Moving Forward

As early as the 1860s, prospectors began flocking to the Summit Valley in search of wealth and opportunity. They found the "richest hill on earth" with an ore body that would support an industrial revolution and help Allied Forces win two world wars. All told, more than 1 trillion pounds of metals—including copper, zinc, molybdenum, silver, and gold—have been pulled from the Butte Hill, sustaining generations of dedicated miners and the proud community they still call home.

Past methods of underground and open pit mining, and the processes employed to extract and produce the saleable metals from the ore, altered the landscape and left behind enormous deposits of waste generated in mining, milling, and smelting operations that ceased decades ago.

The Anaconda Copper Mining Company (Anaconda Company) was formed in 1895 and became the dominant mining company in Butte in the early 1900s. Atlantic Richfield Company (Atlantic Richfield) purchased the Anaconda Company in 1977 and merged with it in 1981, thereby acquiring Anaconda Company's mining operations in Butte and the environmental conditions arising from Anaconda Company's past operations.

Since that time, much has happened. Following the passage of the Comprehensive Environmental Response, Compensation, and Liability Act ([CERCLA], also known as the Superfund law) in 1980, Atlantic Richfield has worked under EPA orders and directives to actively reclaim and revegetate hundreds of acres of abandoned mining landscapes across the hill; remove more than one million cubic yards of tailings and wastes from the banks of Silver Bow Creek; and capture and treat billions of gallons of contaminated groundwater. At the same time, EPA, the State of Montana, Atlantic Richfield, and the Butte-Silver Bow County government have been working to resolve long-standing disputes over environmental liabilities and the scope of remedy and restoration in Butte. If these disputes are not settled, EPA is likely to issue a unilateral administrative order requiring Atlantic Richfield to perform the next phase of work required under the 2006 record of decision.

If the proposed remedy is adopted, it will provide a path to close this chapter of Butte's history. The EPA and the state, working collaboratively with local Butte-Silver Bow government and Atlantic Richfield, have developed a proposal for a final phase of remedy work that could be incorporated into a consent decree for the Butte Priority Soil Operable Unit (BPSOU). We are pleased to share the proposal with the community to provide you with more information and to get your initial comments and reactions to the proposal. The proposal focuses on these specific areas:

- *Blacktail Creek*
- *Buffalo Gulch*
- *Butte Reduction Works*
- *Compliance Determination Plan*
- *Diggings East*
- *Grove Gulch*
- *Insufficiently Reclaimed Areas*
- *Northside Tailings*
- *Surface Water Technical Impracticability Evaluation*
- *Timeline for Consent Decree*
- *Uncontrolled Surface Flow Areas*
- *Unreclaimed Areas*

Descriptions of the timeline, proposed remedial activities, the compliance determination plan, and the technical impracticability evaluation are provided in this package. The proposal provides a pathway for completing the remedy and integrating the state's restoration actions with remedy at and near the confluence of Blacktail and Silver Bow Creeks. If completed, the proposed remedy work could enable EPA to begin the process to remove the BPSOU from the National Priorities List.

EPA United States Environmental Protection Agency

Atlantic Richfield Company

May 2018

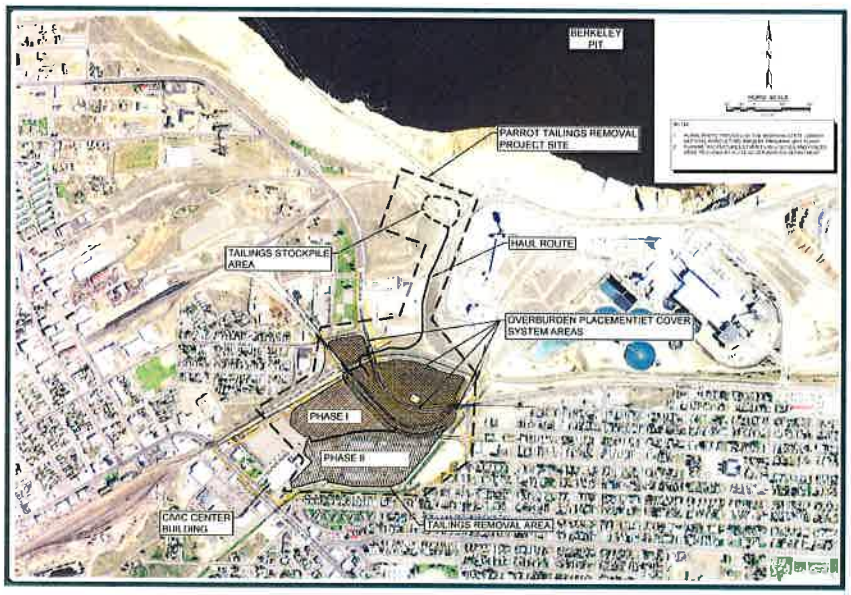
PARROT TAILINGS WASTE REMOVAL PROJECT

Montana Department of Justice
Natural Resource Damage Program

As part of a BPSOU settlement, Atlantic Richfield would provide funding to the State which would be used for certain Blacktail Creek work and for restoration actions coordinated and/or integrated with BPSOU remedy. The State would perform both the Confluence work at Blacktail Creek and the Parrot Tailings Waste Removal as restoration. The Confluence work would be performed by the Montana Department of Environmental Quality (DEQ) as part of its Blacktail Creek work. The Parrot Tailings Waste Removal continues to be implemented through the Montana Natural Resource Damage Program (NRDP).

Parrot tailings waste removal is separated into two phases. Phase 1 activities consist of removal of overburden and waste materials north of Civic Center Road. Phase 2 calls for Civic Center Road adjacent to the BSB Shop Complex to be removed to Texas Avenue and overburden and waste excavated on the south side of Civic Center Road. In order for Phase 2 construction to begin, the BSB Shop Complex would need to be removed once the new facility is constructed. A contractor for Phase 1 work was selected in May. Phase 1 construction should begin in June and be completed by early 2019.

Excess overburden, which includes slag, will be placed nearby beneath an evapotranspiration (ET) cover system in order to minimize the potential for groundwater contamination from overburden. Excavated tailings will be transported to a temporary stockpile location above the Berkeley Pit area within Montana Resources mine permitted area. Montana Resources will then take responsibility of the tailings pursuant to its operating permits, transporting them to an active mining area. Selected rock and fill that is free of contamination will be returned to the site in order to establish grades necessary for post removal land uses.



Periodic updates will provide the latest information about activities at the Parrot Tailings Removal Site.

For More Information: contact the Montana Department of Justice, Natural Resource Damage Program at 406-444-0205, Jim Ford, Project Manager at 406-444-4034, or Pat Cunneen, Environmental Specialist at 406-533-6882

Compliance Determination Plan

Overview: This fact sheet discusses the proposed Butte Priority Soils operable unit (BPSOU) Surface Water Compliance Determination Plan (CDP). The CDP uses two points of compliance in Silver Bow Creek to determine whether the proposed remedy is effective at meeting applicable and relevant and appropriate in-stream surface water standards. If a contaminant of concern (COC) [1] exceeds any of those standards at a compliance point in Silver Bow Creek, the CDP requires an evaluation to determine whether the remedy has been constructed, operated, and maintained as intended. If the remedy is not performing as required, the CDP requires the issue to be corrected by Atlantic Richfield Company (AR) and the other settling defendants.

If the remedy is working as intended and a COC in the creek exceeds an existing surface water standard, the CDP is used to determine whether meeting that standard is technically practicable and whether it should be replaced with federal criteria that are designed, and required by law, to protect fish and other aquatic life in Silver Bow Creek. The Technical Impracticability Waiver summary describes the process for adopting federal water quality criteria as standards in more detail.

Further Information: The CDP, which is currently under development, will describe how compliance with surface water performance standards would be determined for the BPSOU (Figure CDP-1). The completed CDP will be subject to public review and comment as part of the public involvement process for the BPSOU Consent Decree. If implemented, the compliance plan, including its methodology, will be site-specific, and will apply only to BPSOU.

Under the CDP, surface water quality samples will be collected from Silver Bow Creek and Blacktail Creek during high, medium and low water flow conditions. Samples will be collected during "normal flow" conditions, and when stormwater control basins discharge during or following storm events.

Four primary components are included in the CDP:

1) **In-stream Monitoring for Wet Weather and Normal Flow Conditions –** To assess compliance, sampling for COCs during wet weather (when acute standards apply) and normal flow (when chronic standards apply) will occur. Results from sampling will be compared to applicable surface water performance standards. Wet weather compliance monitoring will occur when there is measurable outflow from the primary outlets of the following main stormwater detention/retention basins within the BPSOU: CB-9 in Missoula Gulch, the Diggings East basin, the Buffalo Gulch basin and the Northside Tailings basin, if one is constructed there. When outflow from these basins is not occurring, normal flow compliance monitoring protocols will be applicable. All samples will be analyzed for both total recoverable and dissolved COCs, plus hardness and applicable parameters needed to apply the Biotic Ligand Model. Compliance with in-stream surface water performance standards will be monitored at two established sampling stations in Silver Bow Creek; SS-06G and SS-07. Sample Station SS-06G is near the end of the Butte Treatment Lagoons located just upstream of the Metro Sewer effluent discharge. Sample Station SS-07 is near the downstream end of the BPSOU.

[1] COCs include aluminum (Al), arsenic (As), cadmium (Cd), copper (Cu), iron (Fe), lead (Pb), mercury (Hg), silver (Ag), and zinc (Zn).

2) Compliance Standard Determination – When remedy construction is complete, a monitoring period will follow (the "compliance standard determination period"). During this period, normal and wet weather flow sample results will be compared to applicable acute and chronic performance standards. The comparison is to identify whether performance standards are met and whether further waivers (beyond the proposed up-front acute copper and zinc waivers) are appropriate. Because analyses presented in the Technical Impracticability (TI) Evaluation indicate that the acute total recoverable standard for copper and zinc cannot be met during wet weather conditions, those standards will be proposed for waiver prior to the compliance standard determination period.

The compliance standard determination period will last nine (9) years, and may be extended to observe and sample more or larger wet weather events. To account for BPSOU sampling and analytical uncertainty, the sample results will be reduced by 10 percent of the laboratory-reported concentration for comparison to applicable standards. If the adjusted result, a concentration, is less than or equal to the applicable performance standard, the sample is deemed to be compliant. If the upstream concentration is greater than the downstream concentration for that COC then there is no exceedance of the standard. An exceedance occurs when the adjusted compliance concentration (e.g., at SS-07 or SS-06G) exceeds both the performance standard and the COC upstream concentration.

3) Use of Replacement Standards – One exceedance of the acute or chronic aquatic life performance standard is allowable per 3 years on average for the aquatic life standards and no exceedances are allowed for human health standards. Exceedances under wet weather conditions (acute standards) are counted on a per event basis. During the compliance standard determination period, if any exceedances result from a failure of a surface water related remedial element, or failure to operate or maintain a surface water related remedial element, it does not count as an exceedance for the purpose of selecting replacement standards. If more than three exceedances of a COC are detected in a 9-year period, then the replacement standard for that COC becomes the applicable standard (provided all remedy elements are implemented and functioning). Replacement standards are evaluated and applied on an individual basis. All replacement standards are EPA recommended ambient water quality criteria. The proposed replacement standards described in this fact sheet are national surface water quality criteria promulgated by EPA pursuant to the Clean Water Act as protective of aquatic life. EPA and the State believe a determination could be made that remedial actions involving replacement standards, if required, would be protective of the environment under CERCLA law. Proposed replacement standards are shown in Table CDP-1.

4) Optimization/Additional Work – With construction of the storm water controls described in the modified remedy work plans, as summarized in the RDRA Narratives, all required practicable and reasonable Best Management Practices (BMPs) would be in place. If an exceedance of the acute performance standards for wet weather flow is shown by post-construction monitoring, actions to optimize the effectiveness of the BMPs will be evaluated and implemented under the consent decree terms. If an exceedance of the chronic performance standards for normal flow is shown by post-construction monitoring, additional work, such as groundwater capture system optimization, additional capping/vegetation or in-stream sediment removal, can be required to address these exceedances.

Table CDP-1. In-Stream Surface Water Performance and Replacement Standards

Contaminant	Fraction	Normal Flow Compliance Standard (the More Stringent of the Chronic Aquatic or Human Health Standard)[c]	Wet Weather Event Compliance Standard (Acute Aquatic Standard)[c]	Replacement Standard, if Necessary Based on the Compliance Standard Determination Process Described Below[cd]
Aluminum	Dissolved for Chronic and Acute	87 µg/L	750 µg/L	None – currently in compliance.
Arsenic	Total Recoverable for Chronic and Acute[a]	10 µg/L	340 µg/L	None – elevated normal flow arsenic due to sources upstream of BPSOU. In compliance with acute standard.
Cadmium	Total Recoverable for Chronic and Acute	0.097 µg/L	0.52 µg/L	Acute - 0.49 µg/L, measured as dissolved Chronic – none, currently in compliance
Copper	Total Recoverable for Chronic; Dissolved for Acute[b]	2.85 µg/L	3.6 µg/L	Acute – Biotic Ligand Model[e] Chronic – Biotic Ligand Model[e]
Iron	Total Recoverable for Chronic	1,000 µg/L	NA	Acute – NA None – elevated iron due to sources upstream of BPSOU.
Lead	Total Recoverable for Chronic and Acute	0.545 µg/L	13.98µg/L	Acute - 14 µg/L measured as dissolved Chronic - 0.54 µg/L, measured as dissolved.
Mercury	Total Recoverable for Chronic and Acute	0.05 µg/L	1.7 µg/L	None - acute standard currently in compliance. Occasional exceedances of human health standard are addressed in stipulated penalty and Additional Work provisions.
Silver	Total Recoverable for Acute	NA	0.374 µg/L	Acute - 0.30 µg/L, measured as dissolved.
Zinc	Total Recoverable for Chronic; Dissolved for Acute[b]	37 µg/L	36 µg/L	Acute – applicable Federal standard at time of Compliance Standard Determination Chronic – none, currently in compliance.

NOTES:

a. The DEQ-7 standards for aluminum refer to the dissolved fraction and do not represent a waiver of a ROD standard.

b. These standards are the proposed waived-to standards replaced with federal water quality criteria based on section 121(d)(4)(C) of CERCLA, 42 U.S.C. § 9621(d)(4)(C), referred to as the technically impracticability waiver.

c. Standards for cadmium, copper, lead, silver and zinc are hardness dependent. Values shown are calculated at a hardness of 25 µg/L unless otherwise shown.

d. Numeric replacement standards identified in this column are based on published federal water quality criteria, See https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table.

e. The BLM standard in place at the time of compliance standards determination for both chronic and acute conditions. For acute conditions (wet weather events), The BLM standard or any other appropriate EPA-approved methodology that will perform in non-equilibrium conditions such as stormwater or diel pH cycling shall be used.