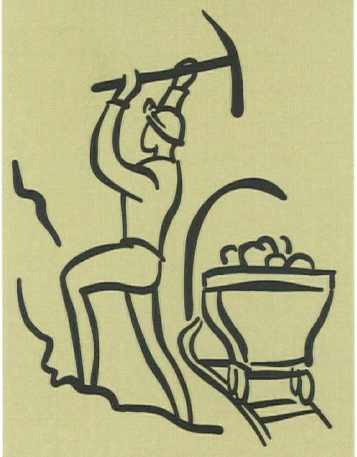
1264418 - R8 SDMS

Butte Priority Soils Operable Unit
REMEDIATION

Bulletin #19 **July 11, 2013**



Montana Department of Environmental Quality

Cleanup activities for the Butte Priority Soils Operable Unit (BPSOU) began in 1987. These actions (Time-Critical Removal Actions and Expedited Response [Non-Time Critical Response] Actions) were taken to address immediate and significant human health and environmental risks. EPA did not want to delay this cleanup work until the Remedial Investigation/Feasibility Study and Record of Decision (ROD) was completed. After these actions were taken the ROD was approved in 2006. Major components of remediation have been completed in the BPSOU since the ROD was issued. The following discussion and tables illustrate what has been completed, what is ongoing, and an estimated time of completion for each.

Cleanup Activities Completed Prior to the ROD

Approximately 422 acres of land were addressed using the expedited Superfund removal process. The early response actions were designed and constructed in a manner consistent with the final remedy.

Time-Critical Removal Actions

- Walkerville (1988) – Addressed certain waste dumps and residential soil areas with contaminated lead and/or mercury
- Timber Butte Mill (1989) – Removed and consolidated contaminated soils
- Butte Priority Soils (1990 and 1991) – Addressed risks from certain mine waste dumps, a concentrate spill, and seven residential yards in Butte and Walkerville
- Colorado Smelter (1992) – Removed and consolidated onsite contaminated soils
- Anselmo Mine Yard and Late Acquisition/Silver Hill (1992) – Addressed a mine yard and several mine dumps in Butte
- Walkerville II (1994) – Addressed four additional dump areas with elevated soil lead levels
- Storm Water (started in 1995) – Partially addressed storm water issues in Butte, including removal of mercury contaminated soils and diversion of contaminated storm water
- Railroad Beds (started in 1999) – Addressed contaminated railroad beds and adjacent residential yards that contain elevated concentrations of metals
- Walkerville (2000/2001) – Addressed additional residential dumps with elevated metals levels

Railroad Time-Critical Removal Action

Expedited Response (Non-Time Critical Response) Actions

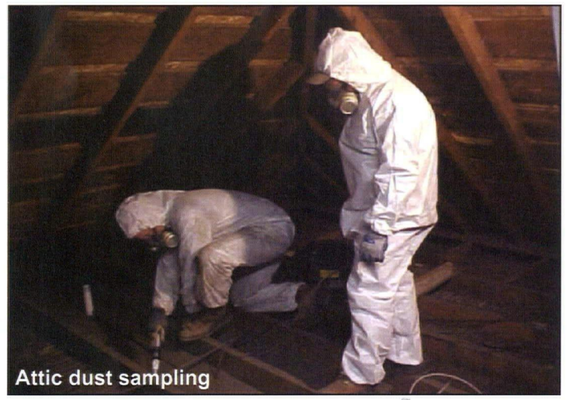
- Lower Area One -and incorporated into the ROD – Removed accessible mine tailings and contaminated soils from the Silver Bow Creek floodplain at the Colorado Tailing and Butte Reduction Works areas and installed a groundwater interception and treatment system
- BPSOU (1994-and incorporated into the ROD) – Started to address certain residential areas with soil-lead concentrations above the residential action levels as part of the Residential Metals Abatement Program
- Lower Area One Manganese Removal (1992) – Removed manganese ore stockpiles located within the flood plain of Silver Bow Creek
- Old Butte Landfill/Clark Tailings (1998) – Completed Resource Conservation Recovery Act (RCRA) corrective action at the landfill in combination with Superfund removal actions

Status of Cleanup Activities Included in the ROD

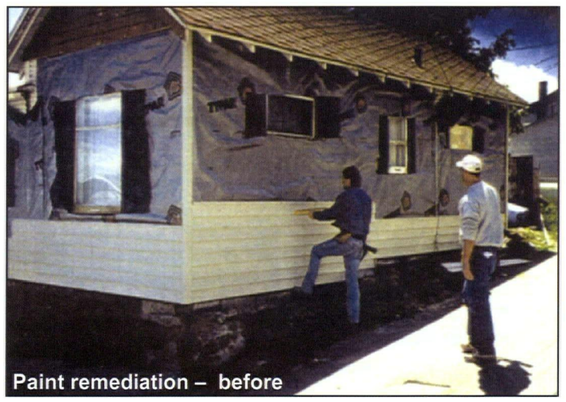
Residential Contamination Activities

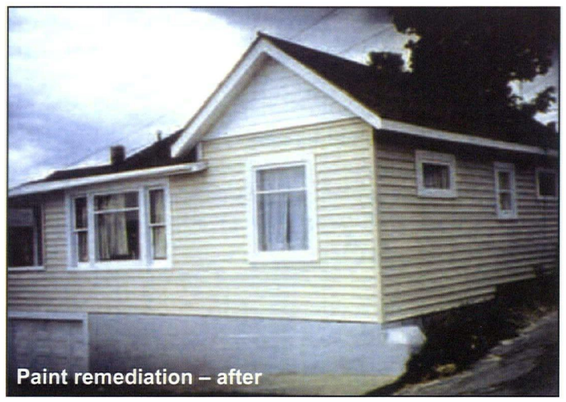
The Residential Metals Abatement Program (RMAP) aims to reduce risk from exposure to high metals. The RMAP includes comprehensive procedures for sampling, remediation, medical monitoring, community outreach, and overall property characterization and remedial status tracking.

Activity Description	Complete	Ongoing	Estimated Completion
Final Multi-Pathway RMAP Plan	X		
RMAP assessments		X	2019
RMAP cleanups including attic dust		X	2029
Community outreach and education		X	Ongoing
Health studies and medical monitoring		X	Ongoing
Long term tracking methods (database)		X	Ongoing
Anaconda Sampling Worksite 137	X		
PA012 Dump Site 113	X		
33 West Missoula	X		


Attic dust sampling

Yard remediation

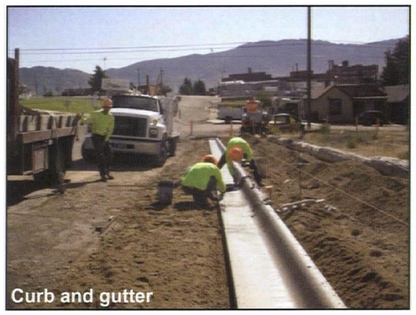

Paint remediation – before


Paint remediation – after

Non-Residential Solid Media Contamination Activities

Contaminated solid media located in non-residential areas at the BPSOU site include waste rock piles, smelter wastes, milling wastes, and contaminated soils. Concentrations of metals in solid media in non-residential areas (commercial areas, open areas, and non-active mining areas) may exceed action levels. These areas may also pose a threat to the environment as a result of storm water runoff.

Activity Description	Complete	Ongoing	Estimated Completion
Source areas that were recently reclaimed due to exceedances of arsenic and/or lead action level(s)			
Goldsmith Dump Site 161	X		
Arctic Site 1530	X		
Wake Up Jim Site 161 – moved to Granite Mountain Area and will not be reclaimed	X		
Small waste areas surrounding Clark Mill Tailings repository	X		
Caledonia Street	X		
Moose Dump Site 12	X		
Source areas not exceeding arsenic and/or lead action level(s) but impacting surface water quality that were or will be reclaimed			
Back Fill 007 Site 65	X		
Unnamed Dump Site 148	X		
New and Mahoney Street	X		
413 Boardman Street	X		
Jenny Dell Site 33	X		
Kelly Mine yard entrance	X		
North Wyoming Street	X		
800 North Main			2013
North Corner of Granite and Arizona	X		
Green Mountain Shaft	X		
Streambanks, sediment, and over bank deposits from the Blacktail Creek/Metro Storm Drain confluence area to Lower Area One	X		
424 North Washington Street	X		
131 West Copper Street	X		
20 additional sites identified in 2010	X		
Other sites			
Sites within the Granite Mountain Memorial Area	X		
Syndicate Pit	X		
Butte mine waste repository	X		
Sites not granted a "conditional and limited no further action" status in the Response Action Summary Document			
Colorado Smelter	X		
Lower railroad yard site 1	X		
Other activities			
Maintain non-residential solid media sites to Butte Reclamation Evaluation System standards		X	Ongoing


Curb and gutter

Sediment basin

Groundwater Activities

To prevent contaminated groundwater from entering adjacent surface water sources and to prohibit domestic use of groundwater influenced by mining related wastes, a wide range of studies and remedial actions have been performed at the BPSOU.

Activity Description	Complete	Ongoing	Estimated Completion
Metro Storm Drain (MSD) sub drain installation	X		
Wetland demonstration area		X	2014
Irrigation controls and monitoring at the Parrett Tailings		X	Ongoing
Localized groundwater study		X	2013
Perform MSD groundwater flow monitoring		X	Ongoing
Butte Reduction Works (BRW) East End Grading and MSD/BRW Upgrades work plans	X		
Culvert removals in Silver Bow Creek	X		
BRW groundwater and surface water monitoring		X	Ongoing
Conduct abandoned aqueduct study		X	2014
Implement abandoned aqueduct study recommendations			2014
Prepare MSD sub drain groundwater management report		X	2013
Implementation of selected MSD improvement action after reviewing MSD sub drain groundwater management report		X	2013
Implementation of the revised groundwater monitoring program		X	2013

Installation of groundwater capture system at MSD

Groundwater control structure

Installation of groundwater monitoring wells

Additional sampling of drill cores

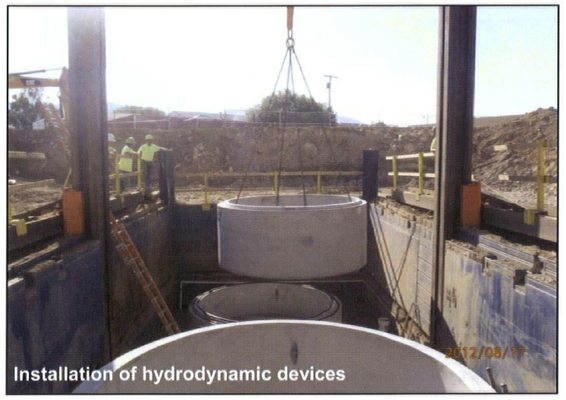
Surface Water Activities

The Selected Remedy for surface water is directed at achieving the primary objectives of meeting applicable or relevant and appropriate requirements, returning Silver Bow Creek to its beneficial uses, and protecting downstream receptors from releases of contamination from BPSOU. Recent remedial design and action efforts have been focused on improving the quality of storm water that discharges from the BPSOU into receiving streams.

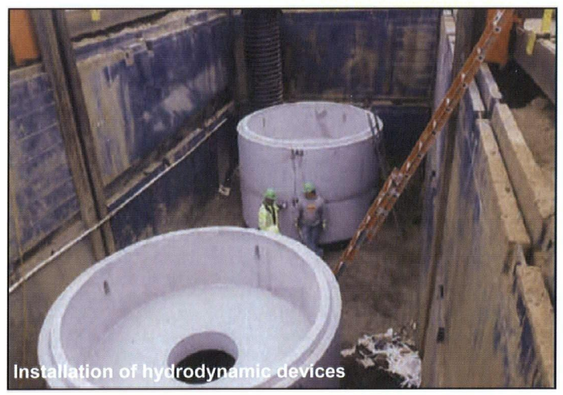
Activity Description	Complete	Ongoing	Estimated Completion
Upfront storm water best management practices (BMPs)			
Cleanout and maintenance of the Butte Silver Bow's storm water system		X	Ongoing
Addressing illicit sewer connections		X	Ongoing
Implementation of curb and gutter program		X	2013
Installation of storm water catch basin in Buffalo Gulch		X	To be determined
Capping and vegetation of waste dumps contributing to storm water contamination		X	Ongoing
Installation of hydrodynamic devices			
Anaconda Road/Butte Brewery	X		
Lower Buffalo Gulch	X		
Texas Avenue	X		
Warren Avenue	X		
Montana Street	X		
Other activities			
Sediment removal from Blacktail Creek and Silver Bow Creek channels		X	To be determined
Surface water management for base flow remediation		X	To be determined
In-stream flow of augmentation		X	To be determined
Further BMP evaluation, selection, and implementation		X	To be determined

Stream bank waste removal

Stream bank restoration



Installation of hydrodynamic devices

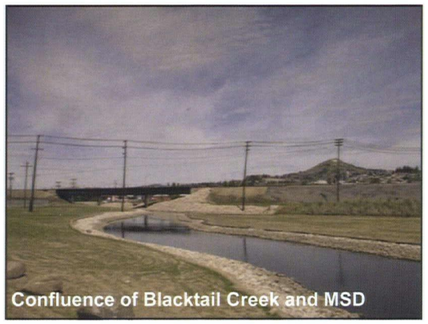

Installation of hydrodynamic devices

Lower Area One (LAO) Groundwater Treatment Facility

The Selected Remedy for the groundwater treatment facility includes retention, upgrades, and continued operations of the lagoon system for treating captured and routed groundwater prior to discharge to Silver Bow Creek. Recent design and remedial action work included multiple upgrades to the existing Butte Treatment Lagoons (BTL).

Activity Description	Complete	Ongoing	Estimated Completion
Phase I			
Upgrade West Camp pump station	X		
Upgrade of treatment lagoons outlet structures		X	2013
Replace existing automatic sampling building and effluent station		X	2013
Construct new influent pump station		X	2013
Phase II			
Improvements at BTL		X	2013
Upgrade existing chemical addition system		X	2013
Improve BTL access roads		X	2013
Construct new operations building		X	2013
Revegetation of BTL construction areas		X	2014
Long-term plans			
Water management plan		X	2013
Sludge management plan	X		
Instrumentation, controls, and monitoring plan	X		
Construction reports for MSD vault upgrades	X		

Sludge repository at BTL


Confluence of Blacktail Creek and MSD

Monitoring and Compliance Requirements

The Selected Remedy for groundwater, surface water, and storm water requires an aggressive monitoring program for the entire groundwater alluvial aquifer and for the surface water sources. All monitoring data collected under the monitoring programs are periodically reviewed to determine whether the Selected Remedy remains effective.

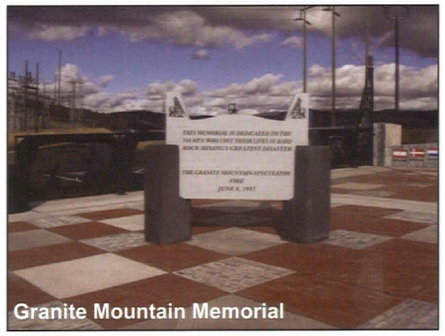
Activity Description	Complete	Ongoing	Estimated Completion
Surface Water			
Implement a revised interim surface water monitoring plan		X	Ongoing
Perform wet weather sampling – automatic and opportunistic sampling		X	Ongoing
Review surface water data summary reports and final surface water monitoring plan		X	Ongoing
Groundwater			
Implement the revised interim groundwater monitoring plan		X	Ongoing
Provide operations and maintenance of groundwater wells		X	Ongoing
Review groundwater data summary reports		X	Ongoing

Institutional Controls Requirements

The institutional controls (IC) in the Selected Remedy are non-engineering tools that serve to protect the response actions (past and future) from degradations. The four basic IC categories used are: governmental, proprietary, informational, and enforcement/permitting. The specific Selected Remedy IC tools and the status of each are provided below.

Activity Description	Complete	Ongoing	Estimated Completion
Establish controlled groundwater area and other controls for the alluvial aquifer in the technically impracticability zone to prevent domestic use	X		
Implementation of BSB's zoning, ordinance, and permit requirements for storm water controls, protection of capped mine materials, and removal and disposal of contaminated soils		X	Ongoing
Implement deed notices under Montana state law for capped and waste left in place areas		X	Ongoing
Install fences and signage to prevent remedy disruption		X	Ongoing

New road to Granite Mountain Memorial

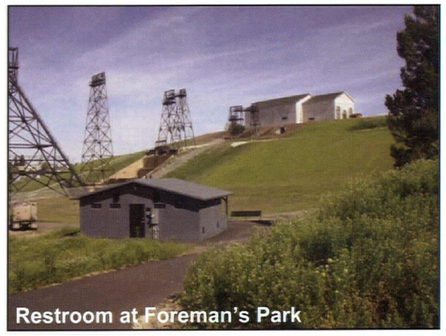

Granite Mountain Memorial

Operations and Maintenance (O&M) Activities

The Selected Remedy requires the development of long-term and integrated comprehensive monitoring and O&M plans for all aspects of the Selected Remedy within the BPSOU.

Activity Description	Complete	Ongoing	Estimated Completion
Implementation of the Active and Inactive Railroad O&M plans		X	Ongoing
Implementation of the BTL O&M plans		X	Ongoing
Implementation of the West Camp O&M plan		X	Ongoing
Implementation of the MSD groundwater capture system O&M plan		X	Ongoing
Implementation of the Repository O&M Plan		X	Ongoing
Implementation of the storm water catch basins, hydrodynamic devices, and other O&M plans		X	Ongoing

Foreman's Park


Restroom at Foreman's Park

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Do You Need More Information?

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