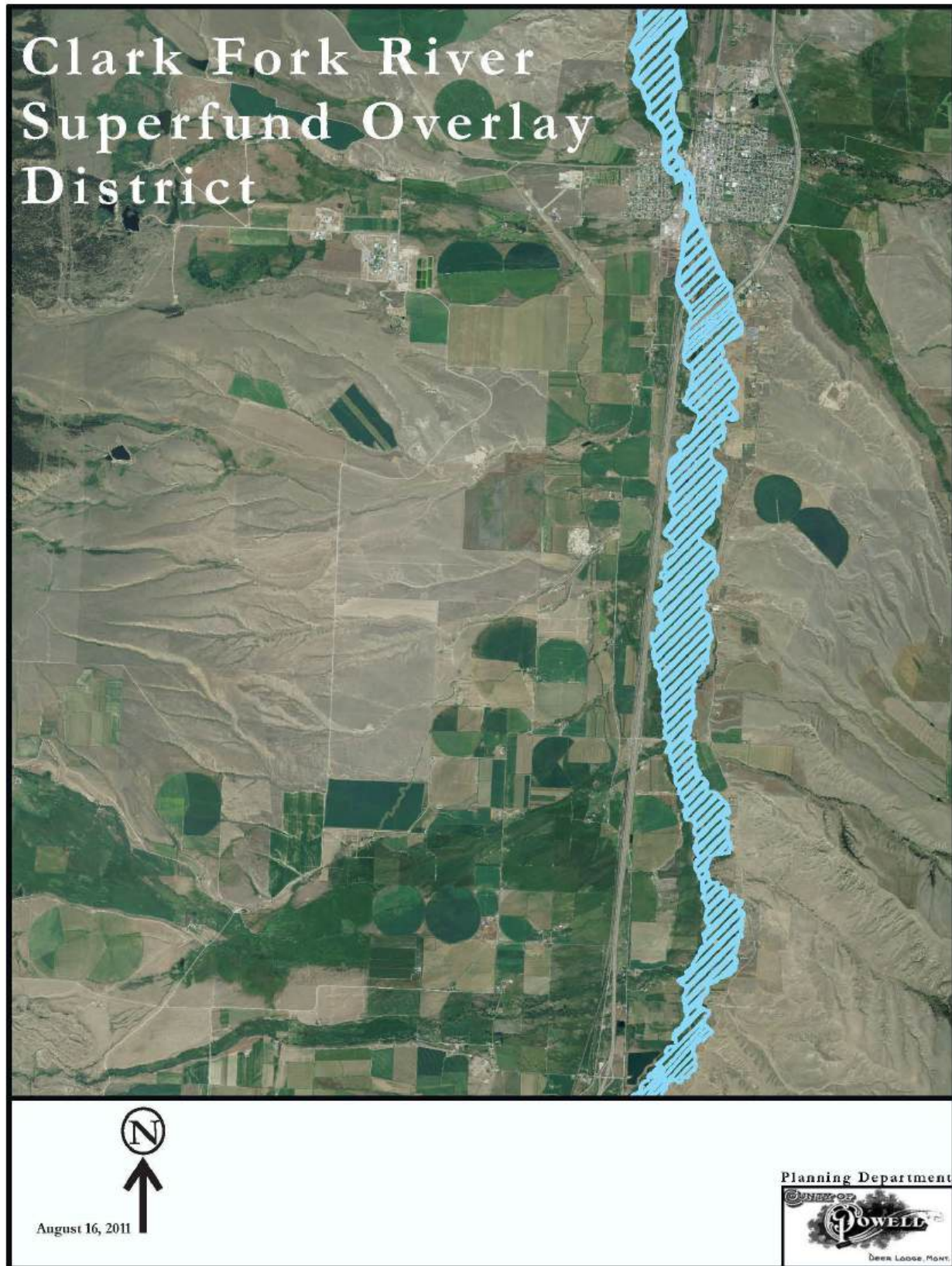
APPENDIX C – SITE MAPS

Figure C-1: MRSOU Sediment Accumulation Areas¹²



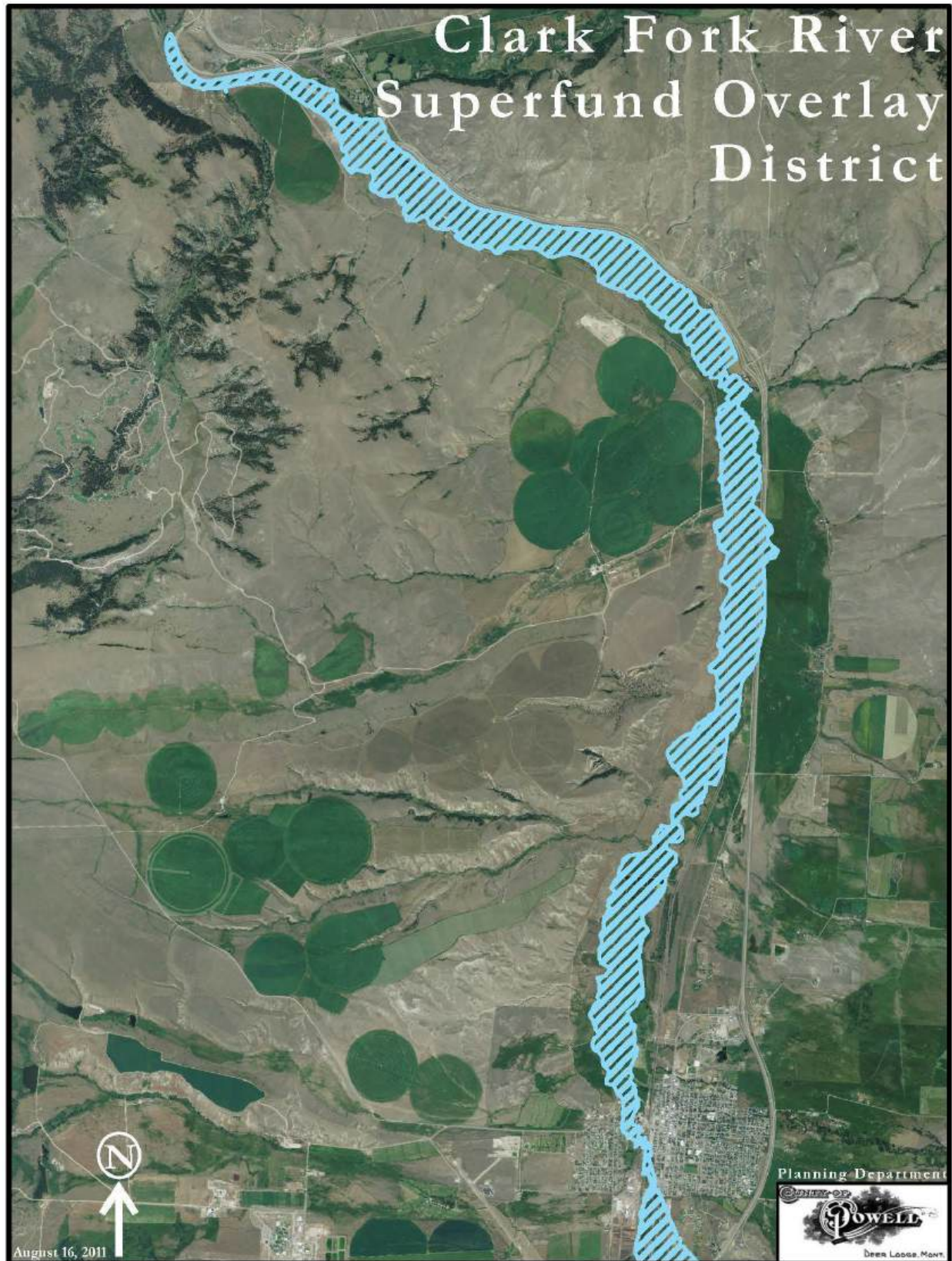
¹² Source: December 2004 ROD.

Figure C-2: Powell County Superfund Overlay District, Upstream Section¹³



¹³ Source: Powell County Planning Department, available at: <https://www.powellcountymt.gov/planning-department/page/superfund>.

Figure C-3: Powell County Superfund Overlay District, Downstream Section¹⁴



¹⁴ Source: Powell County Planning Department, available at: <https://www.powellcountymt.gov/planning-department/page/superfund>.

Figure C-4: Arrowstone Park Parcel Map

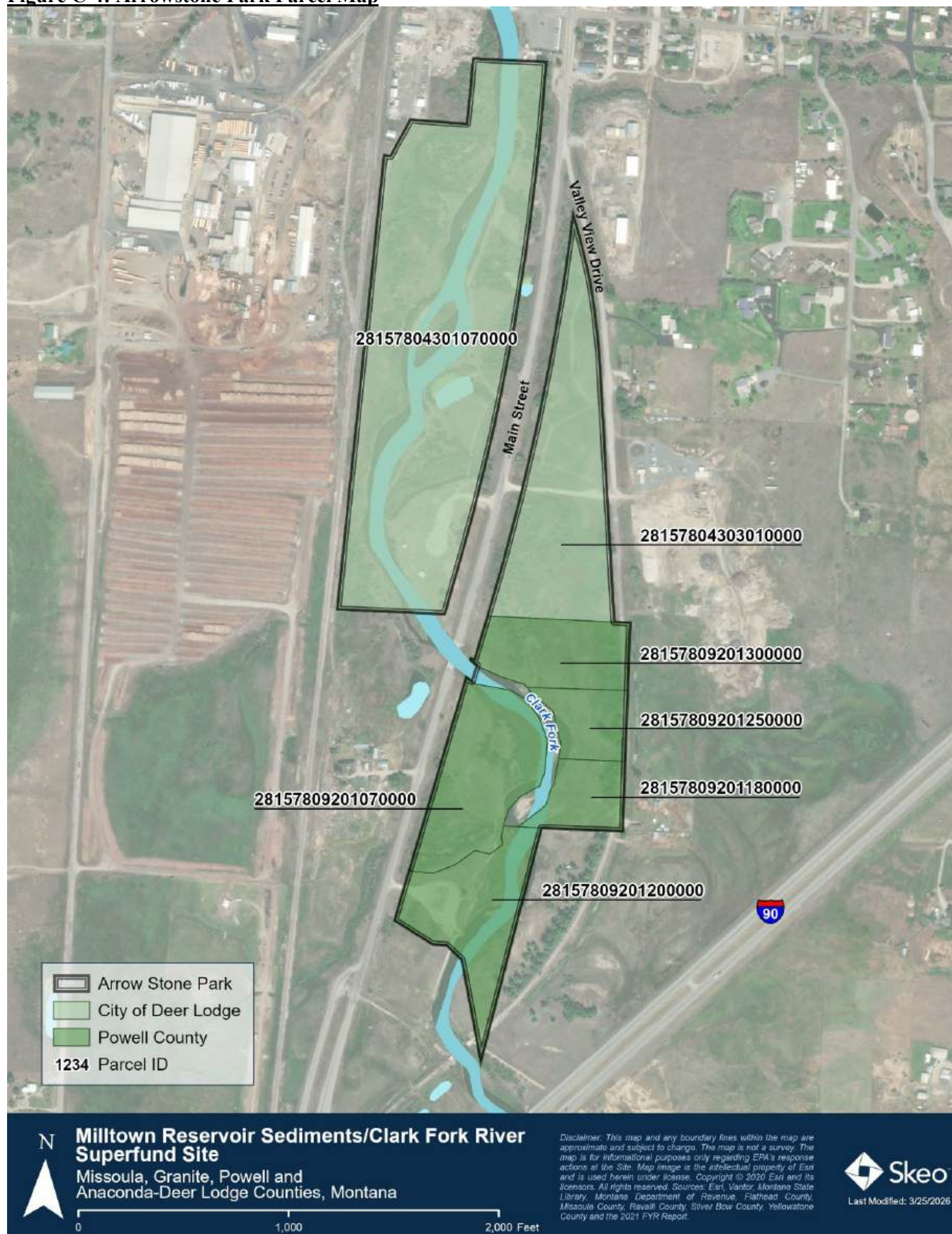
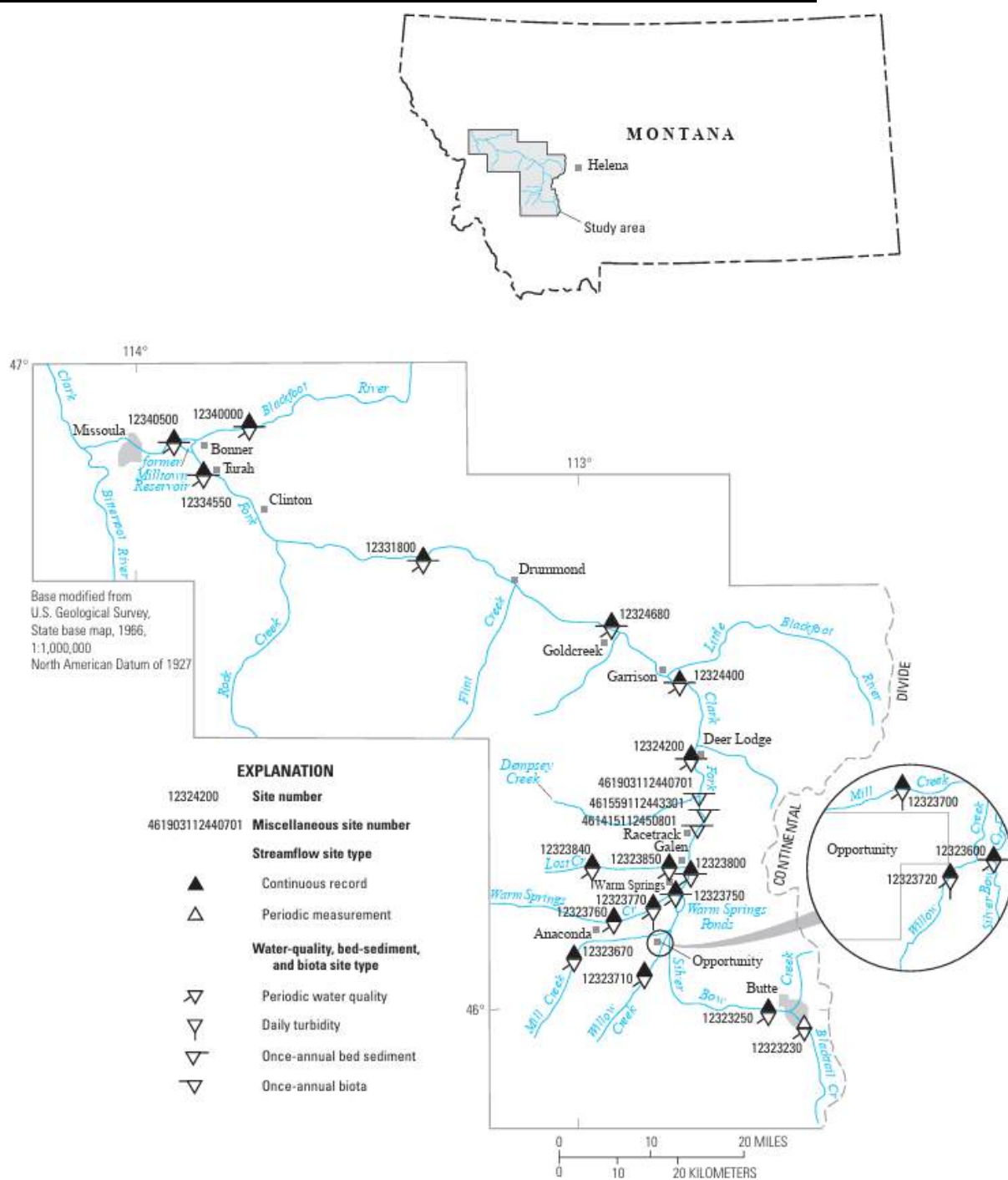


Figure C-5: USGS Monitoring Locations in the Upper Clark Fork River Basin¹⁵

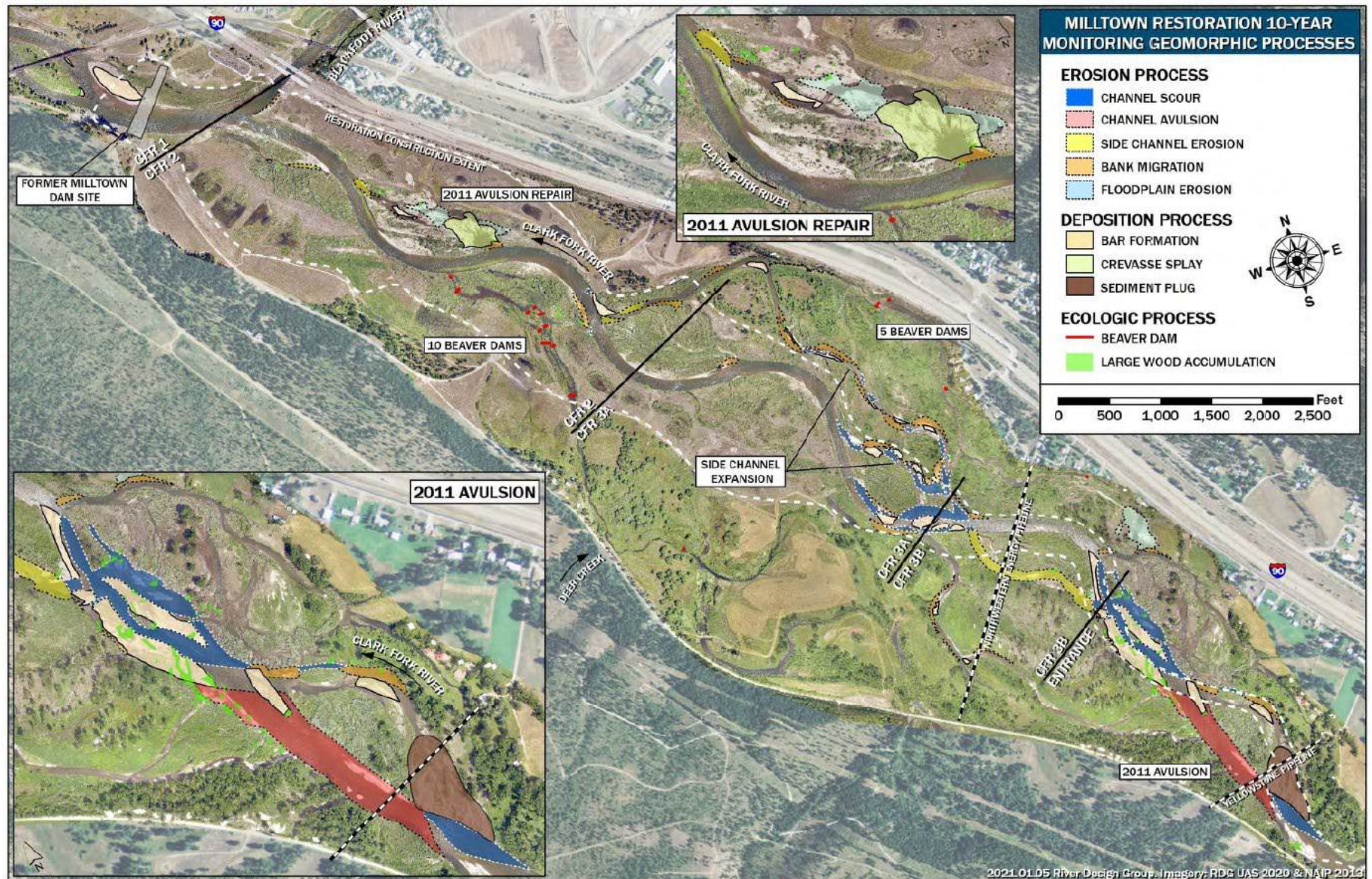


¹⁵ USGS monitoring stations for MRSOU: 12334550 (Clark Fork at Turah Bridge near Bonner), 12340000 (Blackfoot River near Bonner), 12340500 (Clark Fork above Missoula).

Stations for CFROU: 12323800 (Clark Fork near Galen), 12324200 (Clark Fork at Deer Lodge), 12324400 (Clark Fork above Little Blackfoot River near Garrison), 12324680 (Clark Fork at Goldcreek), 12331800 (Clark Fork near Drummond), 12334550 (Clark Fork at Turah Bridge near Bonner).

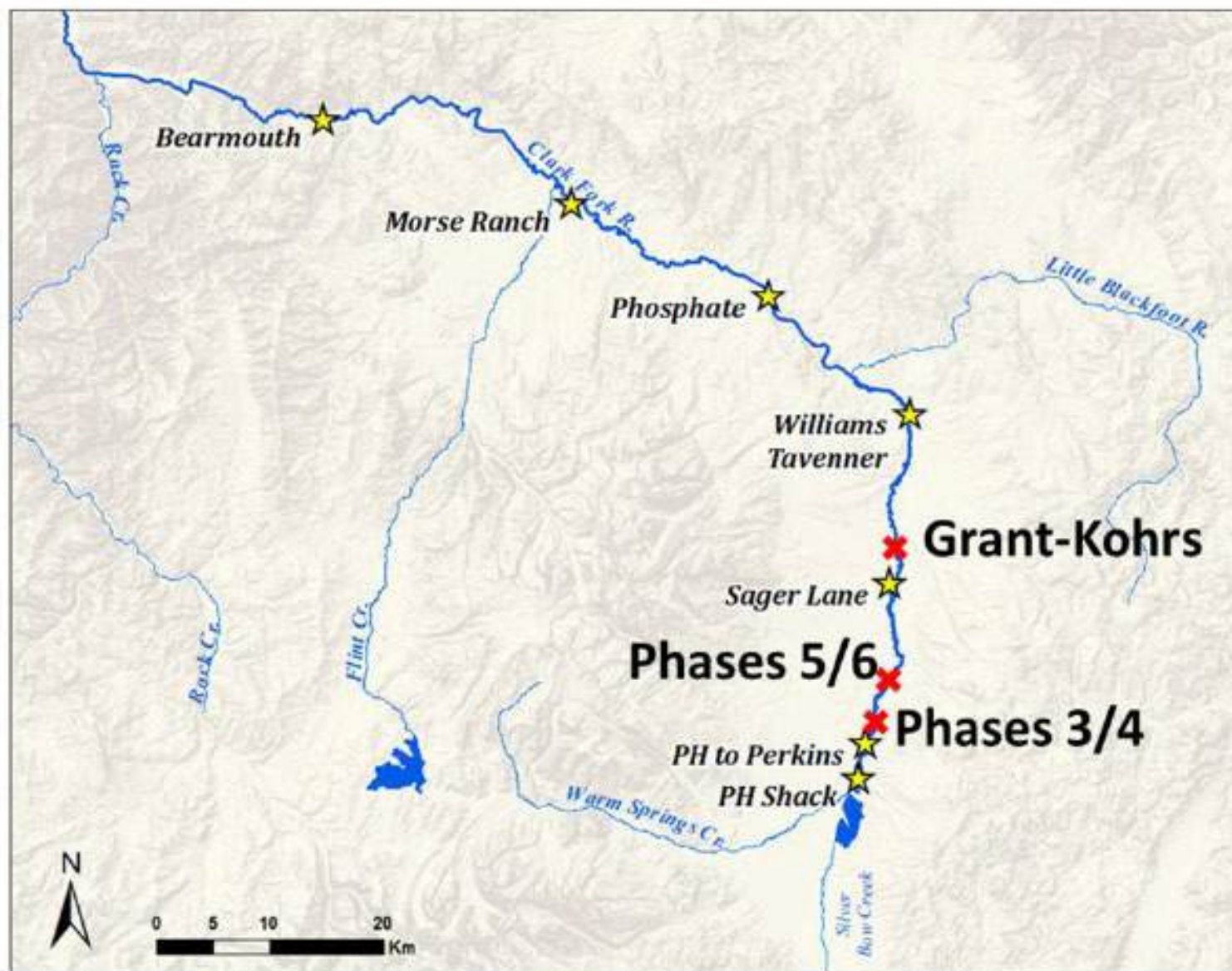
Source: Clark, G.D., Hornberger, M.I., Hepler, E.J., Cleasby, T.E., and Heinert, T.L., 2021, Water-quality, bed-sediment, and invertebrate tissue trace-element concentrations for tributaries in the Clark Fork Basin, Montana, October 2018September 2019: U.S. Geological Survey Open-File Report 2021-1027, 16 p., <https://doi.org/10.3133/ofr20211027>.

Figure C-6: MRSOU 10-Year Geomorphic Monitoring¹⁶



¹⁶ Source: 2021 Milltown Restoration 10-Year Geomorphic Monitoring, River Design Group.

Figure C-7: Montana FWP Fish Sampling Locations¹⁷



¹⁷ Established annual sections are denoted by the yellow stars and sections targeting remediation and restoration by the red Xs.
Source: 2024 Fisheries Monitoring in the Upper Clark Fork River Basin Report, Montana FWP.

APPENDIX D – PRESS NOTICE

MILLTOWN RESERVOIR SEDIMENTS MILLTOWN, MT

Stay Updated, Get Involved

On this page:

- [Announcements and Key Topics](#)
 - [Community Resources](#)
-

Announcements and Key Topics

Beginning of Fourth Five-Year Review

EPA, in cooperation with the State of Montana, is starting the Five-Year review for this site. EPA will review the remedies to see if they are protecting human health and the environment.

Do you have information that would be helpful in the five-year review process? Reach out to EPA's Beth Archer (archer.elizabeth@epa.gov or 720-512-1917) to be interviewed. The last review was completed in 2021.

APPENDIX E – INTERVIEW FORMS

Booth Consulting

Site: Milltown Reservoir Sediments

EPA ID No. MTD980717565

Interviewer and affiliation: Molly Roby

EPA

Subject and affiliation: Don Booth

Consultant to Atlantic Richfield

Date: 11/12/25

Time: 10AM

Location: Web meeting

Interview Format: ☒ In Person ☐ Virtual ☒ Written

Interview Category: [Click or tap here to enter text.](#)

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

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.

2. Are you aware of any community concerns regarding the site, the remedial action or the operations and maintenance program since the cleanup was implemented?

No

3. 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 yet 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. Analysis of whether: a) concentration trends suggest groundwater standards will be met in a reasonable timeframe; or b) if additional cleanup measures are needed to reduce groundwater arsenic concentrations to below performance standards; or c) if such measures are technically impracticable; are ongoing and should address the final issue for achieving RA completion certification.

4. Have there been any problems with unusual or unexpected activities at the Site? (eg. vandalism, trespassing or emergency responses from local authorities)

Nothing that has required emergency response or been associated with vandalism.

5. How do you learn about what's happening at the Site now?

Annual reports prepared by Atlantic Richfield's O&M contractor.

6. Has the EPA and the Montana Department of Environmental Quality kept involved parties and the community informed of activities on the site? How can the EPA and 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. Conducting periodic public meetings to update the public on important milestones would also be useful.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

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. After completion of the assessment of the groundwater remedy performance is completed a technical impracticability waiver and implementation of a controlled groundwater area for the site may be required.

8. Do you consent to have your name along with your responses to this questionnaire in the FYR report?

Yes

Montana Natural Resource Damage Program

Site: Milltown Reservoir Sediments

EPA ID No. MTD980717565

Interviewer and affiliation: Beth Archer, Molly Roby, Lauren Murphy EPA

Subject and affiliation: Doug Martin

NRDP

Date: 11/25/2025

Time: 9:00a

Location: Teams

Interview Format: ☐ In Person ☒ Virtual ☐ Written

Interview Category: State Agency

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

Milltown – cleanup has been done for over 10 years, that was fine. AR has been consistent with their O&M and monitoring of their responsibilities. For the most part things have gone well there. FWP is operating the Milltown State Park. That has also helped with implementation of the site ICs. From the restoration perspective, state and NRDP has been monitoring the site since completion. 15th year of restoration monitoring. CD tasks have fallen into place. AR has been keeping up with their obligations
Clark Fork – Brian will respond to that section of the site

2. Are you aware of any community concerns regarding the site, the remedial action or the operations and maintenance program since the cleanup was implemented?

Not aware of any concerns, I'm one of the few left from when the project was ongoing in construction. The biggest concern is it looks good, what is going on under the surface? A few years ago there was a conversation with AR. A public meeting would be helpful sometime this winter or spring. NRDP will have the monitoring information from the 15th year of monitoring. Would be good for AR and EPA to update the public in addition to NRDP and FWP

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

It's been good. It's unfortunate there is some residual groundwater contamination, that isn't unexpected since waste is left out there. Groundwater has recovered very well considering what was done out there. Repositories seem to be functioning as designed. MTDOT would be another good group to have at the meeting.

4. Have there been any problems with unusual or unexpected activities at the Site? (eg vandalism, trespassing or emergency responses from local authorities)

Not that I know of; FWP from parks perspective has dealt with issues but that's expected.
On restoration side we've had a few issues, but nothing has impacted the remedy.

5. How do you learn about what's happening at the Site now?

For the most part hear from Molly and AR. Get the information from the mailings that go to the public. I do hear questions from the public occasionally and pass information on to them. Primarily from the email communication chain, not a lot of press on Milltown recently.

6. Has the EPA and the Montana Department of Environmental Quality kept involved parties and the community informed of activities on the site? How can the EPA and the State best provide site-related information in the future?

Where the site sits, after remedial action was completed there were a few meetings. There's not a need to have meetings in perpetuity, but I do know it might be a good time to have one now as there is new information to present. I think people would be interested in hearing it. I don't think there have been issues with not presenting publicly but probably a good time to do it. Last NRDP meeting was probably in '14 or '15. Could be good to offer a field trip in the afternoon and then do an evening meeting. Could be good to have some slides from AR. A lot easier to show people what is going on vs sitting in the library with slides.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

No, I think I've noted most of the issues. I don't think there are a lot of issues. The project has moved along well, AR and EPA NRDP DEQ, FWP, MDT have continued to work together and work through issues

8. Do you consent to have your name along with your responses to this questionnaire in the FYR report?

You can put my name.

Clark Fork River Technical Assistance Committee

Site: Milltown Reservoir Sediments

EPA ID No. MTD980717565

Interviewer and affiliation: Beth Archer, Lauren Murphy, Molly Roby EPA

Subject and affiliation: Mike Sanctuary, Casey Hackathorn, Amanda Cooley, Josh Yarrington, Sam Carlson, Mark Mariano, Pat Ortmeyer, Andy Fischer, Joe Griffin CFRTAC

Date: 12/10/25

Time: 12 – 1p

Location: Virtual

Interview Format: ☐ In Person ☒ Virtual ☐ Written

Interview Category: Technical Community Group

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

S. Carlson - From the ecological standpoint this is possibly one of the most complex and connected river corridors on the Middle Clark Fork River. I find the remedy to be very successful.

A. Cooley - The public is happy to see the project move forward and is happy with the work that has been done to date (except Arrowstone park). There is still a lot of local pushback because it is taking a long time and is costly. People really want to get this completed and want to see it in their lifetime.

C. Hackathorn - Milltown in general has been highly successful – it was completed very rapidly. Compared to the Upper Clark Fork, the remedy feels appropriate and was completed more timely. Initially the schedule would have had the project completed now, but being completed in 2038 is frustrating. Is there enough money in the settlement to complete the project? Restoration components of the project are improving as we go – I appreciate agencies willingness to take feedback on some of those concerns. The fishery response in the Clark Fork is concerning with the lack of positive response to the cleanup.

M. Mariano - The Clark Fork is within major migration route for waterfowl. The Phase 7 restoration work was able to incorporate additional wetland areas into the design to support the migration of water fowl and also reclaim borrow areas.

2. Are you aware of any community concerns regarding the site, the remedial action or the operations and maintenance program since the cleanup was implemented?

Overall the community is concerned about the cleanup timeframe, remaining money from the settlement to complete the remediation, and the effectiveness of cleanup.

A. Cooley - There are a lot of community concerns about Arrowstone Park and the delay in completing the remediation and that the remediation may not wholly clean up the park to the extent that it should be. The park sees so much usage, and usage is only increasing. The City of Deer Lodge in Powell County has approved additional development of just over 300 new homes in two new subdivisions in that area. The use of Arrowstone Park will increase more, but the park is already in a critical state. There is community concern about wind and whether wind transportation of contamination is being factored into arsenic toxicity at the park. When we are down there just doing maintenance activities, are there risks to park employees who are doing maintenance? Some slickens work was done by DEQ but it looks like there will be more work needed; the slickens observed are in high traffic areas near the walking paths. The community is seeing a lack of acknowledgement that human health is a primary concern here. The Arrowstone Park design needs to be done and the removal of contamination completed.

S. Carlson - It's hard to square the cleanups that the community observes in other Superfund affected towns (e.g., Butte, Milltown) with the lack of response that the community is seeing at Arrowstone Park. It feels like Deer Lodge is not getting the best treatment in terms of cleaning up this park. Neighbors around the river have the same opinion. Locals feel like they are second class compared to Missoula and Butte. It feels like cleanup levels at Butte are serious/strict vs the way that Arrowstone Park is being handled. It feels like if Arrowstone Park was located within the [Silver Bow Creek/ Butte Area] Superfund Site in Butte, Montana it would have been cleaned up correctly and rapidly.

J. Yarrington - If you float down the river you can still see brilliant blue spots along the shore and banks, you can still see some hot spots that are highly visible. There is concern about why the work was not completed from upstream to downstream and why Milltown was prioritized over places upstream that are constantly reintroducing contamination.

A. Cooley - There is recontamination of the river occurring from upstream. It would be good to get a workplan in place to address the hotspots that are the greatest contributors. Representing Powell County – what’s being proposed for Arrowstone Park is not enough, we want to see majority of contamination removed and wetlands addressed.

M. Mariano - There is a perceptions of Warm Springs Ponds’ effects concerning the Clark Fork reach down the valley. Research is being conducted through University of Montana - Western regarding the metals accumulations in wildlife, especially songbirds and wildlife that is hunted and eaten. Previously we had planned to do a metals bioaccumulation study with an environmental justice grant received through EPA. When this grant was rescinded, the study team had to adjust the scope of the study with the funds remaining. Montana Fish Wildlife and Parks is still conducting the study at a smaller scale to address these concerns. Still collaborating with the Montana Tech and University of Montana Bird Ecology lab.

S. Carlson - The past two years have been extremely low water years in Milltown. There’s a lot of community concerns about impacts of the low water years on the groundwater arsenic plume there. Is the arsenic plume moving differently? What are the impacts on the surface water quality in the region?

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

C. Hackathorn - Milltown cleanup has been wildly successful from the ecological standpoint, with the remaining groundwater arsenic issues not withstanding.

The trend on the Upper Clark Fork is positive, there is a lot more compromise between what is being left in the floodplain in the Clark Fork [River Operable Unit] than in the Milltown [Reservoir Sediments] cleanup.

J. Griffin - I am interested in knowing what it would take to say Milltown is done and we can close this portion of the site out.

M. Sanctuary - At this time, we don’t have enough information to say how effective the performance of the remedy is relative to desired geomorphic and aquatic habitat conditions. We would like to see new performance metrics established, to better understand long-term trends, the geomorphic response of the river following construction, and whether the aquatic habitat following the work is desirable and sustainable. It would be good to have annual monitoring metrics to answer the question of how it’s performing relative to desired conditions. The sooner those habitat-specific performance metrics can be discussed and implemented, the better. That information can help better inform future design decisions on the work.

A. Cooley - The Arrowstone Park remedy is failing.

4. Have there been any problems with unusual or unexpected activities at the Site? (eg vandalism, trespassing or emergency responses from local authorities)

A. Cooley - There have been vandalism issues at Arrowstone Park, including graffiti, stolen toilet riser, and one of the buildings was tipped over ; however, this does not appear to have an environmental impact.

5. How do you learn about what’s happening at the Site now?

C. Hackathorn - CFTRAC gets direct updates from DEQ, NRDP, and EPA through regularly scheduled meetings.

A. Cooley - There are signs posted at Arrowstone Park directing contact the County Planning Department with questions. Because many of the members of CFRTAC live in Deer Lodge, they get lots of questions from public in every avenue and in their other capacities in the community.

A. Fischer - Living in Deer Lodge as a community member, community folks reach out to people who are involved. CFRTAC members present and share information as CFRTAC and in other formats. CFRTAC representatives make an effort to attend public meetings and share information at community groups, like the Rotary club. CFRTAC works with EPA and DEQ on how to share information and get people to the public meetings.

6. Has the EPA and the Montana Department of Environmental Quality kept involved parties and the community informed of activities on the site? How can the EPA and the State best provide site-related information in the future?

S. Carlson - With the [Milltown] groundwater arsenic plume, it would be beneficial to help the public understand what the agencies think will happen with the arsenic plume and the next steps to be carried out. The public perception is that there are risks and no plans. Articulating what the final resolution will look like to the public would be helpful.

J. Griffin - EPA's website does not have information on the Clark Fork River Operable Unit and only addresses the Milltown Reservoir Sediment Operable Unit. Although the Montana Department of Environmental Quality is the lead agency for the Clark Fork OU, the EPA is still the enforcement authority with final say about completing the remedy. I suggest that the EPA expand their website to include an overview of this expansive OU and provide access to the major documents including the Record of Decision, ESD and Consent Decree.

A. Cooley - We really appreciate EPA's coordination with CFRTAC and encourage you to keep working with us. I believe it has led to better outcomes. We will continue to share information with the community and funnel local knowledge up to the agencies.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

Arrowstone Park – see previous comments.

A. Fischer - It's hard to keep up community engagement when there's not a lot of happening. It is tough to keep people engaged and even has ripple effects for the contractors working on these projects when work starts and stops for extended periods of time.

S. Carlson - Coming back to the comment on the geomorphic response at the upper river – we might not have an adequate monitoring program. Thinking about it as a whole river corridor, a lot of the current understanding of the river corridor comes from observations made in last 50 -80 years, but during that time it has been an impaired system. That [geomorphic] understanding of the river to some extent currently drives the cleanup design. I am not confident that the last 80 years are representative of what we can expect going forward. We are removing constraints on the system, for instance in areas where cottonwoods being planted, there may be impacts on the channel migration. Our understanding of the corridor is overly dependent on the historic understanding and may not be accurate for current and future site conditions.

J. Yarrington - As a property owner for 17 years, I've gotten 6 to 9 different targeted completion dates for my property. I understand that cleanup takes time, but the schedule is frustrating, and makes property owners question if it will ever be done. I see parts of the streambank fall into the river every day.

8. Do you consent to have your name along with your responses to this questionnaire in the FYR report?

Yes

Missoula County

Site: Milltown Reservoir Sediments

EPA ID No. MTD980717565

Interviewer and affiliation: Beth Archer, Molly Roby, Lauren Murphy EPA

Subject and affiliation: Elena Evans and Travis Ross Missoula County, Water Quality District

Date: January 8, 2026 **Time:** 1100

Interview Format: ☐ In Person ☒ Virtual ☐ Written

Interview Category: Local Government

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

Regarding the Milltown Reservoir Sediments Operable Unit, the overall cleanup has been successful and the maintenance has been good. Looking at reuse, the park is getting lots of use. It is unfortunate the overlook was closed recently due to safety concerns, where people were able to see the confluence from the bluff. The recreational reuse potential cannot be fully realized because of some challenges with extending the trail system and the historic tunnel being closed, also due to safety concerns.

Noted that more could be done with revegetation in the floodplain, specifically more plants and different varieties to make a more fully functioning riparian area. Indicated the presence of debris in the Blackfoot River, adjacent to the former Mill, after the reservoir was drained (e.g., sinker logs, rail spikes, metal). Also, Missoula County often gets questions as to whether it's safe to swim/float in the Clark Fork River and specifically, whether it is safe for kids to play at the park or in the river.

Old railroad piers/bridge within the confluence area, while not considered part of Superfund's purview, would still be good to be removed.

Regarding the Clark Fork River Operable Unit, have heard concerns that fish populations are declining in last several years. Also some concern from the public regarding the potential for transport from upstream contamination into the Milltown area.

2. Are you aware of any community concerns regarding the site, the remedial action or the operations and maintenance program since the cleanup was implemented?

Regarding the Milltown Reservoir Sediments Operable Unit, people still want their private wells tested but there isn't an institutional mechanism to support getting residential wells tested presently, especially where new developments are proposed/going in. Funding from EPA for Missoula County to do private well testing only lasted 2 years and Missoula County does not have the resources to offer residential well testing.

Missoula County as a whole is seeing more development, and in the area of the operable unit new wells have been installed and there's not a mechanism to require the testing of arsenic, in the area just outside of the operable unit. It would be good to get the whole suite of metals tested in that area. Missoula County is concerned about what people are encountering in their private wells and also regarding any changes in the volume of water pumped and/or drawdown of the aquifer. It would be helpful if EPA would offer to test some of the residential wells that are downgradient before additional institutional controls are put in place.

The fire station right across from Highway 200 is within the operable unit and recently had a new well drilled. Missoula County encouraged the fire station to test the well for arsenic. While the fire station proceeded with testing the well, there is not a sufficient institutional control to mandate testing for arsenic if the well is not a public water supply (PWS) well, unless there is a subdivision proposed. Missoula County indicated there was some confusion stemming from a previous five-year review fact sheet, which did not accurately indicate what Missoula County had previously sampled in the operable unit area. Missoula County's role will be clarified in the five year review.

The piers that were installed on the Blackfoot early in the remedy, has been a community concern.

Park gets a lot of use in the summer with floaters.

It has been interesting to observe the change in the community awareness and engagement with Superfund. Some people in the community aren't aware of the history of the Superfund Site anymore. People used to be more involved. It would be great if people knew more about the history of the site. The interpretive signage at the bluff is helpful to illustrate the site history; but because the overlook area at the bluff has been pulled back from the edge there are less people going to that location of the State Park.

Regarding the current status of the Milltown PWS, right now there isn't an ability for any new sources to be added to that water supply. Water operator is Crisp Water. Missoula County is concerned about the need for upgrades to the current system and how the PWS will continue operations into the future. Missoula County is concerned about the capacity of the system to facilitate future growth in the area.

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

Missoula County indicated that from the surface it's working well. There haven't been a lot of high-water years in the Clark Fork River recently. There could be more vegetation. The Clark Fork River channel is not deformable yet, but it is supposed to be.

Missoula County would like to see data from the additional groundwater sampling taking place to develop an updated conceptual site model. Once the wells are tested, it would be great to have a presentation at the Water Quality District to see how plume continues to decrease or the how levels within the plume are decreasing. Missoula County would like to understand the impact any decline of water has, even a few feet, especially in drought.

Missoula County was interested in expanding the testing requirement for lead for the area; an abnormal lead result in recent years was concerning.

4. Have there been any problems with unusual or unexpected activities at the Site? (eg vandalism, trespassing or emergency responses from local authorities)

Not that Missoula County is aware of. People dig all over the County. Institutional Controls don't prevent people from living there (people that are unhoused) from interacting with the soil in the area. The River Ambassadors program might have more information, and also FWP.

5. How do you learn about what's happening at the Site now?

Usually directly from EPA employees or MDEQ employees.

Missoula County does network quality sampling across the water quality district.

Missoula County wanted to see if there is a willingness for EPA to test downgradient of the operable unit, where there is additional development planned in the area. Missoula County is also interested in understanding potential impacts related to the Bonner Mill Site dam removal.

6. Has the EPA and the Montana Department of Environmental Quality kept involved parties and the community informed of activities on the site? How can the EPA and the State best provide site-related information in the future?

DEQ is very responsive, Breana Pabst is good at answering calls. Usually Missoula County initiates contact after receiving public calls and then we reach out to EPA.

It was hard to coordinate the interview time, but having a conversation check in is helpful once a year to touch base on the site and what's happening. Missoula County would be interested in the results of the study looking at the bounds of the plume. Missoula County might have more information from local subdivisions they can bring to the table.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

Every spring Missoula County gets questions about flushes of contamination from the un-remediated up-river sections of stream. People want to better understand if this is happening, and potentially impacting the fish or impacting the river.

Missoula county clarifications on work described in prior FYRs:

Under contract with EPA, Missoula County participated in key aspects of remedial design, remedial action and related activities for the Milltown Reservoir Sediments Operable Unit. The County assisted with public education and outreach, including public meetings, public presentations, school groups, site tours, information for news media, conference group tours and presentations, meetings with local and downstream community members and CFRTAC publications. The County sponsored a web-cam so that the public could view the progress on remediation in real-time. Missoula County was tasked by EPA to distribute free private well arsenic test kits (up to 200 during the duration of the cooperative agreement 2006 - 2014), analyzing the collected samples for arsenic before, during, and following the Milltown Reservoir remedial action, and maintaining a database and GIS map of the results, which were made available to the public. The County provided notification of results to well users, specifically speaking with well users whose arsenic results were equal to or greater than 5 parts per billion total arsenic of potential health effects, using language prescribed by EPA for public water system consumer confidence reports. Private drinking water wells eligible for sampling and analysis included those around and near the reservoir and those near the river or affected irrigation systems downstream to the Bitterroot River.

Missoula County inventoried all private wells in the vicinity of the operable unit, including Bonner, West Riverside, Piltzville, Turah and East Missoula. This inventory included drilling/pump depths in order to determine which wells would need to be drilled deeper or have pumps lowered to accommodate the drop in groundwater levels as a function of dam removal. Missoula County was contracted by EPA to conduct this work as well as to sample a network of private wells at various frequencies (monthly, quarterly) for arsenic before, during and following the Milltown Reservoir remedial action. This network of wells was referred to as the Public Wells and Early Warning Well Network. Missoula County was also tasked with responding to and participating in issues related to community health and safety, such as traffic, pedestrian trails/bridge, water well drawdown and water quality.

Other key aspects of the County's work under the cooperative agreement with EPA included:

- *Developing maps and figures for the public showing arsenic trends during the duration of the project monitoring.*
- *Consulting with DEQ and EPA pursuant to the contingency plan for contamination of drinking water supply or early warning monitoring wells.*
- *Collecting additional surface or drinking water and sediment samples in response to local concerns and private citizen inquiries as requested by EPA.*
- *Acting as a local point of contact for complaints regarding water quality and quantity*

The contract arrangement between EPA and Missoula County expired in 2014, which ended all arsenic sampling associated with the operable unit remediation. The County receives requests and inquiries from time to time from community members concerned about arsenic in their wells. The County refers these members of the public to private labs. Bottles may be picked up at the Missoula Public Health but the related expense is the homeowners' responsibility and results are not reported to Missoula County.

8. Do you consent to have your name along with your responses to this questionnaire in the FYR report?

Yes

U.S. Fish and Wildlife Service

Site: Milltown Reservoir Sediments

EPA ID No. MTD980717565

Interviewer and affiliation: Molly Roby

U.S. Environmental Protection Agency, Region 8

Subject and affiliation: Brian Balmer and Jacob Martin U.S. Fish and Wildlife Service, MT Ecological Services Office

Date: January 9, 2026

Time: 1100-1200 MST

Location: Microsoft Teams

Interview Format: ☐ In Person ☐ Virtual ☒ Written

Interview Category: Federal Agency / Trustee

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

Overall, the Milltown Reservoir Sediments cleanup is widely regarded as a successful Superfund action. Removal of contaminated sediments, restoration of river continuity, and long-term monitoring have substantially reduced risks to human health and natural resources. From a Trustee perspective, the project represents a successful example where large-scale sediment remediation and ecological restoration were implemented effectively and continue to function as intended.

2. Are you aware of any community concerns regarding the site, the remedial action or the operations and maintenance program since the cleanup was implemented?

Some stakeholder concerns have been raised through Upper Clark Fork River Basin Advisory Council discussions regarding aspects of natural resource restoration prioritization and implementation led by the Montana Natural Resource Damage Program (NRDP). These comments generally focused on restoration funding allocation, transparency of decision-making, and prioritization of specific tributaries (e.g., Warm Springs Creek and Blacktail Creek), rather than on the Milltown remedial action itself. No substantive community concerns regarding the effectiveness or protectiveness of the Milltown cleanup have been identified.

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

Based on available information and interagency coordination, the remedy appears to be performing as designed. Contaminant sources associated with the former reservoir sediments have been removed, exposure pathways have been substantially reduced, and post-removal conditions support both ecological recovery and beneficial use of the river corridor. Continued monitoring remains important to confirm long-term stability, particularly under high-flow conditions.

4. Have there been any problems with unusual or unexpected activities at the Site? (eg vandalism, trespassing or emergency responses from local authorities)

The U.S. Fish and Wildlife Service is not heavily involved with daily operations at the Site; however, we are not aware of any unusual or unexpected activities (e.g., vandalism, trespassing, or emergency response incidents) that would indicate problems with the implemented remedy.

5. How do you learn about what's happening at the Site now?

Information is typically obtained through interagency coordination, EPA updates, participation in Trustee discussions, and review of technical or monitoring reports. Informal coordination among agencies has been effective in keeping key stakeholders informed.

6. Has the EPA and the Montana Department of Environmental Quality kept involved parties and the community informed of activities on the site? How can the EPA and the State best provide site-related information in the future?

EPA and the Montana Department of Environmental Quality have generally done a good job keeping agencies and interested parties informed of site activities. Continued transparency through periodic updates,

publicly accessible monitoring summaries, and clear communication of long-term stewardship responsibilities will remain important as the Site transitions further into post-remedy management.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

Continued long-term monitoring and clear documentation of remedy performance under variable hydrologic conditions would strengthen confidence in the Site's long-term protectiveness. From a Trustee perspective, maintaining institutional knowledge and interagency coordination will be critical as staff turnover occurs and as the Site moves further away from active remediation.

Additional clarity on the role of the Warm Springs Ponds and upstream water treatment systems would further strengthen interpretation of long-term site monitoring. In particular, clearer articulation of how metals loading and water quality conditions influenced by the Warm Springs Ponds, the Berkeley Pit, and the wastewater treatment facility (initiated in 2019) are incorporated into baseline assumptions and ongoing performance evaluations would be valuable. While these upstream systems are not part of the Milltown remedy itself, they influence background conditions in the Clark Fork River and therefore provide important context for interpreting Milltown site monitoring results and long-term remedy effectiveness.

8. Do you consent to have your name along with your responses to this questionnaire in the FYR report?

Yes.

Montana Fish Wildlife and Parks

Site: Milltown Reservoir Sediments

EPA ID No. MTD980717565

Interviewer and affiliation: Molly Roby and Lauren Murphy Environmental Protection Agency

Subject and affiliation: Pat Saffel, Ryan Schreiner, Caleb Uerling Montana Fish Wildlife & Parks

Date: 01/16/2026

Time: 11:00am

Interview Format: ☐ In Person ☒ Virtual ☐ Written

Interview Category: State Agency

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

Regarding Milltown Reservoir Sediments Operable Unit, restoration is in a good spot and generally FWP is satisfied with the fishery, restoration work, and water quality response. The only thing left visually, is the removal of the old bridge piers. The area sees a lot of community activity: freshman orientation for students at University of Montana includes a float on the river from Milltown to Missoula; between July and August alone, FWP estimates that 60,000 people access the Clark Fork River near the confluence. The river is clearly interwoven into the community. There is a large number of people in the area, visitors and community members, that do not have a memory of the reservoir, the dam, or that Milltown is a part of the Superfund site. A large part of R. Schreiner's work as the Recreation Manager for the Upper Clark Fork District is permits, supporting classes, and interfacing with the community. MTFWP gives interpretive talks at Milltown to all types of community members, young, old, and judges etc. For the majority of folks, they are less interested in the Site's history as a Superfund site and more interested in the natural and Native history of the site. The willow restoration work is highlighted as a success. Ongoing restoration and maintenance efforts at this stage are primarily focused on weed spraying and per MTFWP, NRDP may consider winding down these activities due the project's success. MTFWP hasn't been as engaged with the recovery of the aquifer.

Regarding the Clark Fork River Operable Unit, one small item worth noting is that we've noticed that there are remnants of the remedial action work completed in Phase 1 that need to be addressed. Old plastic fencing and dilapidated signage are a couple examples that come to mind. In the future, it would be nice to have the construction teams do a more thorough sweep through the remediation areas to just tidy up the work site.

2. Are you aware of any community concerns regarding the site, the remedial action or the operations and maintenance program since the cleanup was implemented?

With regards to the Clark Fork River Operable Unit, there are concerns that remedy destroys habitat and leaves it in a changed form, impacting fish populations. We do hear some concerns about the speed of the remedy construction. MTFWP understands many community members believe that the remedy is the main driver of fish decline in the Clark Fork. Additionally, there are concerns that the non-sequential approach may lead to recontamination of previously remediated areas downstream. Members of the community have expressed concern with the channel migration zone applied in the remedial design process to determine the removal boundaries.

Primarily the concerns MTFWP receives are related to river access interruptions for recreators. MTFWP is doing as much as they can using the tools we have and the public has been more understanding than expected, but the agencies can work together to better communicate to the public any access disruptions.

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

Regarding Clark Fork River operable unit, there's the ongoing work to understand the question of "Where are the fish?" There has been a significant decline in the trout populations above Deer Lodge. There needs to be an increase in our understanding of what are legacy effects of water quality on these fish populations. We need look for answers beyond the Site's boundaries and include the context/contributions from upstream Superfund sites (i.e., Butte, Anaconda). The concerns regarding the effects from the remedy could be a

possible driver for future assessments. The structural changes to the river channel (e.g., over widening) may have adversely affected willow growth; this elevation is not typically able to facilitate growth as well. Additionally, unsure if the replacement soils adequately encourage growth. MTFWP would like to see more floodplain conductivity and willow growth.

From a remedy standpoint, DEQ has done a relatively good job of getting the metals cleaned up; however, there are questions regarding how the remedy will perform long-term and the impacts to groundwater movement as well as the temperature regimes within the river. The remedy approach has some morphology impacts on the river. The last 5 years of remedial action work has been better, but the question remains, how does this work affect the overall habitat? There are concerns that the increase in river dynamics (with more side channels), greater degree of contamination, and more varied range of land ownership types, specifically in the upcoming Phases 10 through 12 will be present additional challenges. Also, there are specific concerns about what lowering the floodplain through this reach would impact.

MTFWP feels that their feedback regarding the approach to remedial action construction has been well received and has led to improved techniques; they point to the success of Phase 7 and attribute it to being involved in this phase from start to finish.

Returning back to groundwater, flow regimes, and temperatures, while not an issue now, we are interested in getting a better understanding of how these elements are being impacted. Elevated pH and other ancillary issues remain unresolved.

Additionally, channel migration has not been monitored well, with the long-term effects of changes to the geomorphology remain to be seen in the impact to the fisheries in the Clark Fork. MTFWP is concerned about the simplification of the river habitat, decrease in diversity of width to depth ration, geomorphology, and willow growth. MTFWP often wonders, are we monitoring the right things?

MTFWP expects to receive a report from NRDP detailing cross channel monitoring activities conducted in Summer 2024 soon. The quarterly monitoring and ecological trends observed have been helpful, but certain water quality factors, like pH can cause ancillary issues.

4. Have there been any problems with unusual or unexpected activities at the Site? (eg vandalism, trespassing or emergency responses from local authorities)

In regards to both operable units, nothing more than what we see at any other recreational site. Issues are standard and not specific to the Site's Superfund status.

5. How do you learn about what's happening at the Site now?

MDEQ websites and project managers, as well as the NRDP site manager. Both agencies are highly communicative.

6. Has the EPA and the Montana Department of Environmental Quality kept involved parties and the community informed of activities on the site? How can the EPA and the State best provide site-related information in the future?

Efforts to keep the community have definitely improved and the technical groups and community meetings have helped with that. There's always room for more face-to-face communications. Providing community meetings on a more routine basis at a consistent location could help with keeping the community informed. There is an appetite for more communication.

Handouts in public places, such as gas stations, could also help. Additionally, clearer signage describing the Site's who, what, where, why, and who to contact would be helpful.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

Not really. From a recreation and public use perspective, things are going swimmingly and the public are generally pleased.

8. Do you consent to have your name along with your responses to this questionnaire in the FYR report?

Yes.

Joe Griffin- Citizens Technical Environmental Committee

Site: Milltown Reservoir Sediments

EPA ID No. MTD980717565

Interviewer and affiliation: Molly Roby

EPA

Subject and affiliation: Joe Griffin

Citizens Technical Environmental Committee (CTEC),
Clark Fork River Technical Advisory Committee (CFRTAC), Montana Technological University

Date: January 20, 2026 **Time:** 10:45 am

Location: Thornton Building, Butte, Montana

Interview Format: ☒ In Person ☐ Virtual ☒ Written

Interview Category: Technical Assistance Grant, Advisory Committee Member

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

Regarding the Clark Fork River Operable Unit (CFROU), reevaluation of the remedy is needed to avoid a likely future major conflict between the state of Montana and the EPA. The CFROU is a unique CERCLA site because the State of Montana negotiated a cash out settlement with the potentially responsible party, Atlantic Richfield, and thereby the State accepted responsibility for the remedy and became the “lead agency.” EPA became the “support agency.” This unusual agreement came with a financial backstop of a “round robin” funding mechanism to complete the remedy should cashout dollars prove inadequate to complete the project. The round robin requires the State, EPA and Atlantic Richfield to sequentially pay to complete the remedy.

Here’s the Superfund rub.

The State chose a much more aggressive removal strategy than what EPA’s Record of Decision had laid out. Now, after largely completing nine reaches (“Phases”), over the last thirteen years, it appears the cash out amount, plus interest earned, will not be adequate to complete the remedy. The EPA, with legal enforcement authority, and as such, the final word on when the remedy is complete, may be faced with the cash shortfall, and whether to use federal funding for their part in the round robin. Atlantic Richfield will make their own assessment of the round robin agreement.

I suggest a time-out for CFROU, whereby EPA and the State complete a thorough evaluation of the upper Clark Fork Basin Superfund Complex to better understand what remedy measures are successful and what are the technically impracticable limitations to remedy.

I would like the EPA to consider the poster I presented at the 2024 Clark Fork Science Forum, held at Montana Technological University in Butte, titled “Analyzing 40 Years of Water-Quality and Biological Monitoring at the Confluence – Plea for a Weight-of-Evidence Approach.” Here is the theme of my poster:

The theme of this year’s Clark Fork Science Forum, “generating hypotheses, exploring data gaps,” is a cart-before-the-horse moment. Before exploring “data gaps,” the parties invested with remediating and restoring the vast Upper Clark Fork Superfund Complex should first consider the vast body of existing, high-quality environmental and biological data and its interconnected relevance to past and ongoing riparian cleanups and restoration. That dataset extends from the Berkeley Pit to the former Mill Town Reservoir and begins in the early to mid-1980s and will continue indefinitely into the foreseeable future.

The data have never been assembled into a central databank, nor received comprehensive analysis. The vested parties necessarily narrow their vision to the task at hand - their particular operable unit or design phase, and their particular timeline.

I suggest in this poster a broad evaluation of cause-and-effect temporal patterns — remediation effects on water quality and biological integrity. I chose Silver Bow Creek at Opportunity and Warm Springs Creek at its

mouth as examples of how various water quality standards can be compared to biointegrity observations over time to explore two critical questions:

- 1. How close to baseline can remedy/restoration move a novel stream ecosystem (technical practicability)?*
- 2. To what level do we need to remove metals from this river system to achieve practicable ecosystem health?*
- 3. A larger question — when does remedy/restoration cause more damage than benefit?*

Regarding the Milltown River Sediments Operable Unit, it didn't take much to restore its natural ability to function. The Clark Fork River through Milltown State Park is now an active system within the floodplain with natural channels. While there is still the lingering groundwater issue in a few places, Milltown is ripe for a final technical impracticability (TI) waiver to designate monitored natural attenuation for the remaining arsenic plume indefinitely and make sure that the people have good drinking water.

Obviously, the reuse at Milltown OU is successful; it's a gorgeous park.

- 2. Are you aware of any community concerns regarding the site, the remedial action or the operations and maintenance program since the cleanup was implemented?**

At a public meeting a few years ago, the Clark Fork Coalition held a meeting in Deer Lodge where fishermen and outfitting guides made up more than half of the audience. The sentiment from the meeting was "The remedy messed up the river! This used to be the best place to fish in Montana."

- 3. What is your assessment of the current performance of the remedy in place at the Site?**

See response in Question 1.

- 4. Have there been any problems with unusual or unexpected activities at the Site? (eg vandalism, trespassing or emergency responses from local authorities)**

None that I am aware.

- 5. How do you learn about what's happening at the Site now?**

I've read the site documents extensively. Also, I'm on the board of directors of CFRTAC and have made numerous site visits.

- 6. Has the EPA and the Montana Department of Environmental Quality kept involved parties and the community informed of activities on the site? How can the EPA and the State best provide site-related information in the future?**

Regarding the Clark Fork River, many community members/stakeholders do not have a clear understanding of who is in charge; is it up to DEQ or up to EPA? It should be a joint effort always, but it's not clear to the public always who is taking the lead.

- 7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?**

I want to voice my feelings about Five-Year Reviews (FYRs) and the 7th Anaconda FYR (2025) in particular. My professional involvement with the Anaconda Site began in 1990 as a technical consultant to Atlantic Richfield and continued as an employee and technical advisor for Montana Department of Environmental Quality. Having retired in 2015, I have continued as a citizen scientist and my own evaluations of the Anaconda Site. After reading the Anaconda FYR, I wanted more detail on aspects of the remedy's effectiveness and requested site documents, specifically addressing revegetation on Opportunity Ponds, remedy measures for Warm Springs Creek, macro-invertebrate studies for all four streams, and Dutchman area evaluations. However, when I requested and received a number of documents that were included in the reference section of the FYR, critical sections had been redacted, including figures, tables and appendices.

It gives me pause about the legitimacy of the FYR process.

- 8. Do you consent to have your name along with your responses to this questionnaire in the FYR report?**

Yes

U.S. Geological Survey

Site: Milltown Reservoir Sediments

EPA ID No. MTD980717565

Interviewer and affiliation: Beth Archer, Lauren Murphy EPA

Subject and affiliation: USGS Wyoming Montana Water Science Center USGS

Date: 2/3/26

Time: 11:00a

Location: Virtual

Interview Format: ☐ In Person ☒ Virtual ☐ Written

Interview Category: Federal government

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

USGS is focused on water quality monitoring, we don't see all the components of the site as much. We review and approve the data we receive. Right now, there isn't funding for data interpretation so it's hard to evaluate outcomes.

2. Are you aware of any community concerns regarding the site, the remedial action or the operations and maintenance program since the cleanup was implemented?

When we are out in the field, people ask us what we are doing and if the water quality is good. We think the partners who collaborate with us on this project are indicative of community concern: Fish Wildlife and Parks, National Resource Damage Program and the Clark Fork Coalition.

Our role is to coordinate with the scientific community who ask questions of the data. There are concerns that the cleanup is impacting fish, that the vegetation removal is increasing thermal stress, and how restoration processes are impacting the river. Is the solution the issue? Little information is collected to address a lot of those questions. USGS's concern is that cleanup documents are written to quantify the number of acute events that happen. Our work is targeting chronic, not acute events. Slickens, bank failures increase metals exposure. Those acute events are not captured by our sampling regime.

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

What we've seen from initial analysis in water quality trends is that chronic water quality risks and metals concentrations have decreased in the main Clark Fork. That indicates remediation is making a positive impact. Those decreases are pretty modest considering the big decreases that are happening upstream where remediation happened longer ago. Upstream the remediation is more complete and those decreases are orders of magnitude larger.

We continue to observe water quality exceedances in the main Clark Fork. While there is lots of promising data that the remediation is having a positive impact on water quality condition, the remediation isn't finished. We don't yet have a full picture of how remediation will impact the main Clark Fork and observe water quality risks continuing to occur.

The EPA's focus appears to be water quality and, to a lesser extent, sediment quality. You measure exposure in the inverse. The focus of the restoration is on the fish. The water quality monitoring and fish ecology never really meet to describe if the goal of the cleanup is being attained.

4. Have there been any problems with unusual or unexpected activities at the Site? (eg vandalism, trespassing or emergency responses from local authorities)

Previously there were issues with access at the site, which have been resolved. We are aware of some vandalism at the crest stage gauge some time ago but nothing current.

5. How do you learn about what's happening at the Site now?

We don't get a ton of updates. The project has been established for a while, and we typically don't need to get updated as it progresses. Sometimes members of the public will come up to ask questions, and we will request updates from other partner agencies. We also have a good working relationship with the Montana Department of Environmental Quality through our bi-annual meetings.

We understand EPA is monitoring and restoring the Clark Fork as different operable units and Superfund sites. We view the Clark Fork as one ecosystem. We have some concerns about how the ecosystem health is measured when considering various types of restoration across different Superfund sites and operable units, particularly considering constituents, sampling and staff are different. We haven't observed the EPA view the river as one ecosystem as we do. Looking at cross unit movement from the Berkley Pit discharge is a good example of when it could be helpful to look across site/unit boundaries. We don't know based on what is happening with the treated pit water, what that stream chemistry looks like by the time it comes down through the ponds and into the Clark Fork. Consistency of looking at one metal across the watershed would be great, but we understand that is expensive and there are constraints.

6. Has the EPA and the Montana Department of Environmental Quality kept involved parties and the community informed of activities on the site? How can the EPA and the State best provide site-related information in the future?

We meet with MDEQ twice a year. We share our sampling work on the Clark Fork, and they provide an update on site progress. The communications with DEQ feels stronger due to these meetings, ability to collaborate is stronger. We share data throughout the year, although the data we collect is different from what DEQ gathers.

7. Do you have any comments, suggestions or recommendations regarding any aspects of the project?

We have all this data, which is wonderful, to provide the Superfund program. We have questions from a scientific standpoint about why things are happening. It's hard to answer without being able to interpret the data. We realize the structure of Superfund funding doesn't really allow for that. We would like to look for other funding from other agencies or EPA to fund interpretation work from the existing data. One of our staff is evaluating trends that NRDP is paying for. USGS is willing and interested in doing this interpretation. We would also benefit from some additional information on the removals and restoration. We don't have data on removals: how, what, where. It would be interesting to combine those two things to see impact. How much can restoration change sedimental water quality, and does it differ on different time scales? Medicine might be poison initially but could bring the average down over the long term.

We recognize the strength in the quality and quantity of data we've collected. It is a world quality dataset. Not many other restoration programs have such a large dataset to understand what remediation and restoration does for water quality, we have a unique opportunity on this project. Many of the partner agencies and entities have questions that might be answered by this interpretation. Where are the fish? How can we use the data we have on water quality to answer questions about fish decline? The strength in this is to get together and collaborate on work in the Clark Fork.

8. Do you consent to have your name along with your responses to this questionnaire in the FYR report?

Yes, USGS Wyoming Montana Water Science Center

APPENDIX F – MRSOU SITE INSPECTION CHECKLIST

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST			
I. SITE INFORMATION			
Site Name: MRSOU -- Milltown Reservoir Sediments		Date of Inspection: <u>10/20/2025</u>	
Location and Region: Milltown, Missoula County, Montana, Region 8		EPA ID: MTD980717565	
Agency, Office or Company Leading the Five-Year Review: <u>EPA</u>		Weather/Temperature: <u>Cloudy, 50°F</u>	
Remedy Includes: (check all that apply) ☒ Landfill cover/containment ☐ Access controls ☒ Institutional controls ☐ Groundwater pump and treatment ☐ Surface water collection and treatment ☒ Other: <u>establish public water system for Milltown; remove contaminated sediment; stabilize streambank</u> ☒ Monitored natural attenuation ☐ Groundwater containment ☐ Vertical barrier walls			
Attachments: ☐ Inspection team roster attached ☐ Site map attached			
II. INTERVIEWS (check all that apply) – No interviews were conducted during the site inspection.			
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 _____ Contact _____ Name _____ Title _____ Date _____ Phone _____ Problems/suggestions ☐ Report attached: _____			
4. Other Interviews (optional) ☐ Report attached: _____			
III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)			
1. O&M Documents ☒ O&M manual ☒ As-built drawings ☒ Maintenance logs ☐ Readily available ☐ Readily available ☐ Readily available ☐ Up to date ☐ Up to date ☐ Up to date ☐ N/A ☐ N/A ☐ 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				

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: <u>Horsetail has become established on the upper portion of the Tunnel Pond Repository, which may indicate frequently wet soils.</u>
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: <u>Vegetation (scouring rush) indicates frequently saturated soil near the top of the Tunnel Pond Repository. The area was muddy during the inspection, however, there was rain the night before.</u>			
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: <u>Annual inspections of culverts that drain the letdown channels are performed to confirm that they are clear.</u>		

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: <u>There is some grassy vegetation growing near the outfall structures that lead into the culverts, but it does not appear sufficient to obstruct flow.</u>	
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: _____			
2.	Vegetative Growth	☐ Location shown on site map	☒ N/A
☐ Vegetation does not impede flow			
Area extent: _____		Type: _____	
Remarks: _____			
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			
1.	Pumps, Wellhead Plumbing and Electrical		
	☐ Good condition ☐ All required wells properly operating ☐ Needs maintenance ☐ N/A		
	Remarks: _____		
2.	Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances		
	☐ Good condition ☐ Needs maintenance		
	Remarks: _____		
3.	Spare Parts and Equipment		
	☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided		
	Remarks: _____		
B. Surface Water Collection Structures, Pumps and Pipelines ☐ Applicable ☒ N/A			
1.	Collection Structures, Pumps and Electrical		
	☐ Good condition ☐ Needs maintenance		
	Remarks: _____		
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances		
	☐ Good condition ☐ Needs maintenance		
	Remarks: _____		
3.	Spare Parts and Equipment		
	☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided		
	Remarks: _____		
C. Treatment System ☐ Applicable ☒ N/A			
1.	Treatment Train (check components that apply)		
	☐ Metals removal ☐ Oil/water separation ☐ Bioremediation		
	☐ Air stripping ☐ Carbon adsorbers		
	☐ Filters: _____		
	☐ Additive (e.g., chelation agent, flocculent): _____		
	☐ Others: _____		

	☐ Good condition ☐ Needs maintenance ☐ Sampling ports properly marked and functional ☐ Sampling/maintenance log displayed and up to date ☐ Equipment properly identified ☐ Quantity of groundwater treated annually: _____ ☐ Quantity of surface water treated annually: _____ Remarks: _____
2.	Electrical Enclosures and Panels (properly rated and functional) ☐ N/A ☐ Good condition ☐ Needs maintenance Remarks: _____
3.	Tanks, Vaults, Storage Vessels ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs maintenance Remarks: _____
4.	Discharge Structure and Appurtenances ☐ N/A ☐ Good condition ☐ Needs maintenance Remarks: _____
5.	Treatment Building(s) ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks: _____
6.	Monitoring Wells (pump and treatment remedy) ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ All required wells located ☐ Needs maintenance ☐ N/A Remarks: _____
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). <u>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, I-90 bank improvements, removal and re-grading of the Bypass Channel, bridge replacements and strengthening of the I-90 Bridge abutments on the Blackfoot River are completed and functioning as designed.</u>
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. <u>O&M is adequate.</u>
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. <u>An area of scouring rush on top of the Tunnel Pond Repository may indicate that soils are at or near saturation frequently or for long periods of time.</u>
D.	Opportunities for Optimization
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. <u>None identified.</u>

APPENDIX G – CFROU SITE INSPECTION CHECKLIST

FIVE-YEAR REVIEW SITE INSPECTION CHECKLIST			
I. SITE INFORMATION			
Site Name: CFROU - Milltown Reservoir Sediments		Date of Inspection: 10/21/2025	
Location and Region: Granite, Powell and Deer Lodge Counties, Montana, Region 8		EPA ID: MTD980717565	
Agency, Office or Company Leading the Five-Year Review: EPA		Weather/Temperature: Breezy, 50°F	
Remedy Includes: (check all that apply) ☐ Landfill cover/containment ☐ Access controls ☒ Institutional controls ☐ Groundwater pump and treatment ☐ Surface water collection and treatment ☒ Other: <u>in-situ treatment or removal of soil and sediment, streambank restoration</u> ☐ Monitored natural attenuation ☐ Groundwater containment ☐ Vertical barrier walls			
Attachments: ☐ Inspection team roster attached ☐ Site map attached			
II. INTERVIEWS (check all that apply) – No interviews were conducted during the site inspection.			
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 _____ Contact _____ Name _____ Title _____ Date _____ Phone _____ Problems/suggestions ☐ Report attached: _____			
4. Other Interviews (optional) ☐ Report attached: _____			
III. ON-SITE DOCUMENTS AND RECORDS VERIFIED (check all that apply)			
1. O&M Documents ☒ O&M manual ☒ As-built drawings ☒ Maintenance logs ☐ Readily available ☐ Readily available ☐ Readily available ☐ Up to date ☐ Up to date ☐ Up to date ☐ N/A ☐ N/A ☐ N/A			
Remarks: <u>Documents are not stored on-site.</u>			

2. Site-Specific Health and Safety Plan ☐ Contingency plan/emergency response plan Remarks: _____	☐ Readily available ☐ Up to date ☒ N/A ☐ Readily available ☐ Up to date ☒ N/A
3. O&M and OSHA Training Records Remarks: _____	☒ Readily available ☐ Up to date ☐ N/A
4. Permits and Service Agreements ☐ Air discharge permit ☐ Effluent discharge ☐ Waste disposal, POTW ☐ Other permits: _____ Remarks: _____	☐ Readily available ☐ Up to date ☒ N/A ☐ Readily available ☐ Up to date ☒ N/A ☐ Readily available ☐ Up to date ☒ N/A ☐ Readily available ☐ Up to date ☒ N/A
5. Gas Generation Records Remarks: _____	☐ Readily available ☐ Up to date ☒ N/A
6. Settlement Monument Records Remarks: _____	☐ Readily available ☐ Up to date ☒ N/A
7. Groundwater Monitoring Records Remarks: _____	☐ Readily available ☐ Up to date ☒ N/A
8. Leachate Extraction Records Remarks: _____	☐ Readily available ☐ Up to date ☒ N/A
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 Remarks: _____	☐ Readily available ☐ Up to date ☒ N/A
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	

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.)		
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: _____		
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: _____		

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: _____				
2.	Vegetative Growth	☐ Location shown on site map		☐ N/A
☐ Vegetation does not impede flow				
Area extent: _____		Type: _____		
Remarks: _____				
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: _____ Head differential: _____ Remarks: _____	☐ Evidence of breaching
IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☒ N/A	
A. Groundwater Extraction Wells, Pumps and Pipelines ☐ Applicable ☐ N/A	
1. Pumps, Wellhead Plumbing and Electrical ☐ Good condition ☐ All required wells properly operating ☐ Needs maintenance ☐ N/A Remarks: _____	
2. Extraction System Pipelines, Valves, Valve Boxes and Other Appurtenances ☐ Good condition ☐ Needs maintenance Remarks: _____	
3. Spare Parts and Equipment ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks: _____	
B. Surface Water Collection Structures, Pumps and Pipelines ☐ Applicable ☐ N/A	
1. Collection Structures, Pumps and Electrical ☐ Good condition ☐ Needs maintenance Remarks: _____	
2. Surface Water Collection System Pipelines, Valves, Valve Boxes and Other Appurtenances ☐ Good condition ☐ Needs maintenance Remarks: _____	
3. Spare Parts and Equipment ☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks: _____	
C. Treatment System ☐ Applicable ☐ N/A	
1. Treatment Train (check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☐ Carbon adsorbers ☐ Filters: _____ ☐ Additive (e.g., chelation agent, flocculent): _____ ☐ Others: _____ ☐ Good condition ☐ Needs maintenance ☐ Sampling ports properly marked and functional ☐ Sampling/maintenance log displayed and up to date ☐ Equipment properly identified ☐ Quantity of groundwater treated annually: _____	

☐ Quantity of surface water treated annually: _____ Remarks: _____
2. Electrical Enclosures and Panels (properly rated and functional) ☐ N/A ☐ Good condition ☐ Needs maintenance Remarks: _____
3. Tanks, Vaults, Storage Vessels ☐ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs maintenance Remarks: _____
4. Discharge Structure and Appurtenances ☐ N/A ☐ Good condition ☐ Needs maintenance Remarks: _____
5. Treatment Building(s) ☐ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks: _____
6. Monitoring Wells (pump and treatment remedy) ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition ☐ All required wells located ☐ Needs maintenance ☐ N/A Remarks: _____
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). <u>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 surface water and vegetation during and after cleanup. Additional monitoring efforts include streambed sediments, macroinvertebrates, periphyton, nutrients and fish populations.</u>
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. <u>Inspections and maintenance are ongoing, but there is no formalized O&M plan to ensure consistency and appropriate record-keeping. Groundwater monitoring should be initiated.</u>
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. <u>None identified.</u>
D. Opportunities for Optimization
Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. <u>None identified.</u>

APPENDIX H – SITE INSPECTION PHOTOS

MRSOU Site Inspection Photos



View of MRSOU from the Milltown State Park overlook. I-90 buffer is visible near the interstate.



Tunnel Pond Repository



Side slope of Tunnel Pond Repository



Bare area on Tunnel Pond Repository side slope



Surface water drainage channel and drop structure



Drainage channel at the top of Tunnel Pond Repository



Area of scouring rush on Tunnel Pond Repository, possibly indicating chronically saturated soil



Upland Disposal Repository



Staging Area Repository



Monitoring well 913A



Top of Right Bank Repository



Rip-rap along Blackfoot River under I-90 overpass, unused pylons in the center of the river (expected to be removed), railroad bridge in the background, looking Northeast



Monitoring wells MW-99A and MW-99B, which were not secured

CFROU Site Inspection Photos



Arrowstone Park Sign



Arsenic warning sign at Arrowstone Park



Streambank erosion along the Clark Fork River in Arrowstone Park. Note yellow soil indicating possible tailings.



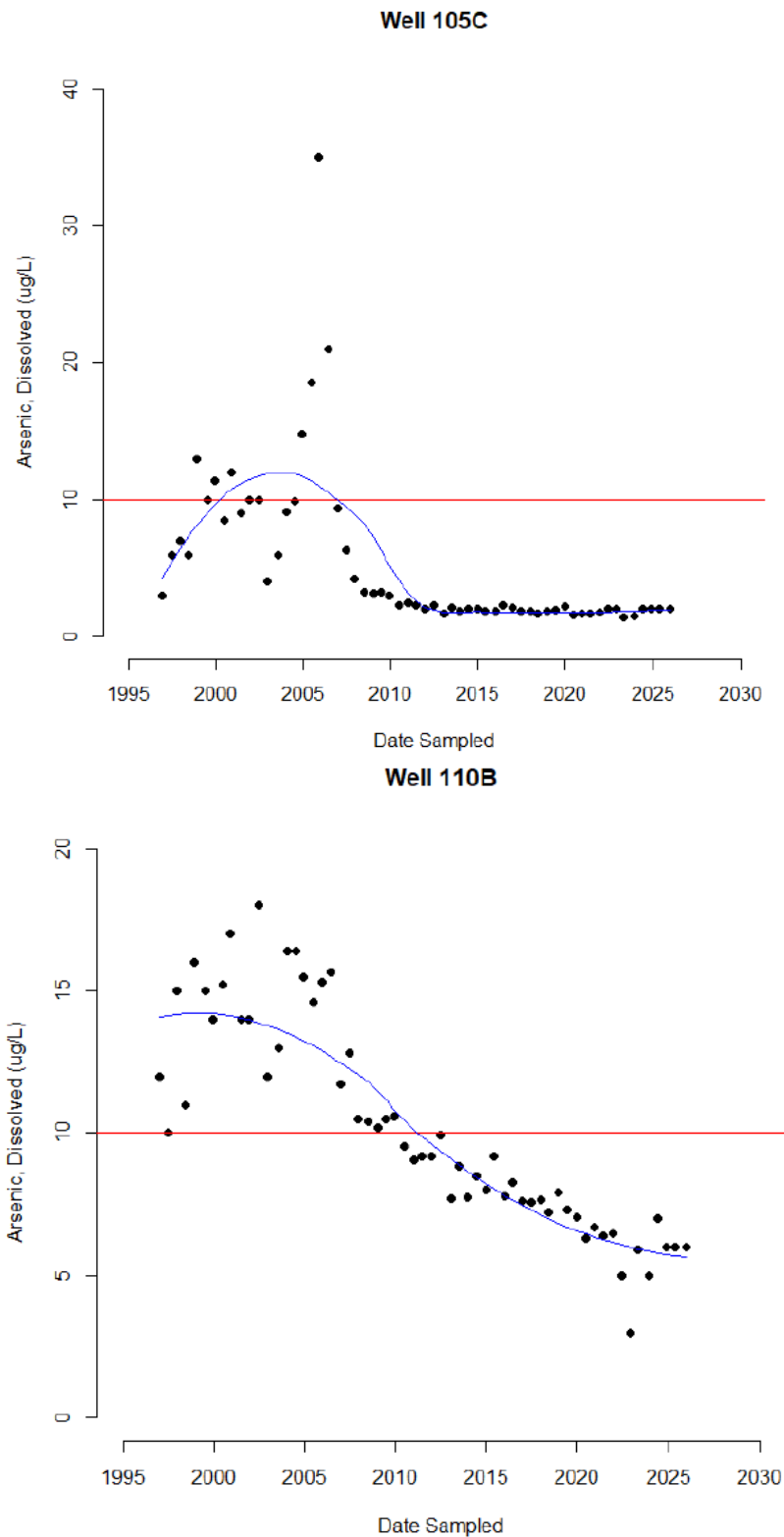
Slickens area in Arrowstone Park



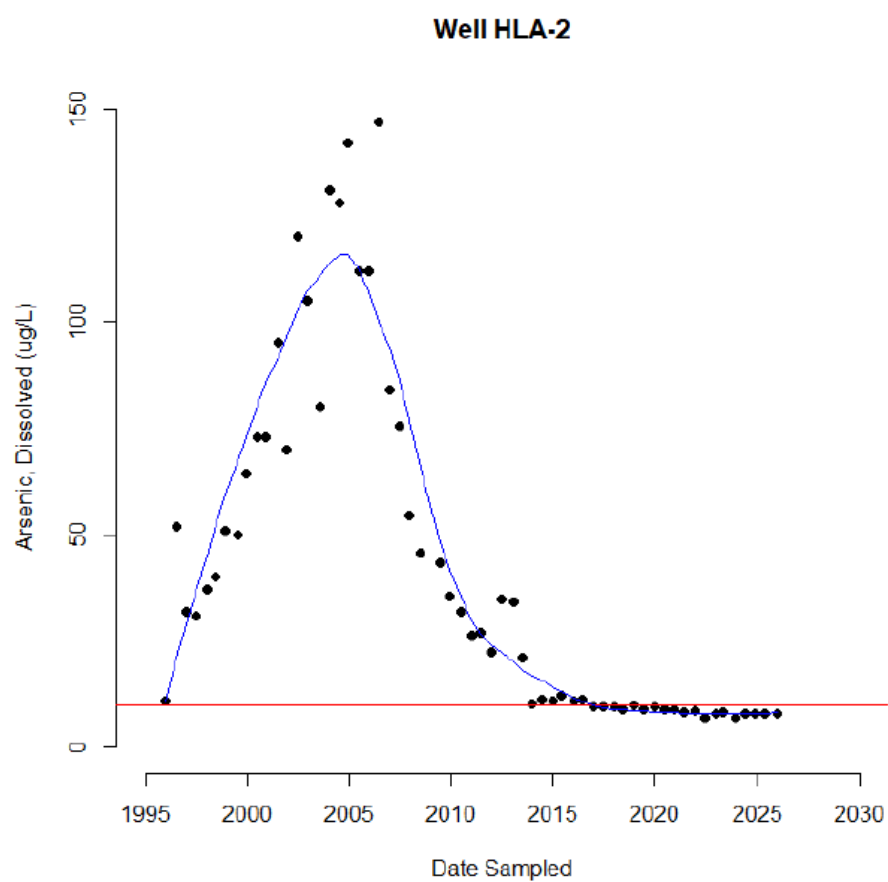
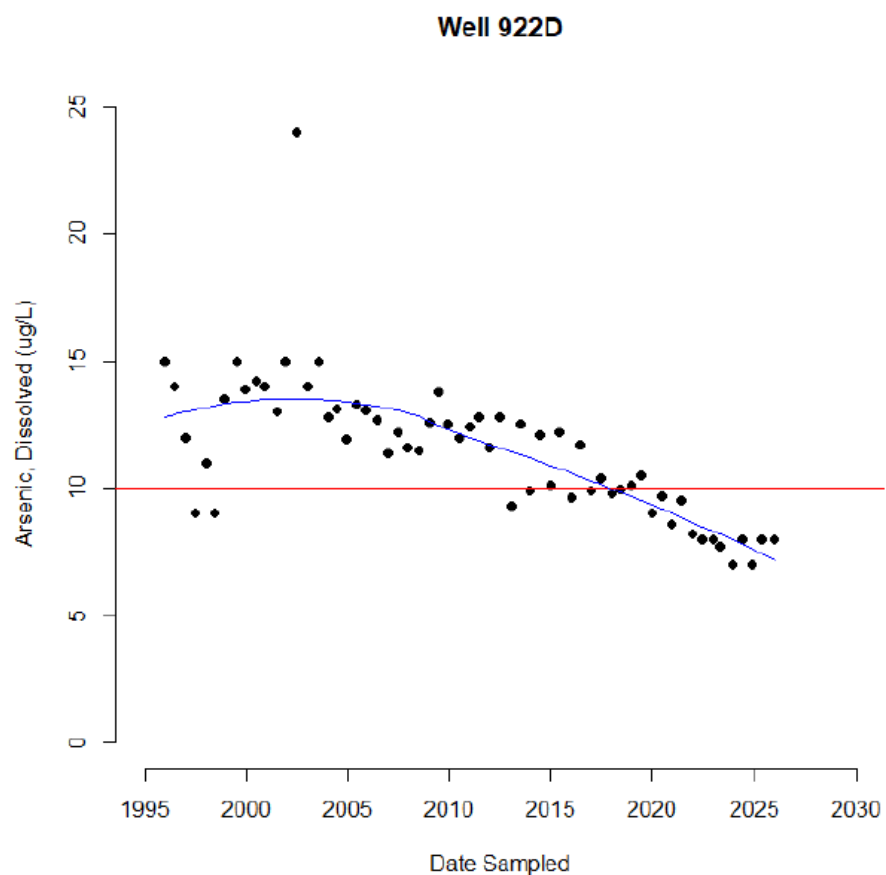
Streambank erosion near Arrowstone Park

APPENDIX I – DATA REVIEW TABLES AND FIGURES

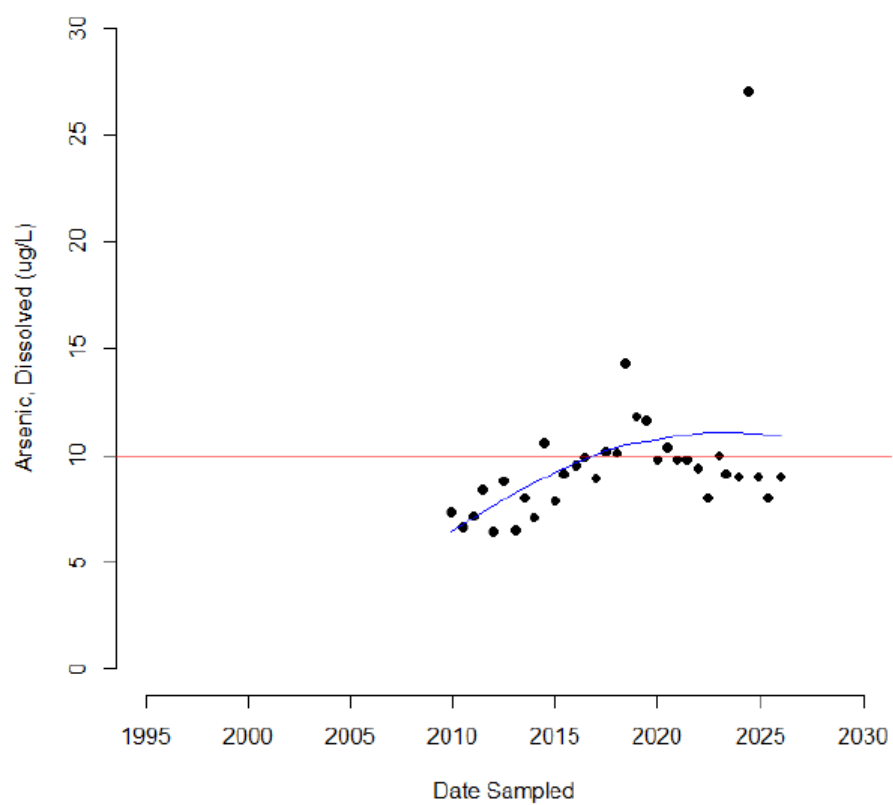
Figure I-1: Dissolved Arsenic Time-Concentration Graphs for MRSOU Wells¹⁸



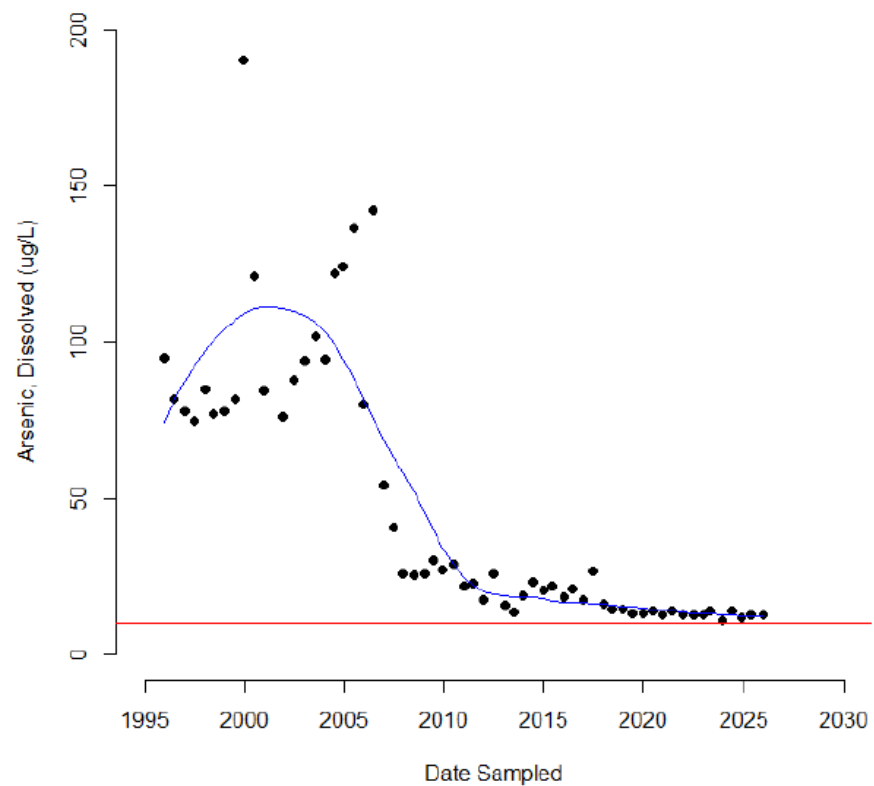
¹⁸ The blue line is the LOESS trend line and the red line depicts the performance standard (10 $\mu\text{g/L}$).
Source: 2025 Milltown Operation, Maintenance, and Monitoring Report, Pioneer.



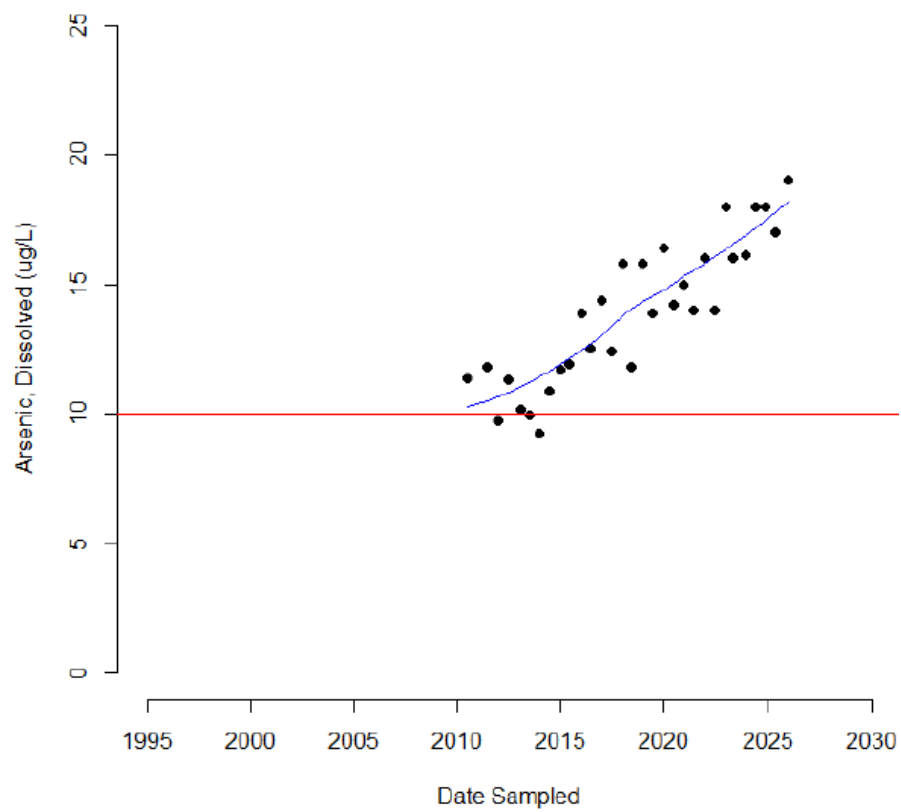
Well 921A



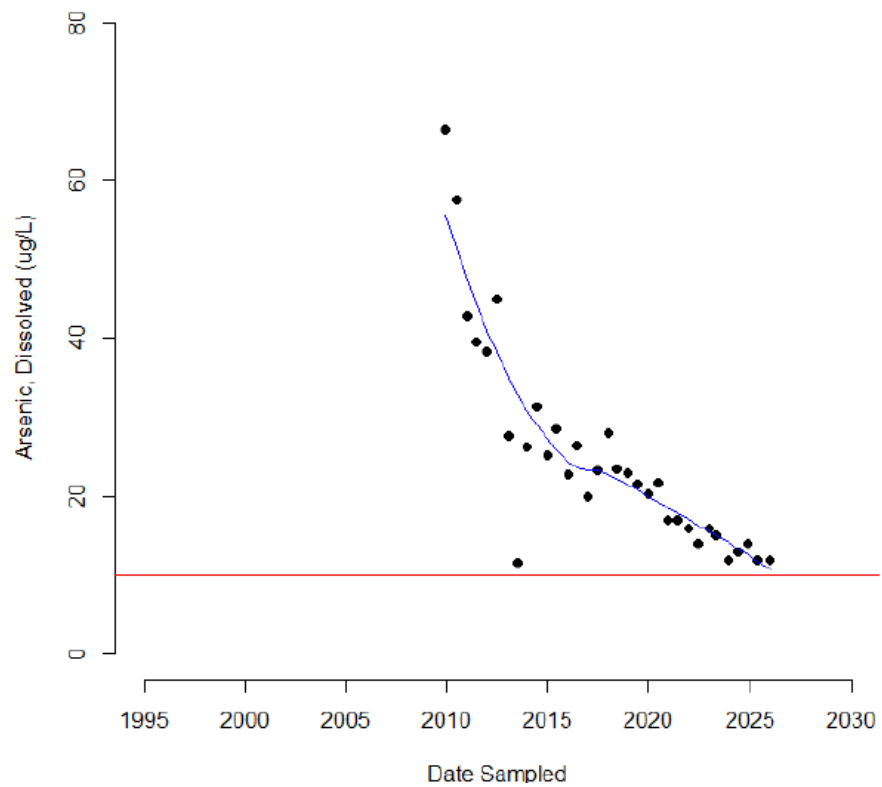
Well 103B



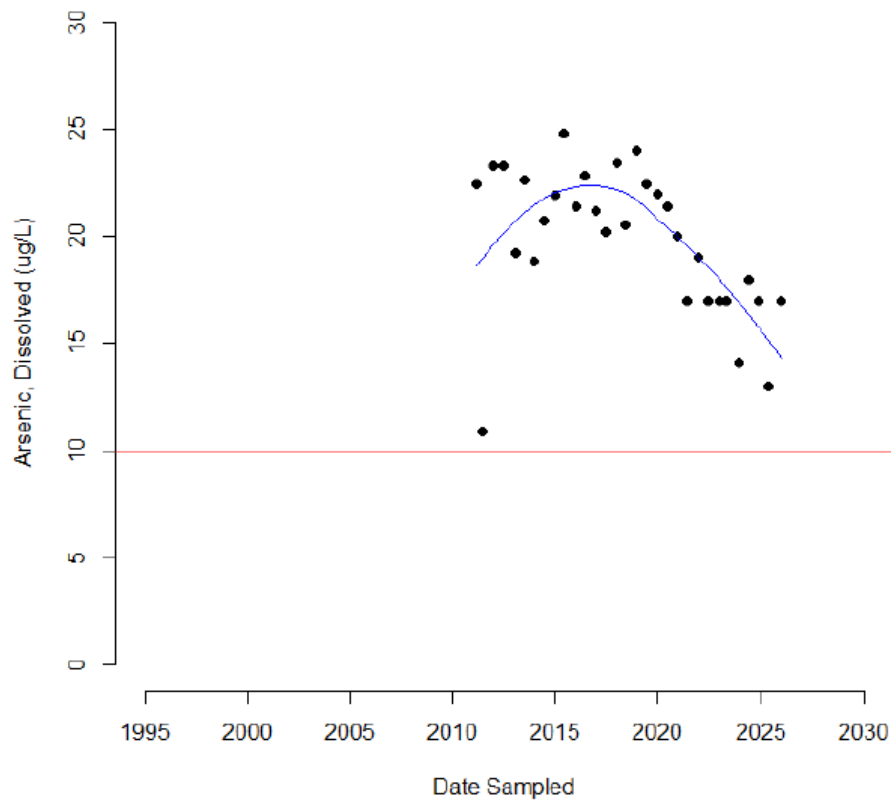
Well 104A



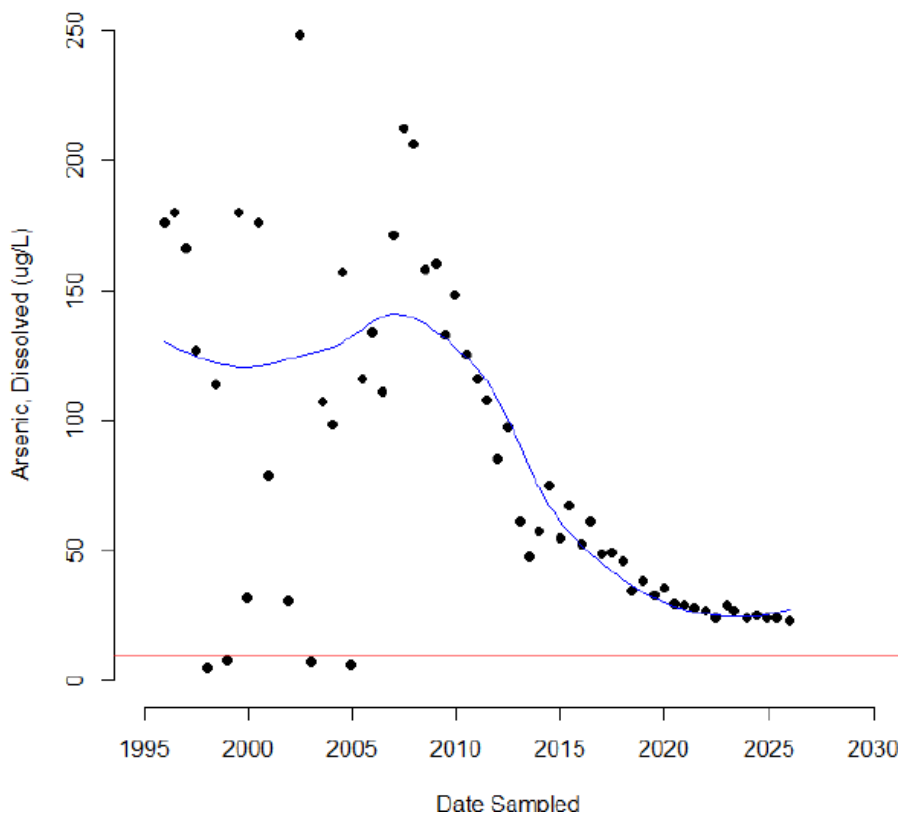
Well 107A



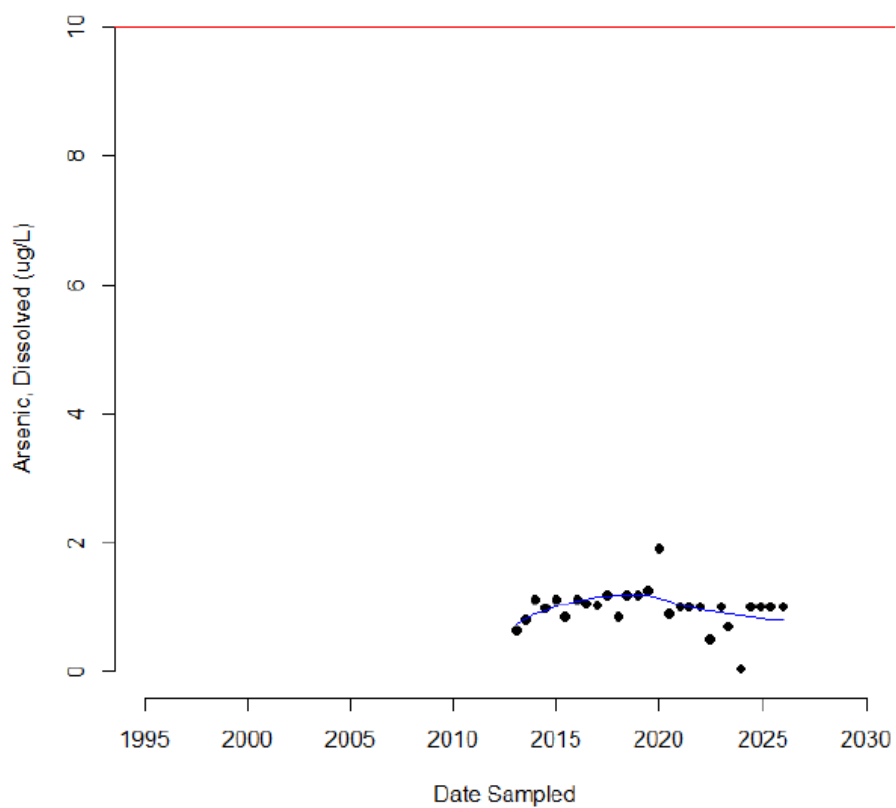
Well 11R



Well 917B



Well 913A



Well TPR-10

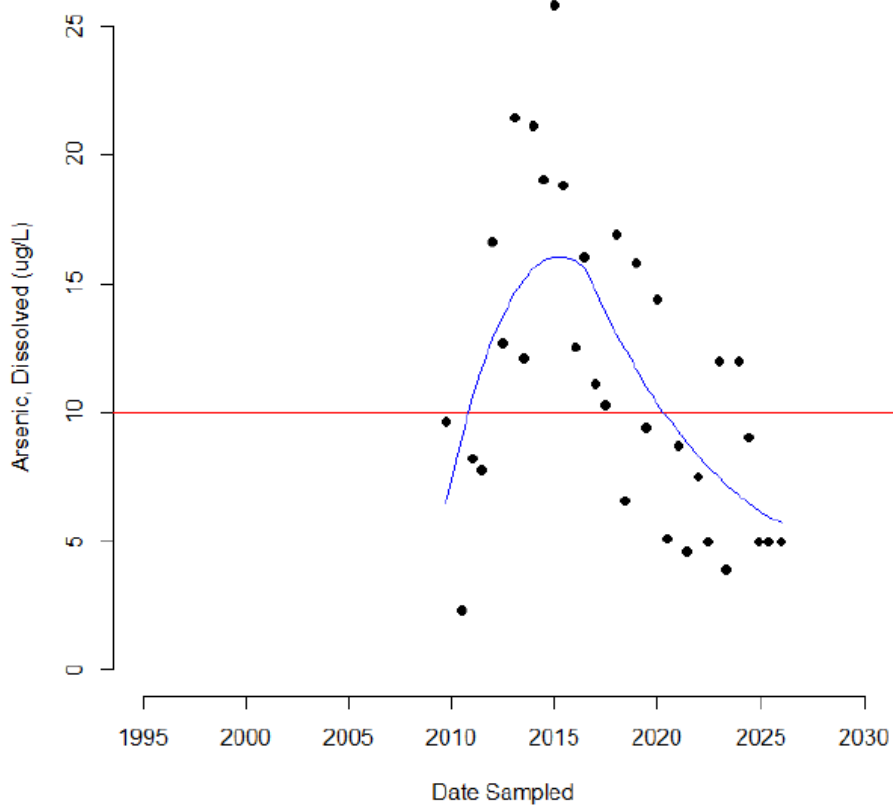
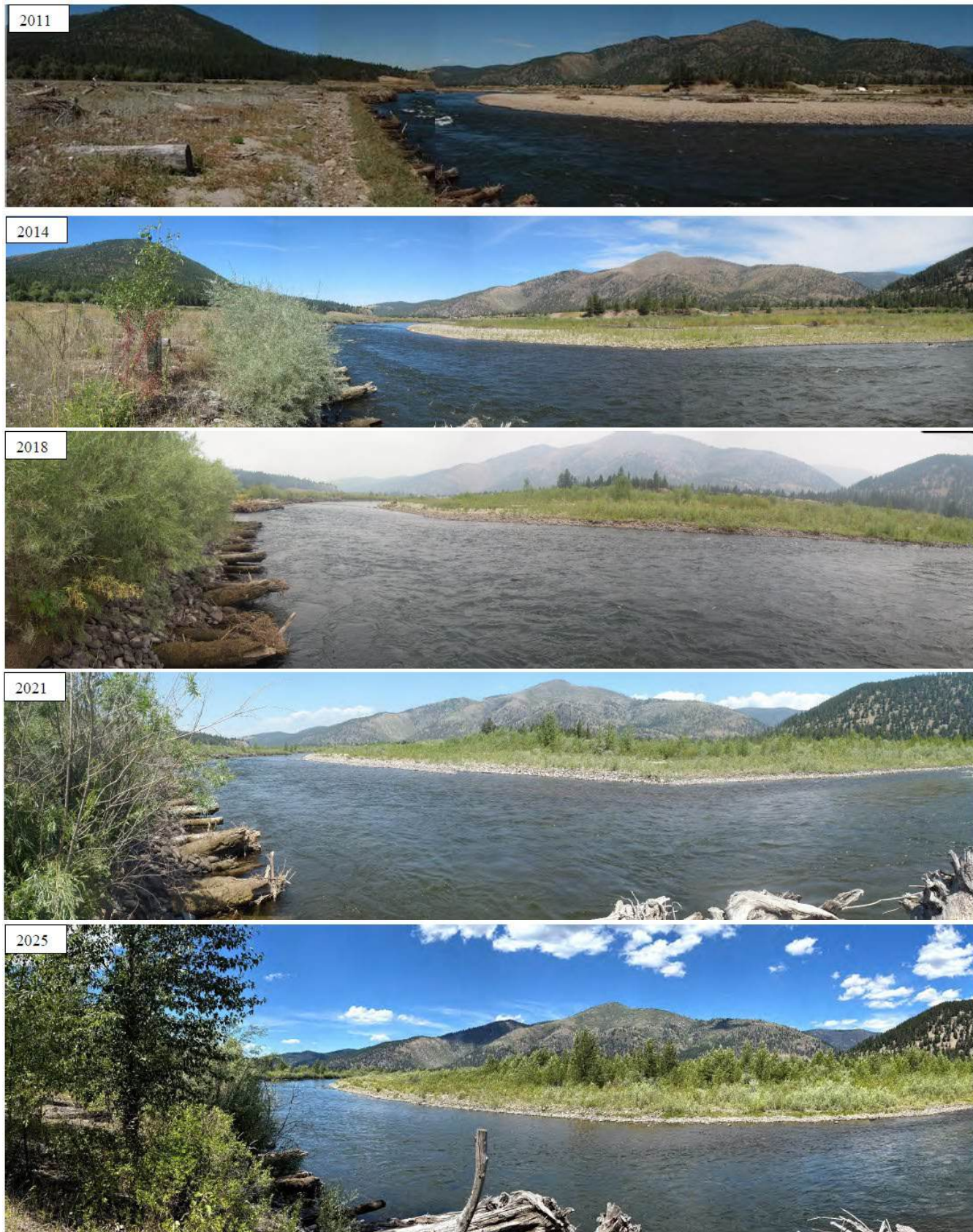
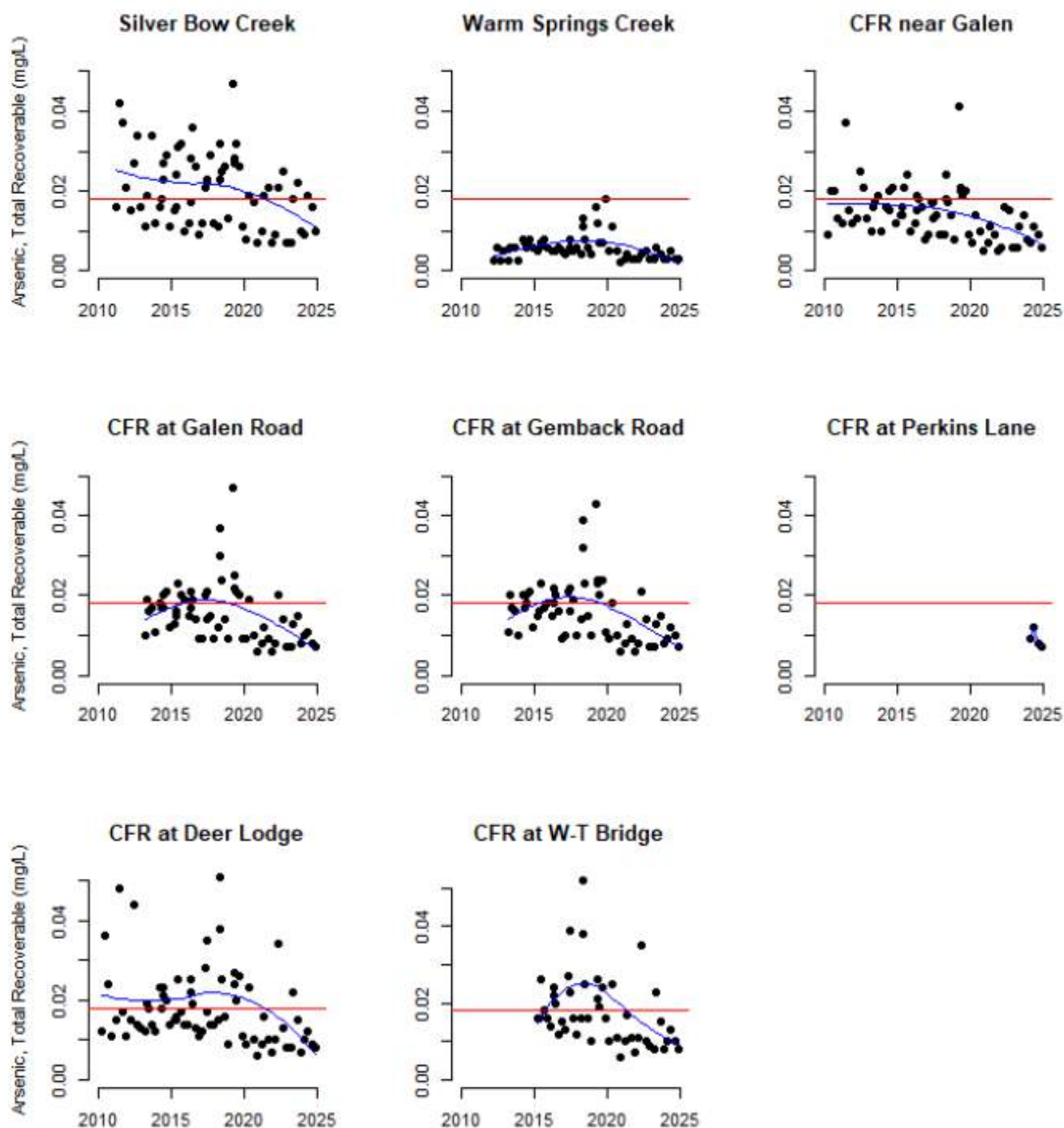


Figure I-2: Example Greenline Photos, 2011 to 2025¹⁹



¹⁹ Greenline photos are taken annually at seven locations. Selected photos are presented in this FYR Report from one central location. *Source:* Milltown Greenline Photos: 2010-2025, Geum Environmental Consulting.

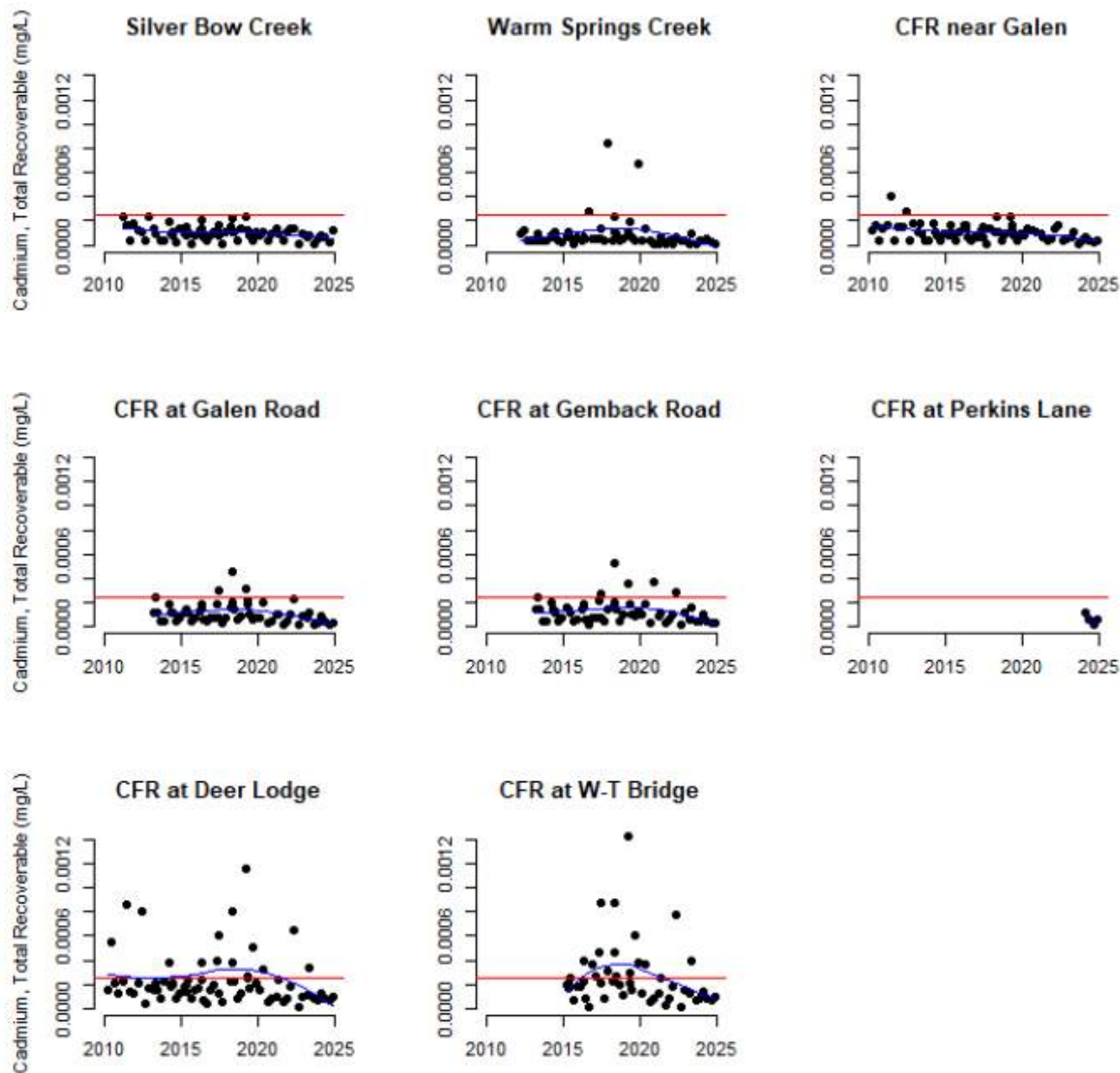
Figure I-3: Total Recoverable Arsenic Time-Concentration Graphs for CFROU Surface Water²⁰



²⁰ The blue line is the LOESS trend line and the red line depicts the human health performance standard based on the state standard at the time of the 2004 ROD (18 µg/L).

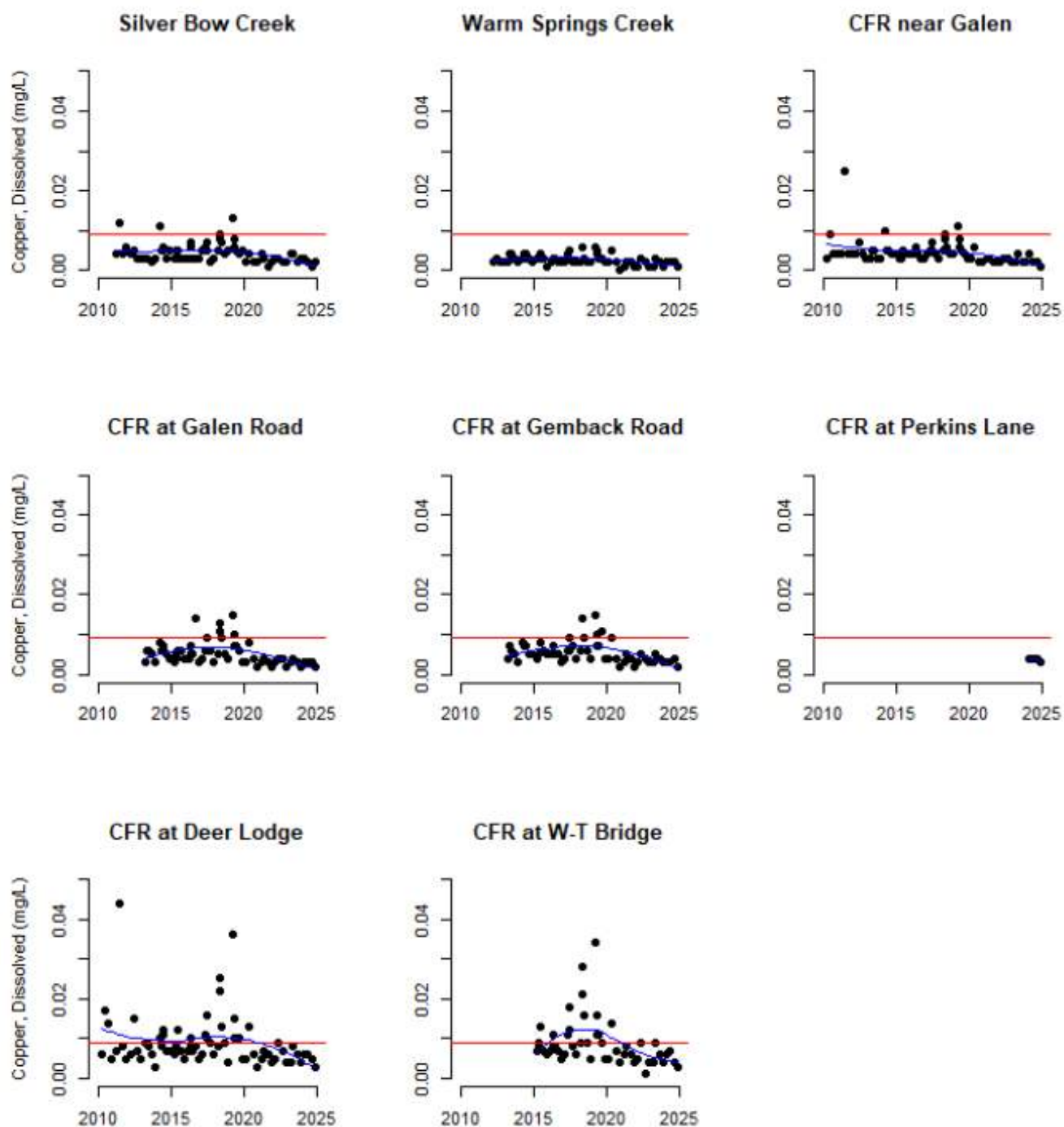
Source: 2024 CFROU Annual Monitoring Report, RESPEC.

Figure I-4: Total Recoverable Cadmium Time-Concentration Graphs for CFROU Surface Water²¹



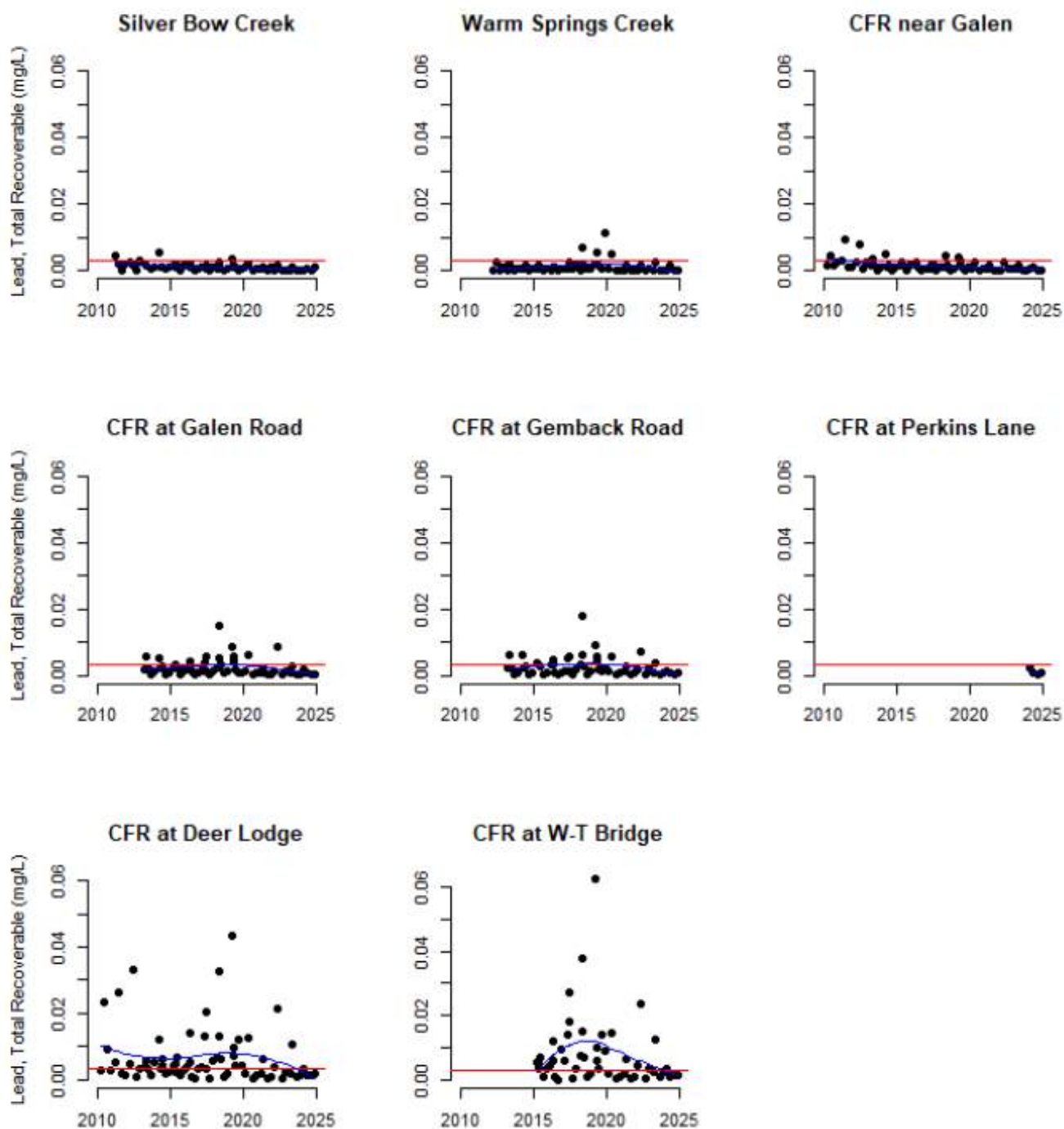
²¹ The blue line is the LOESS trend line and the red line depicts the chronic aquatic performance standard based (0.25 µg/L).
Source: 2024 CFROU Annual Monitoring Report, RESPEC.

Figure I-5: Total Recoverable Copper Time-Concentration Graphs for CFROU Surface Water²²



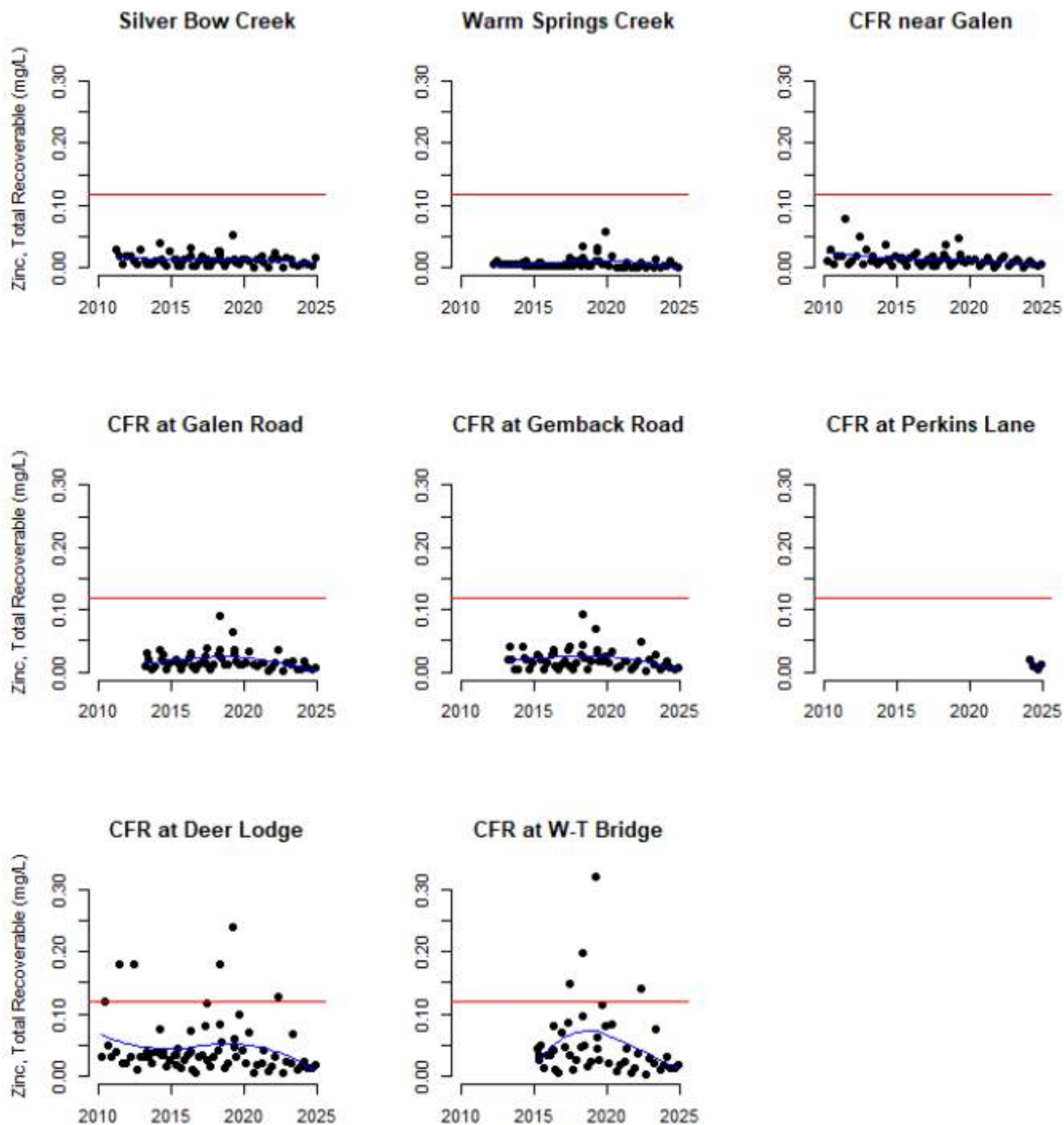
²² The blue line is the LOESS trend line and the red line depicts the chronic aquatic performance standard based (9 µg/L).
Source: 2024 CFROU Annual Monitoring Report, RESPEC.

Figure I-6: Total Recoverable Lead Time-Concentration Graphs for CFROU Surface Water²³



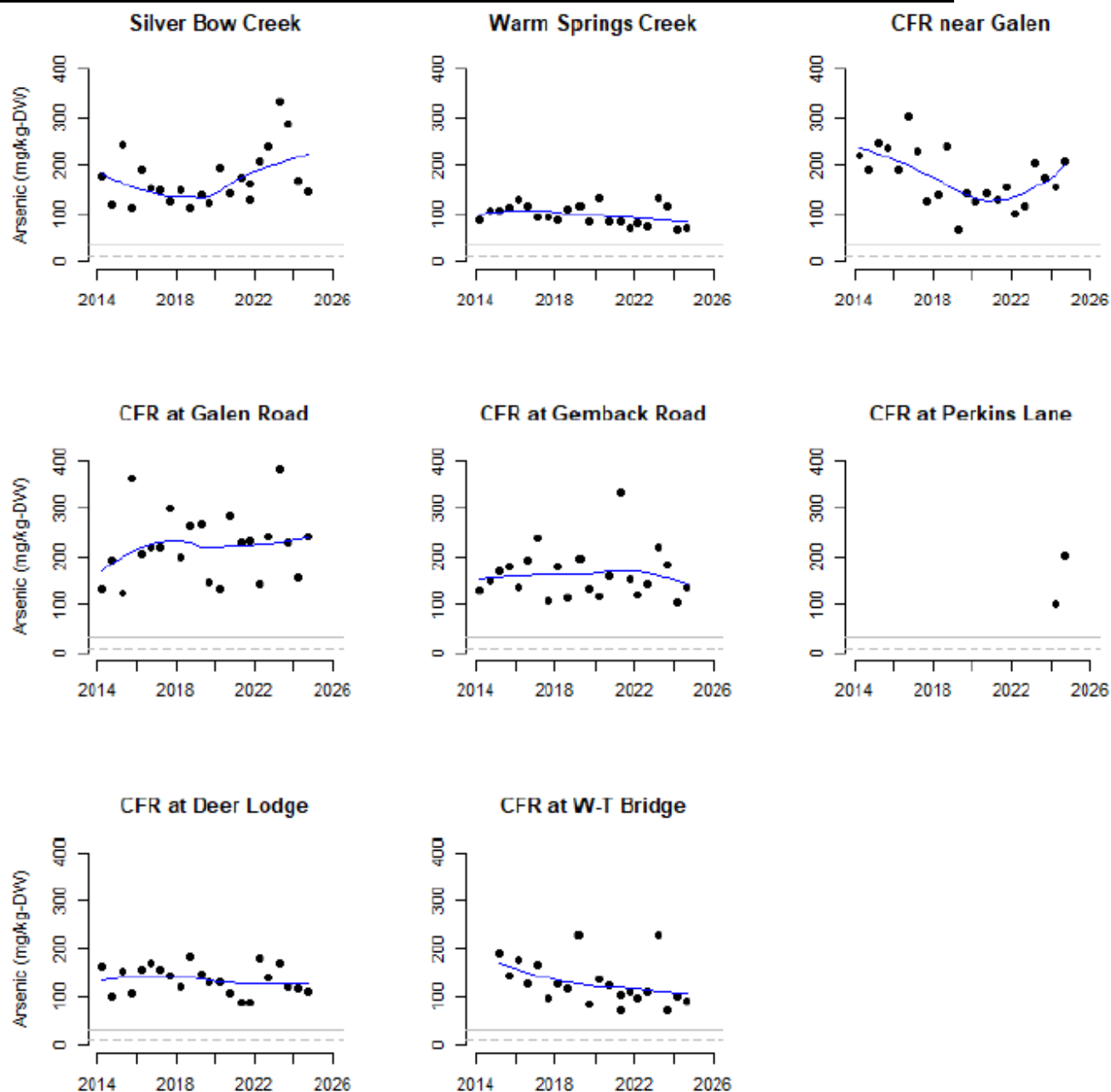
²³ The blue line is the LOESS trend line and the red line depicts the chronic aquatic performance standard based (3.2 µg/L).
Source: 2024 CFROU Annual Monitoring Report, RESPEC.

Figure I-7: Total Recoverable Zinc Time-Concentration Graphs for CFROU Surface Water²⁴



²⁴ The blue line is the LOESS trend line and the red line depicts the chronic aquatic performance standard based (119 µg/L).
Source: 2024 CFROU Annual Monitoring Report, RESPEC.

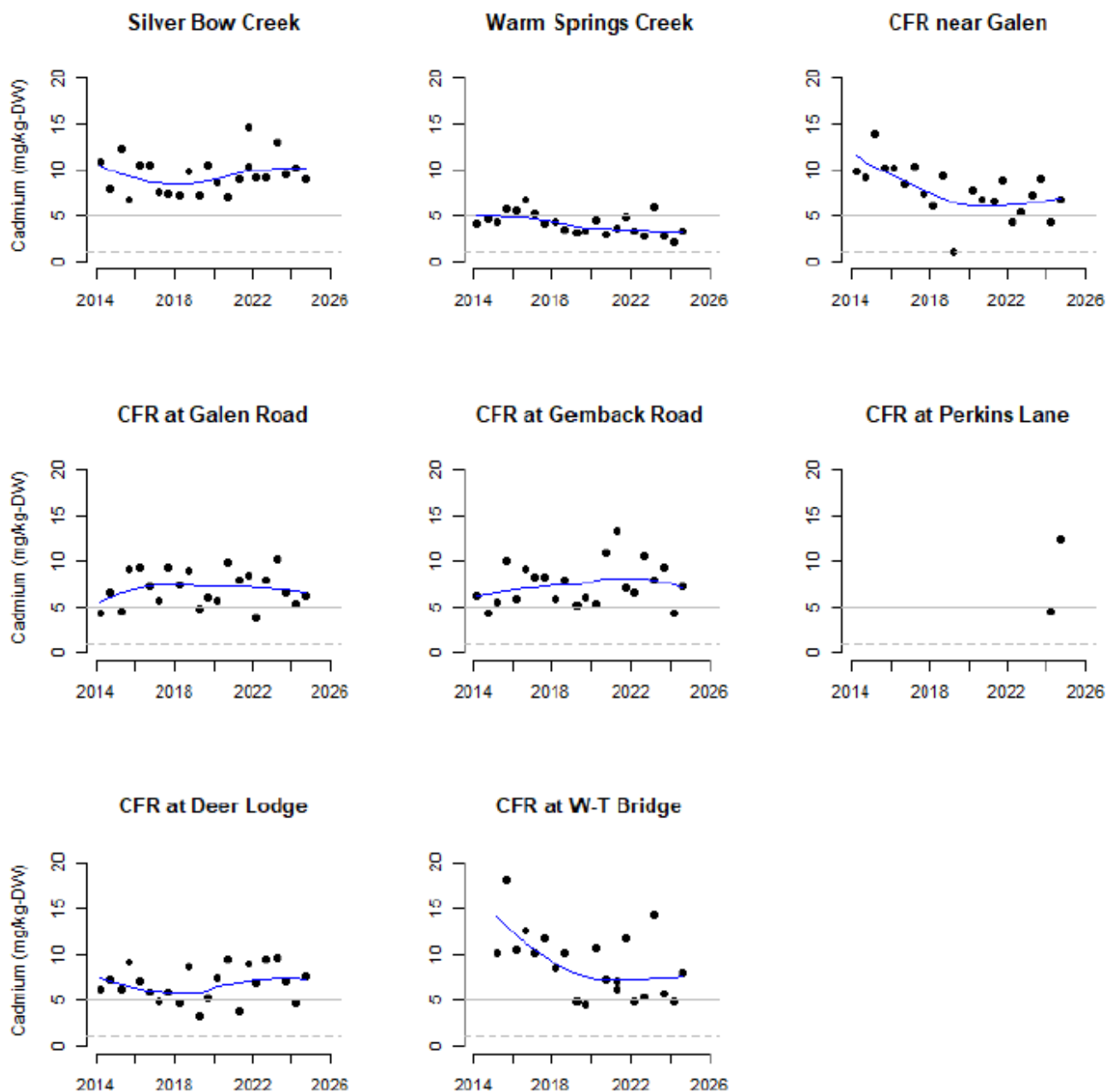
Figure I-8: Total Arsenic (Dry Weight) Time-Concentration Graphs for CFROU Sediment²⁵



²⁵ The blue line is the LOESS trend line. The dashed gray lines represents the TEC (9.79 mg/kg) and the gray solid line represents the PEC (33.0 mg/kg).

Source: 2024 CFROU Annual Monitoring Report, RESPEC.

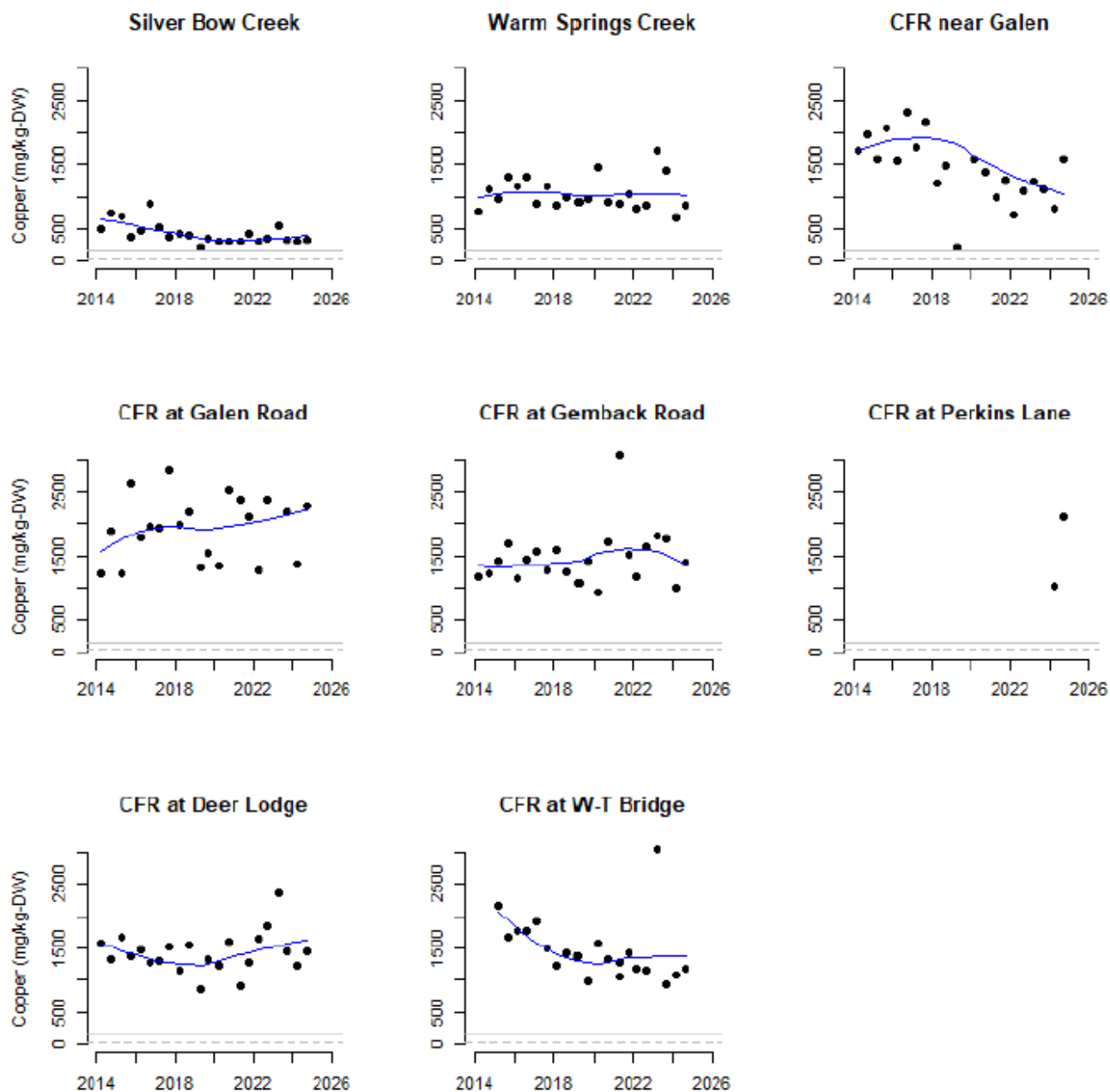
Figure I-9: Total Cadmium (Dry Weight) Time-Concentration Graphs for CFROU Sediment²⁶



²⁶ The blue line is the LOESS trend line. The dashed gray lines represents the TEC (0.99 mg/kg) and the gray solid line represents the PEC (4.98 mg/kg).

Source: 2024 CFROU Annual Monitoring Report, RESPEC.

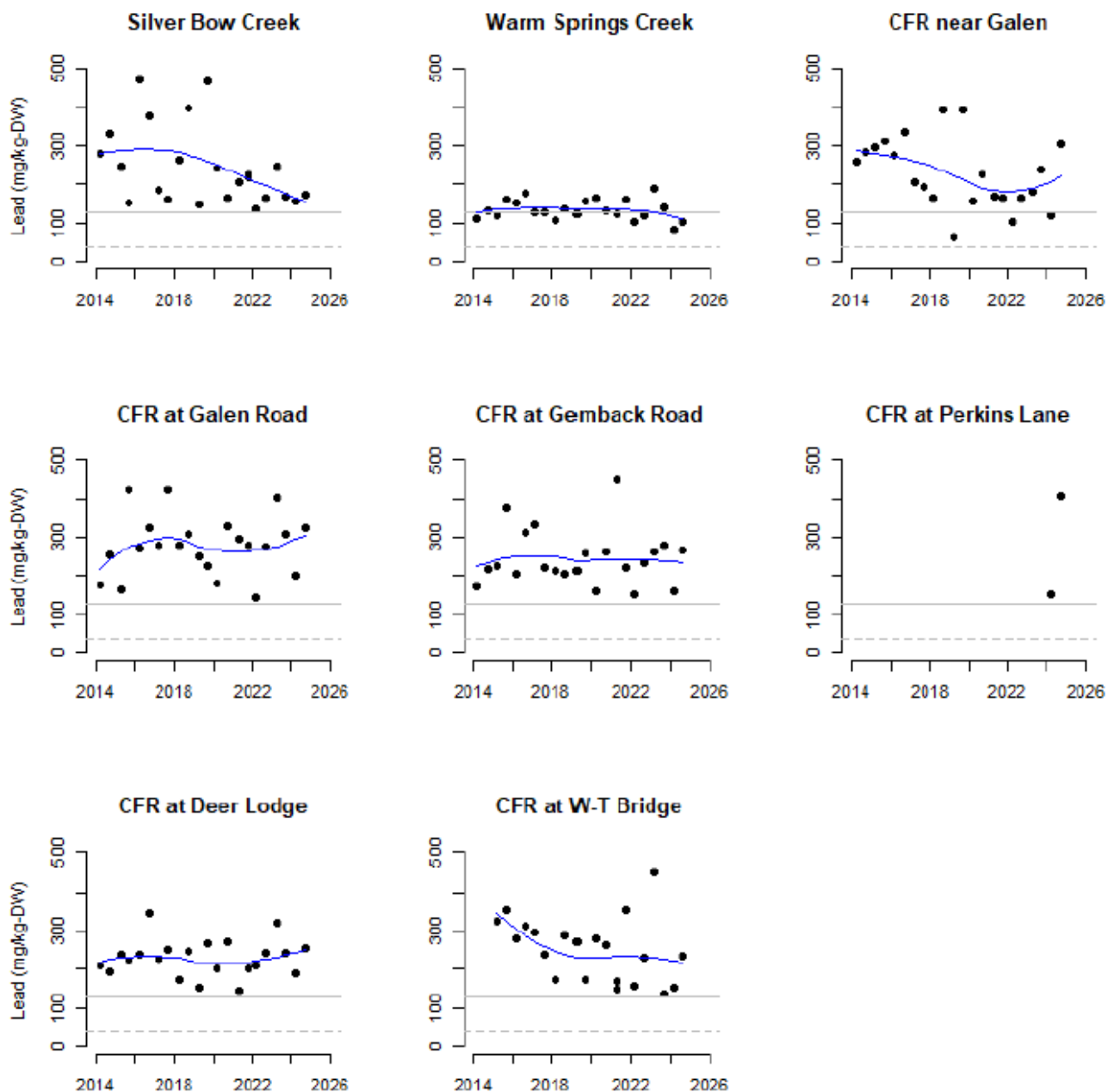
Figure I-9: Total Copper (Dry Weight) Time-Concentration Graphs for CFROU Sediment²⁷



²⁷ The blue line is the LOESS trend line. The dashed gray lines represents the TEC (31.6 mg/kg) and the gray solid line represents the PEC (149 mg/kg).

Source: 2024 CFROU Annual Monitoring Report, RESPEC.

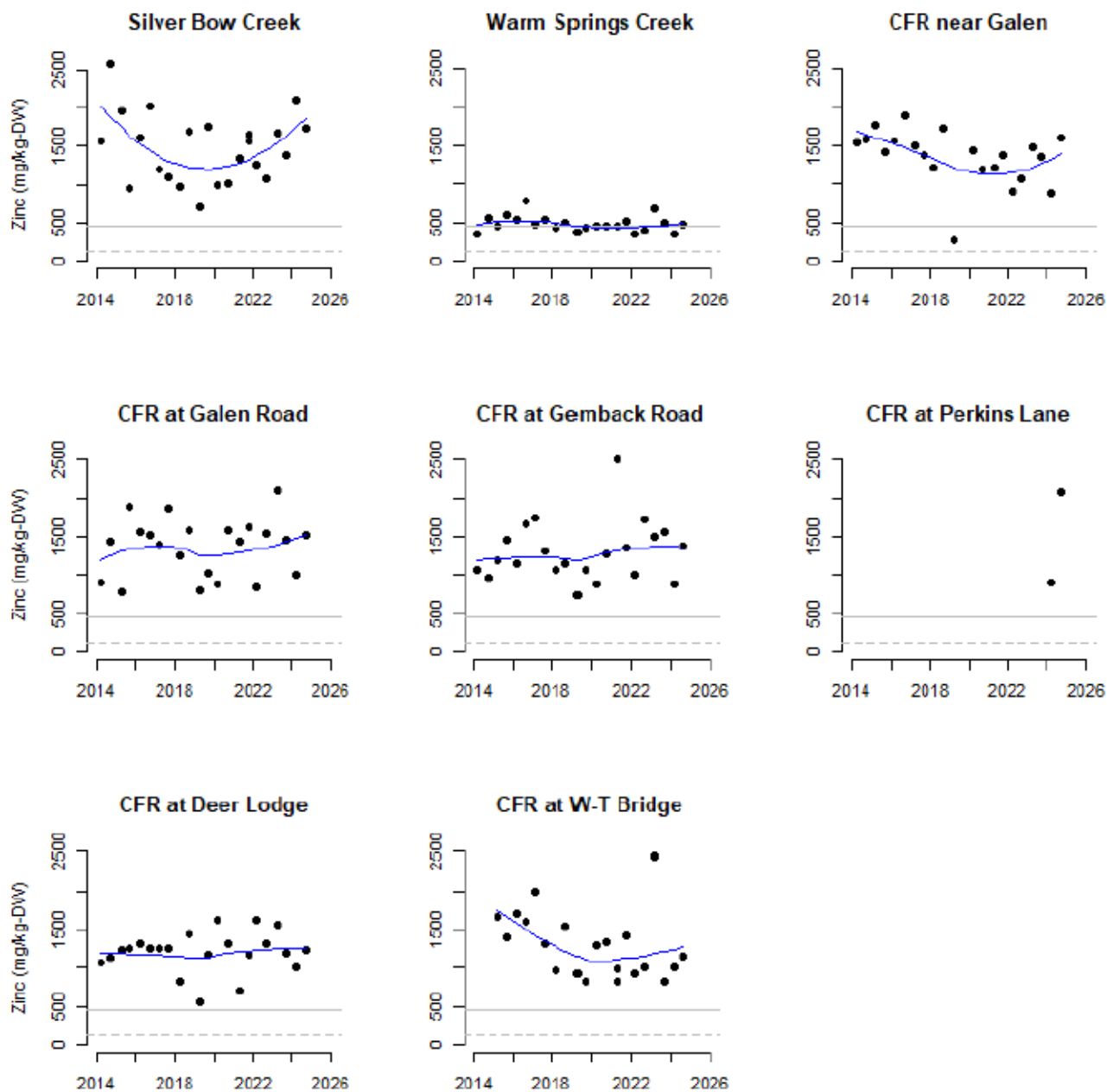
Figure I-10: Total Lead (Dry Weight) Time-Concentration Graphs for CFROU Sediment²⁸



²⁸ The blue line is the LOESS trend line. The dashed gray lines represents the TEC (35.8 mg/kg) and the gray solid line represents the PEC (128 mg/kg).

Source: 2024 CFROU Annual Monitoring Report, RESPEC.

Figure I-11: Total Zinc (Dry Weight) Time-Concentration Graphs for CFROU Sediment²⁹



²⁹ The blue line is the LOESS trend line. The dashed gray lines represents the TEC (121 mg/kg) and the gray solid line represents the PEC (459 mg/kg).

Source: 2024 CFROU Annual Monitoring Report, RESPEC.

Figure I-12: Fish Population Estimates in the Clark Fork River, 2010 to 2024³⁰

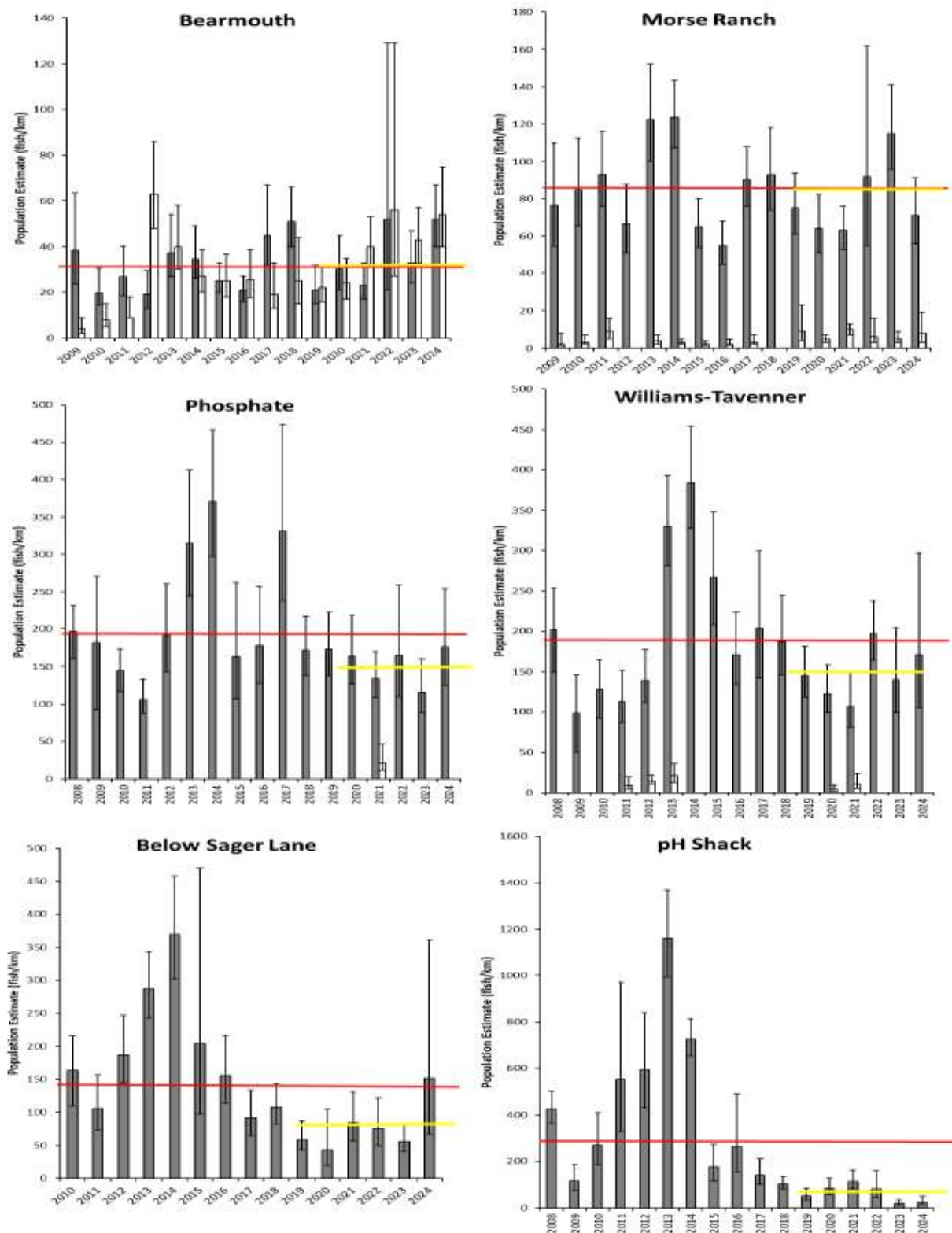


Figure 4. Population estimates for six long-term monitoring sections of the Clark Fork River for fish >175 mm. Grey bars are brown trout estimates and open bars are combined *Oncorhynchus* estimates. The red line denotes the long-term fish/km average for brown trout and the yellow line shows the 5-year fish/km average for brown trout.

³⁰ Source: 2024 Fisheries Monitoring in the Upper Clark Fork River Basin Report, Montana FWP.

Table I-1: Dissolved Arsenic Concentrations reported in µg/L in MRSOU Wells, 2008-2026

Sample Period		Monitoring Well											
Month	Year	105C	110B	922D	103B	HLA-2	917B	921A	11R	104A	107A	913A	TPR-10
June	2008	3	10	12	25	46	158	-	-	-	-	-	-
January	2009	3	10	13	26	-	160	-	-	-	-	-	-
June	2009	3	11	14	30	44	133	-	-	-	-	-	-
December	2009	3	11	13	27	36	148	7	-		67	-	
June	2010	2	10	12	29	32	125	7	-	11	58	-	2
January	2010	3	9	12	22	26	116	7	-	12	43	-	8
June	2011	2	9	13	23	27	108	8	11	-	40	-	8
December	2011	2	9	12	18	22	85	6	23	10	38	-	17
June	2012	2	10	13	26	35	98	9	23	11	45	-	13
January	2013	2	8	9	16	34	61	7	19	10	28	1	21
June	2013	2	9	13	14	21	47	8	23	10	12	1	12
December	2013	2	8	10	19	10	58	7	19	9	26	1	21
June	2014	2	9	12	23	11	75	11	21	11	31	1	19
December	2014	2	8	10	21	11	55	8	22	12	25	1	26
June	2015	2	9	12	22	12	67	9	25	12	29	1	19
January	2016	2	8	10	18	11	53	10	21	14	23	1	13
June	2016	2	8	12	21	11	61	10	23	13	26	1	16
December	2016	2	8	10	18	10	49	9	21	14	20	1	11
June	2017	2	8	10	27	10	49	10	20	12	23	1	10
January	2018	2	8	10	16	10	46	10	23	16	28	1	17
June	2018	2	7	10	14	9	35	14	21	12	23	1	7
December	2018	2	8	10	15	10	38	12	24	16	23	1	16
June	2019	2	7	11	13	9	33	12	22	14	22	1	9
December	2019	2	7	9	13	10	35	10	22	16	20	2	14
June	2020	2	6	10	14	9	29	10	21	14	22	1	5
December	2020	2	7	9	13	9	29	10	20	15	17	1	9
June	2021	2	6	10	14	8	28	10	17	14	17	1	5
December	2021	2	7	8	13	9	27	9	19	16	16	1	8
June	2022	2	5	8	13	7	24	8	17	14	14	<1	5
December	2022	2	3	8	13	8	29	10	17	18	16	1	12
May	2023	1	6	8	14	8	27	9	17	17	15	0.7	4
December	2023	2	5	7	11	7	24	9	14	16	12	<0.08	12
May	2024	2	7	8	14	8	25	27	18	18	13	1	9
November	2024	2	6	7	12	8	24	9	17	18	14	1	5
May	2025	2	6	8	13	8	24	8	13	17	12	1	5
January	2026	2	6	8	13	8	23	9	17	19	12	1	5

Table I-2: Mann-Kendall Trend Test for Evidence of Decreasing Concentrations in MRSOU Wells

Monitoring Well	Monitoring Period	Sample Size (<i>n</i>)	<i>p</i> -value one-sided)	Trend
105C	1996-2024	57	<0.0001	decreasing
110B	1997-2024	57	<0.0001	decreasing
922D	1995-2024	59	<0.0001	decreasing
HLA-2	1995-2024	58	<0.0001	decreasing
921A	2009-2024	31	0.9974	
103B	1995-2024	59	<0.0001	decreasing
104A	2010-2024	29	1.0000	
107A	2009-2024	31	<0.0001	decreasing
11R	2011-2024	29	0.0021	decreasing
917B	1995-2024	59	<0.0001	decreasing
913A	2013-2024	25	0.3187	
TPR-10	2009-2024	31	0.0095	decreasing

Table I-3: 2024 CFROU Total Recoverable Arsenic Concentrations, Surface Water

Site ID	Site Location	Sample Period			
		Q1	Q2	Q3	Q4
Mainstem sites					
CFR-03A	Clark Fork River near Galen	0.007	0.011	0.009	0.006
CFR-07D	Clark Fork River at Galen Road	0.010	0.011	0.008	0.007
CFR-11F	Clark Fork River at Gemback Road	0.009	0.012	0.010	0.007
CFR-18	Clark Fork River at Perkins Lane	0.009	0.012	0.008	0.007
CFR-27H	Clark Fork River at Deer Lodge	0.010	0.012	0.009	0.008
CFR-34	Clark Fork River at Williams-Tavener Bridge	0.010	0.013	0.010	0.008
Tributary sites					
SS-25	Silver Bow Creek at Warm Springs	0.009	0.019	0.016	0.010
WSC-SBC	Warm Springs Creek near mouth	0.003	0.005	0.003	0.003
J	Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25 percent).				
	Exceeds specified arsenic surface water performance goal for total recoverable concentration (0.018 mg/L) [EPA, 2004].				

Table I-4: 2024 CFROU Total Recoverable Cadmium Concentrations, Surface Water

Site ID	Site Location	Sample Period			
		Q1	Q2	Q3	Q4
Mainstem sites					
CFR-03A	Clark Fork River near Galen	0.00007	0.00004	0.00002 ^J	0.00003 ^J
CFR-07D	Clark Fork River at Galen Road	0.00009	0.00004	0.00002 ^J	0.00003 ^J
CFR-11F	Clark Fork River at Gemback Road	0.00010	0.00005	0.00003 ^J	0.00003 ^J
CFR-18	Clark Fork River at Perkins Lane	0.00012	0.00006	0.00002 ^J	0.00006
CFR-27H	Clark Fork River at Deer Lodge	0.00012	0.00008	0.00007	0.00010
CFR-34	Clark Fork River at Williams-Tavener Bridge	0.00014	0.00009	0.00007	0.00010
Tributary sites					
SS-25	Silver Bow Creek at Warm Springs	0.00008	0.00006	0.00002	0.00012
WSC-SBC	Warm Springs Creek near mouth	0.00003 ^J	0.00005	0.00002	ND
ND	Not detected at method detection limit.				
J	Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25 percent).				
	Exceeds chronic aquatic life standard [DEQ, 2019b].				

Table I-5: 2024 CFROU Total Recoverable Copper Concentrations, Surface Water

Site ID	Site Location	Sample Period			
		Q1	Q2	Q3	Q4
Mainstem sites					
CFR-03A	Clark Fork River near Galen	0.004	0.002	0.002	0.001
CFR-07D	Clark Fork River at Galen Road	0.003	0.003	0.003	0.002
CFR-11F	Clark Fork River at Gemback Road	0.003	0.003	0.004	0.002
CFR-18	Clark Fork River at Perkins Lane	0.004	0.004	0.004	0.003
CFR-27H	Clark Fork River at Deer Lodge	0.006	0.006	0.005	0.003
CFR-34	Clark Fork River at Williams-Tavener Bridge	0.006	0.007	0.004	0.003
Tributary sites					
SS-25	Silver Bow Creek at Warm Springs	0.003	0.002	0.0008 ^J	0.002
WSC-SBC	Warm Springs Creek near mouth	0.002	0.002	0.002	0.0009 ^J
J	Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25 percent).				

Table I-6: 2024 CFROU Total Recoverable Lead Concentrations, Surface Water

Site ID	Site Location	Sample Period			
		Q1	Q2	Q3	Q4
Mainstem sites					
CFR-03A	Clark Fork River near Galen	0.0007	0.0010	0.0003	0.0003
CFR-07D	Clark Fork River at Galen Road	0.0017	0.0009	0.0003	0.0004
CFR-11F	Clark Fork River at Gemback Road	0.0014	0.0008	0.0004	0.0006
CFR-18	Clark Fork River at Perkins Lane	0.0024	0.0009	0.0003	0.0009
CFR-27H	Clark Fork River at Deer Lodge	0.0032	0.0014	0.0012	0.0018
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.0037	0.0012	0.0015	0.0015
Tributary sites					
SS-25	Silver Bow Creek at Warm Springs	0.0002 ^J	0.0008	0.0002 ^J	0.0013
WSC-SBC	Warm Springs Creek near mouth	0.0003 ^J	0.0018	0.0003 ^J	0.0002 ^J
ND	Not detected at method detection limit.				
J	Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25 percent).				
	Exceeds chronic aquatic life standard [DEQ, 2019b].				

Table I-6: 2024 CFROU Total Recoverable Lead Concentrations, Surface Water

Site ID	Site Location	Sample Period			
		Q1	Q2	Q3	Q4
Mainstem sites					
CFR-03A	Clark Fork River near Galen	0.010	0.007 ^J	0.003 ^J	0.005 ^J
CFR-07D	Clark Fork River at Galen Road	0.016	0.007 ^J	0.003 ^J	0.006 ^J
CFR-11F	Clark Fork River at Gemback Road	0.016	0.007 ^J	0.003 ^J	0.008
CFR-18	Clark Fork River at Perkins Lane	0.021	0.010	0.005 ^J	0.011
CFR-27H	Clark Fork River at Deer Lodge	0.023	0.014	0.012	0.019
CFR-34	Clark Fork River at Williams-Tavenner Bridge	0.030	0.014	0.014	0.018
Tributary sites					
SS-25	Silver Bow Creek at Warm Springs	0.009	0.006 ^J	0.004 ^J	0.016
WSC-SBC	Warm Springs Creek near mouth	0.003 ^J	0.010	0.003 ^J	0.002 ^J
ND	Not detected at method detection limit.				
J	Estimated because: (1) result is between method detection limit and analytical reporting limit, or (2) relative percent difference of associated field sample and duplicate pair was above project-specific data quality objective (25 percent).				
	Exceeds chronic aquatic life standard [DEQ, 2019b].				

Table I-7: Mann-Kendall Test Results for Declining Trends for Surface Water COCs in CFROU from 2010-2023

Site ID	Site Location	Analyte							
		Nitrogen, Total	Phosphorus, Total	Arsenic, Dissolved	Arsenic, Total Recoverable	Cadmium, Total Recoverable	Copper, Dissolved	Lead, Total Recoverable	Zinc, Total Recoverable
Mainstem sites									
CFR-03A	Clark Fork River near Galen	X		X	X	X	X	X	X
CFR-07D	Clark Fork River at Galen Road			X	X				
CFR-11F	Clark Fork River at Gemback Road								
CFR-27H	Clark Fork River at Deer Lodge								
CFR-34	Clark Fork River at Williams-Tavener Bridge			X	X		X		
Tributary sites									
SS-25	Silver Bow Creek at Warm Springs	X			X			X	
WSC-SBC	Warm Springs Creek near mouth						X		
FC-CFR	Flint Creek near mouth								

X denotes evidence of a statistically significant trend of declining analyte concentrations from 2010 to 2023

APPENDIX J – DETAILED ARARS 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 Standards

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. The federal standard for lead has become more stringent, but the state standard has remained the same.

Table J-1: Previous and Current Groundwater COC Standards

COC	ARAR Values in 2004 RODs (µg/L)		Current Standards (µg/L)		Change
	State ^a	Federal ^b	State ^c	Federal ^d	
Arsenic	20	10	10	10	State standard is more stringent, but 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	10	Federal standard is more stringent
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 2/23/2026 at https://deq.mt.gov/Portals/112/Water/WQPB/Standards/PDF/DEQ7/DEQ-7.pdf. d. Federal MCLs accessed 2/23/2026 at https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations.					

Surface Water Standards

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 standards. This comparison shows that cadmium now has a slightly more stringent acute aquatic life surface water standard than at the time of the 2004 RODs and a less stringent chronic aquatic life standard. The federal human health surface water criteria has become more stringent for lead, but the state standard has not changed.

Table J-2: Previous and Current Surface Water COC Standards

COC	ARAR Values in 2004 RODs (µg/L)						Current Standards (µg/L)						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*	0.25* ⁱ	5	Federal and state standards aquatic standards changed (acute is more stringent; chronic is less stringent for state standards)
Copper	18* ^h	12* ^h	1,300* ^h	13*	9.0*	1,300	14* ^h	9.3* ^h	1,300 ^h	j	j	1,300	No change
Lead	81*	3.2*	15	65*	2.5*	15	82*	3.2*	15	65*	2.5*	10	Human health value more stringent
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 milligrams per liter (mg/L)

- 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.
- Source: April 2004 CFROU ROD, page A-7.
- Most current Montana Numeric Water Quality Standards – Circular DEQ-7 is June 2019. Accessed 2/23/2026 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.
- National Recommended Water Quality Criteria – Aquatic Life Criteria for freshwater. Accessed 2/23/2026 at <https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table>.
- 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.
- 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.
- Federal MCLs accessed 2/23/2026 at <https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>.
- 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.
- In 2023, the U.S. District Court for the District of Arizona issued an order vacating EPA’s 2016 national recommended chronic freshwater cadmium aquatic life criterion (0.79 µg/L at 100 mg/L). EPA is continuing to evaluate the Order. But as a result, the current national recommended chronic freshwater cadmium aquatic life criterion is from the EPA’s 2001 Update of Ambient Water Quality Criteria for Cadmium, available at <https://www.epa.gov/sites/default/files/2019-03/documents/ambient-wqc-cadmium-2001.pdf>.
- Federal freshwater criteria for copper is calculated using the Biotic Ligand Model (<https://www.epa.gov/wqs-tech/copper-biotic-ligand-model>), which uses pH, dissolved organic carbon, calcium, magnesium, sodium, sulfate, potassium, chloride, alkalinity, and temperature.

APPENDIX K – 2017 INSTITUTIONAL CONTROLS AGREEMENT (MRSOU)

13
JH

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 NE $\frac{1}{4}$ SE $\frac{1}{4}$ AND SE $\frac{1}{4}$ NE $\frac{1}{4}$ OF SECTION 20, THE W $\frac{1}{2}$ OF SECTION 21, THE N $\frac{1}{2}$ OF SECTION 28, THE NW $\frac{1}{4}$ AND THE S $\frac{1}{2}$ OF SECTION 27, AND THE NE $\frac{1}{4}$ NW $\frac{1}{4}$ OF SECTION 34, ALL IN TOWNSHIP 13 NORTH, RANGE 18 WEST, P.M.M., MISSOULA COUNTY, MONTANA, BEING MORE PARTICULARLY 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 SE $\frac{1}{4}$ NE $\frac{1}{4}$ AND NE $\frac{1}{4}$ SE $\frac{1}{4}$ 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.

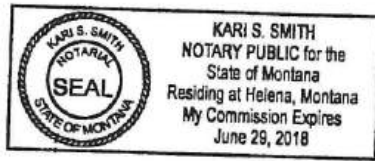
MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

By Tom Livers
Tom Livers, Director

Date: 5/22/17

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

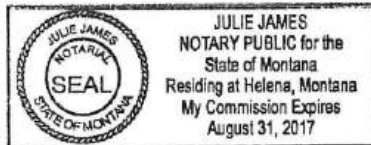
MONTANA DEPARTMENT OF JUSTICE
NATURAL RESOURCE DAMAGE PROGRAM

By 
Harley R. Harris, Program Manager

Date: June 9, 2017

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

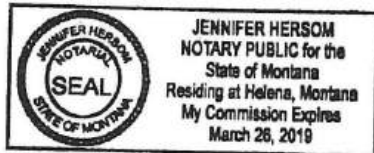
MONTANA DEPARTMENT OF FISH, WILDLIFE, & PARKS

By: *Martha Williams*
Martha Williams, Director

Date: June 29, 2017

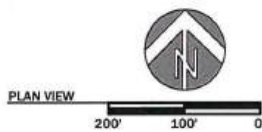
STATE OF MONTANA)
)ss
COUNTY OF LEWIS & CLARK)

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



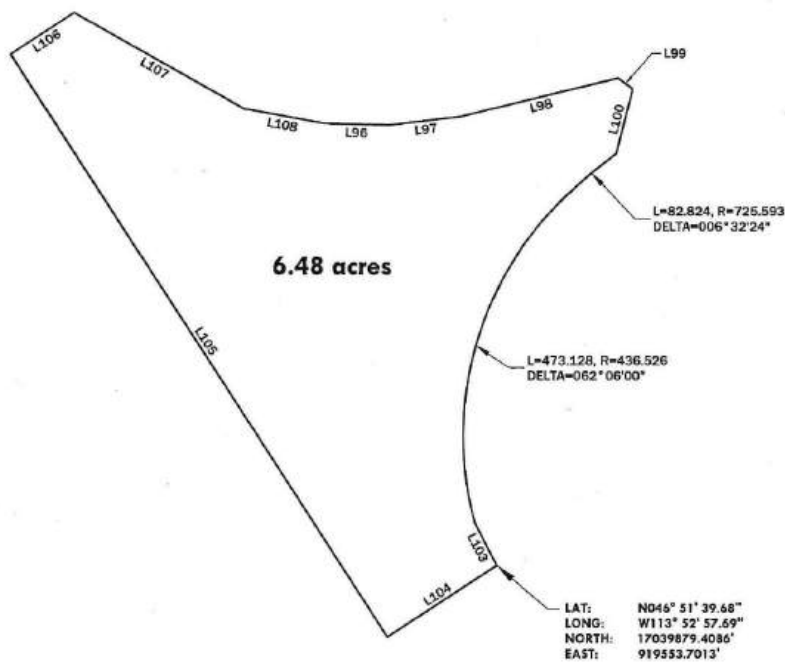
Jennifer Hersom Jennifer Hersom
Notary Public in and for the
State of Montana
Residing at _____
My Commission Expires _____
Printed Name _____

**"EXHIBIT A1"
REPOSITORY INDEX**

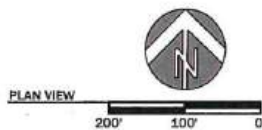


The Basis of Bearing for this exhibit is UTM NAD83 Zone 12 North.
Distances as shown are grid distances in International feet.

"EXHIBIT A2"
UPLAND DISPOSAL SITE REPOSITORY
 Located in a portion of Section 28, Township 31 North Range 18 West,
 Principal Meridian, Montana,
 Missoula County, Montana



LAT: N046° 51' 39.68"
 LONG: W113° 52' 57.69"
 NORTH: 17039879.4086'
 EAST: 919553.7013'

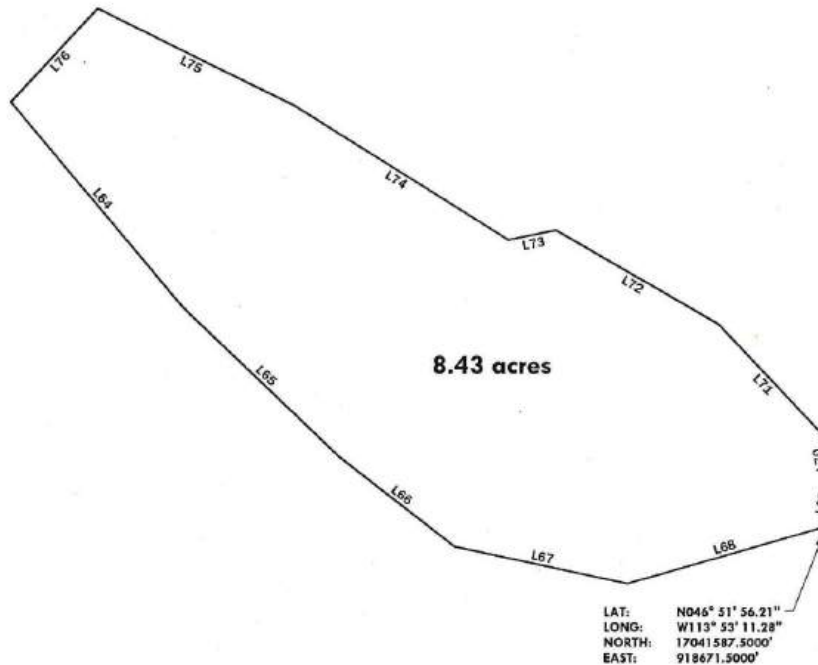


The Basis of Bearing for this exhibit is UTM NAD83 Zone 12 North.
 Distances as shown are grid distances in International feet.

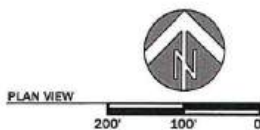
Line Table		
Line #	Direction	Length
L96	S88° 40' 04"E	86.023
L97	N83° 23' 43"E	95.635
L98	N76° 09' 33"E	213.190
L99	S53° 59' 01"E	24.623
L100	S14° 16' 36"W	87.861
L103	S27° 27' 35"E	63.853
L104	S56° 51' 40"W	172.641
L105	N33° 08' 20"W	917.697
L106	N56° 51' 40"E	99.764
L107	S60° 39' 16"E	258.123
L108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

"EXHIBIT A3"
STAGING AREA REPOSITORY

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



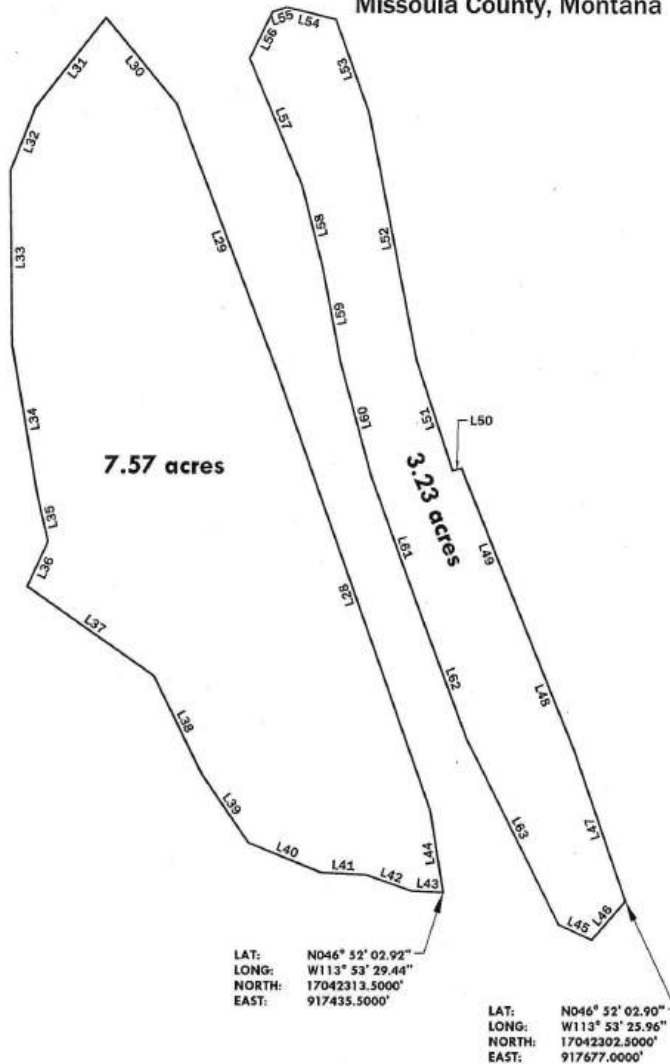
Line Table		
Line #	Direction	Length
L64	S40° 20' 46"E	362.949
L65	S46° 33' 07"E	287.191
L66	S52° 14' 31"E	193.523
L67	S78° 02' 31"E	234.080
L68	N73° 54' 40"E	274.241
L69	N08° 11' 53"E	59.509
L70	N14° 27' 24"W	66.093
L71	N43° 34' 04"W	198.052
L72	N60° 14' 27"W	248.814
L73	S78° 20' 27"W	64.327
L74	N58° 09' 27"W	335.491
L75	N64° 03' 19"W	289.141
L76	S42° 49' 31"W	167.705



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**

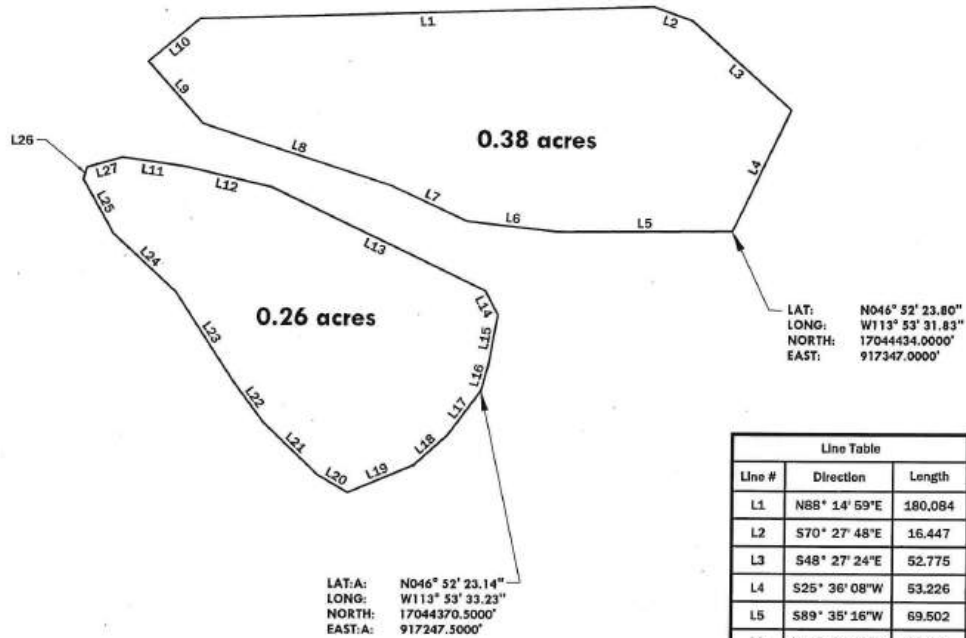
Located in a portion of Sections 20 & 21, Township 31 North Range 18 West,
Principal Meridian, Montana,
Missoula County, Montana



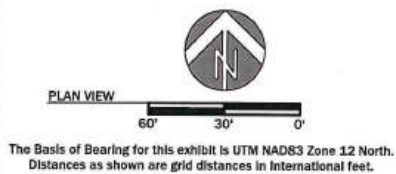
Line Table		
Line #	Direction	Length
L28	N19° 36' 13"W	612.502
L29	N20° 54' 06"W	378.401
L30	N39° 46' 51"W	147.691
L31	S38° 03' 37"W	149.232
L32	S21° 16' 01"W	89.602
L33	S00° 52' 25"E	229.527
L34	S09° 58' 30"E	202.054
L35	S13° 08' 02"E	61.612
L36	S24° 24' 28"W	65.339
L37	S54° 54' 59"E	205.300
L38	S26° 23' 19"E	146.122
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



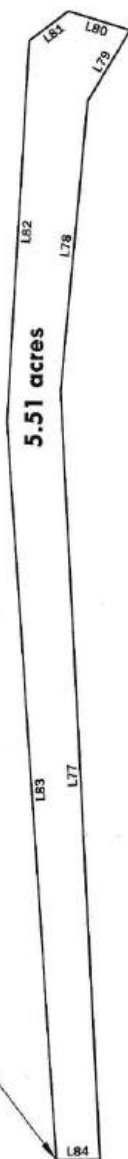
Line Table		
Line #	Direction	Length
L1	N88° 14' 59"E	180.084
L2	S70° 27' 48"E	16.447
L3	S48° 27' 24"E	52.775
L4	S25° 36' 08"W	53.226
L5	S89° 35' 16"W	69.502
L6	N83° 39' 35"W	36.222
L7	N65° 20' 39"W	33.560
L8	N72° 08' 38"W	78.270
L9	N41° 55' 21"W	32.926
L10	N50° 19' 56"E	26.632
L11	S81° 56' 16"E	25.335
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



"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



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