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Response to Comments for 2020 BPSOU UAO submittal: Revised Final Multi-Pathway Residential Metals Abatement Program Plan (received January 21, 2021)

Mike McAnulty

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Atlantic Richfield Company

317 Anaconda Road
Butte MT 59701

Mike Mc Anulty
Liability Manager

Direct (406) 782-9964
Fax (406) 782-9980

November 19, 2021

Nikia Greene
Remedial Project Manager
US EPA – Montana Office
Baucus Federal Building
10 West 15th Street, Suite 3200
Helena, Montana 59626

Erin Agee
Senior Assistant Regional Counsel
US EPA Region 8 Office of Regional Counsel
CERCLA Enforcement Section
1595 Wynkoop Street
Denver, CO 80202
Mail Code: 8ORC-C

Daryl Reed
DEQ Project Officer
P.O. Box 200901
Helena, Montana 59620-0901

Jonathan Morgan, Esq.
DEQ, Legal Counsel
P.O. Box 200901
Helena, Montana 59620-0901

RE: Response to Comments for 2020 BPSOU UAO submittal: Revised Final Multi-Pathway Residential Metals Abatement Program Plan (received January 21, 2021)

Agency Representatives:

On behalf of Atlantic Richfield Company and Butte-Silver Bow (BSB), this response is being submitted to address Agency comments received January 21, 2021, related to the Revised Final Multi-Pathway Residential Metals Abatement Program (RMAP) Plan. The revised plan is available at the link below:

https://pioneertechnicalservices.sharepoint.com/:b:/s/submitted/EfwAYMYX5rJMk0h-_8_12jIBYFivdw2ysvhWjryOfmjsBg

General Comment:
The Agencies comments on the RMAP QAPP were provided previously but have not yet been incorporated or addressed. A revised, approved RMAP QAPP is needed prior to the commencement of the 2021 field season. Additionally, please consider adding guidelines of the Clark Fork River Superfund Site Investigations (CFRSSI) Data Management/Data Validation Plan Addendum (ARCO, 2000a), to the site specific RMAP QAPP to limit reference and confusion.

Atlantic Richfield Response: The RMAP QAPP is being revised to include program changes and components described in the 2020 Unilateral Administrative Order (UAO) and will be submitted for Agency review and approval as a separate submittal.

Atlantic Richfield Company

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

Specific Comments:

1. *Purpose Statement. In the first sentence, please correct the acronym for Butte Priority Soils Operable Unit to "BPSOU".*

   Atlantic Richfield Response: The text has been revised.

2. *Section 1. Please modify the second sentence to read: "Figure 1 shows the 2020 RMAP boundary, which encompasses…"*

   Atlantic Richfield Response: The text has been revised as requested.

3. *Section 1.1. In the third sentence, please define "Explanation of Significant Differences (ESD)". In the fourth, fifth, and sixth sentences, correct text to read "2020 ROD Amendment" rather than "2019 ROD Amendment." As described in Section 2.2.1 of the 2020 UAO SOW, administering and sampling areas of new development are not discussed within RMAP. Also, it should be noted in this section that EPA and DEQ will be notified of any elevated blood lead case resulting from drinking water issues identified in the 2020 RMAP expansion area. Please revise accordingly here in Section 1 or other suitable location in the RMAP plan.*

   Atlantic Richfield Response: "Explanation of Significant Differences" has been defined and referenced and can be referred to for additional information as needed.

   Text in the fourth, fifth, and sixth sentences has been corrected to read 2020 ROD Amendment as appropriate.

   Item 4 has been updated to include "Administering and sampling areas of new development are addressed through protocols described in the BPSOU Institutional Control Implementation and Assurance Plan (ICIAP) (BSB and Atlantic Richfield, 2019) and BSB Excavation and Dirt Moving Ordnance."

   Reporting of elevated blood lead levels will be completed in accordance with the Medical Monitoring Plan. Residential water sampling will only be included in elevated blood level evaluations where exposure pathways to other potential causes (i.e., lead-contaminated soil, dust, or paint) are not apparent. Appropriate language will be incorporated into the Medical Monitoring Plan.

4. *Section 1.1, Item 1. The new boundary of the RMAP program should be referred to as the "2020 RMAP Area", not the "RMAP Expanded Area". Use of "2020 RMAP Area" will help limit confusion over previous adjustments made expanding the RMAP outside the BPSOU*

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Butte MT 59701
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Fax (406) 782-9980

boundary. Modify the second sentence to read: "…of BSB and also includes the 2006 ROD Adjacent Area and the 2011 ESD attic expansion area."

Atlantic Richfield Response: Text has been revised.

5. *Section 1.1, Item 3, Schedule. The schedule for assessing and cleanup of the residential properties in the BPSOU has not changed and is still as described in the 2006 ROD, the 2011 ESD, and the 2020 RODA, and in the BPSOU Site 2020 UAO Amendment SOW. It is EPA and DEQ's primary concern and intent – in priority over all other studies and remedial actions – that all residential properties within the BPSOU get sampled so that cleanups can occur in a prioritized manner. Strike the text in Item 3 and replace with the following text: "3. Schedule: The 2011 ESD modified the time allotted for assessment and abatement of all residential properties within the BPSOU. The 2011 ESD required three attempts to perform assessments of all residential yards within the BPSOU to occur in 10 years and all contaminated residential yards within the BPSOU to be remediated in 20 years, except for those properties for which access cannot be obtained. On November 16, 2020, the 10- and 20-year timeframes began as goals for completion of these activities in the BPSOU. The assessment and remediation of properties outside of the BPSOU and within the 2020 RMAP boundary are not subject to these 10- and 20-year timeframes.*

   Atlantic Richfield Response: The text has been revised as recommended.

6. *Section 1.1, Item 4, Properties. The 2020 UAO SOW describes residential properties within commercial/industrial areas as a type of property to be included in the program. Please include industrial to property descriptions here and elsewhere, as appropriate, within RMAP plan.*

   Atlantic Richfield Response: The text has been revised to include commercial/industrial properties with residential living quarters.

7. *Section 1.2. In the first sentence, the eligibility requirements are not specified in the 2020 ROD Amendment. Please cite the document where the eligibility requirements are defined. In Eligibility Criteria 1 and 3, the 1980 age criteria applies only to attic dust sampling; in other words, homes, schools, or dormitories built after 1980 could have been constructed on contaminated solid media and, thus, would be eligible for soil and/or earthen basement sampling under the RMAP. Insert the following sentence in the first paragraph: "…cooperation of property owners and occupants. Assessment and sampling of attics will only occur in residential structures constructed wholly or partly before 1980. In addition to being…" Modify Eligibility Criteria 1 to read: "The property consists of a residential structure*

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317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

(with or without a residential yard) that is used for primary occupancy and can be categorized as:". Modify Eligibility Criteria 3 to read: "The property is utilized as a school or dormitory and can be categorized as:".

Atlantic Richfield Response: BSB and Atlantic Richfield are not aware of a document available to cite defining program eligibility. Eligibility was established based on residential use properties located in the area where elevated contaminant of concern (COC) concentrations related to historic mining operations may exist. The text has been revised as recommended. Reference to the ROD Amendment has been removed.

8. *Section 2. In the first paragraph, note that the CPMP is in Appendix F of the ICIAP and revise the definition of ICIAP to "(ICIAP) (AR, 2019)". The text states that periodic mailings will be sent to property owners in the BPSOU. Please modify this sentence to indicate mailings will be provided to property owners within the 2020 RMAP Area.*

   Atlantic Richfield Response: Periodic program reminders and announcements will be communicated by BSB using public service announcements using print, broadcast, and social media outlets. This form of outreach is not geographically limited. Specific mailing efforts to eligible properties will be limited to BPSOU. Program reminders for properties outside of BPSOU, but within the 2020 RMAP Area, may be provided as an informational insert within utility water billing information on a quarterly basis at the discretion of BSB.

9. *Section 3. In the second sentence, please add a bullet after the sixth bullet to say "Residential properties located in census block groups identified as potential EJ areas".*

   Atlantic Richfield Response: The text has been revised to "Residential properties located in census block groups identified as potential Environmental Justice (EJ) areas within BPSOU."

10. *Section 3. In the 2nd and 3rd bullets, it is stated that the "level of concern dependent upon speciation". Please clarify what this means and specify the speciation-specific thresholds. The use of the term "secondary residence" in the 4th bullet implies that the preceding bullets were specific to "primary residences". Please specify this in the bullets and provide a description of how each type of residence is defined. The 7th bullet is incomplete and should be modified to read as follows: "Residential properties with no children, but with one or more sources (paint, water, soil, house dust) with a lead concentration that exceeds the 95th percentile as determined by the Butte-Silver Bow (BSB) Environmental Health Lead Study (University of Cincinnati, 1992). Particular attention should be given to homes built prior to 1940."*

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

Atlantic Richfield Response: The text about speciation has been deleted from the RMAP Program Plan. Speciation-specific thresholds are described in the Medical Monitoring Plan.

A primary residence is where a person lives for the majority of time and that is considered their home for legal and tax purposes. A secondary residence may be classified as any residence where an individual resides or visits routinely but less frequently than their primary residence and/or receives secondary custodial care (i.e., shared custody, grandparents, other relative[s], etc.).

11. *Section 4. Throughout this section and the document please revise EJ to either "potential EJ concerns and/or potential EJ areas."*

Atlantic Richfield Response: The text has been revised as recommended.

12. *Section 4. In the first paragraph, second and third sentence, please change "Environmental justice concerns are addressed by providing environmental assessments for any property owner that participates in the program and provides access for environmental assessment and remediation activities. Each year, the Program concentrates on specific areas within the Program area and the residents of every property in these focus areas are offered educational material and the opportunity to participate in the free Program." To "Potential environmental justice concerns are addressed by providing environmental assessments as a priority (Section 3) for potential environmental justice areas. Any property owner that participates in the program and provides access for environmental assessment and remediation activities will be scheduled for assessment and potential environmental justice areas will be prioritized to receive assessments in order of highest priority to lowest (Section 3). Each year, the Program will concentrate on specific areas, making potential EJ areas a priority, within the Program area and the residents of every property in these focus areas are offered educational material and the opportunity to participate in the free Program."*

Atlantic Richfield Response: The text has been revised to "The respective property of any property owner within BPSOU that participates in the program and provides access for environmental assessment and remediation activities will be scheduled for assessment. Potential EJ concerns will be addressed by prioritizing properties within potential EJ areas when conducting community outreach and planning for and completing environmental assessments (Section 3). Assessments will be scheduled and completed for participating properties in order of highest priority to lowest priority following BSB evaluation of prioritization criteria of reach participating property (Section 3). Each year, the Program will concentrate community outreach efforts on potential EJ areas in BPSOU. Community outreach to potential EJ areas may be conducted consistent with the recommendations provided within

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

the BPSOU Community Engagement Plan for Remedial Design & Remedial Action (Atlantic Richfield, 2021a)."

13. *Section 4. In the last paragraph, please add "In EPA's Environmental Justice Action Plan for Butte, December 2020, EPA focused on the potential environmental justice needs of the area covered by the RMAP. Please include environmental justice goals in the RMAP plan and identify concrete steps to meeting them. Reference, or include as an attachment, EPA's action plan. Additionally, please note that EPA will support the RMAP efforts in developing a map to determine potential environmental justice areas.*

    Atlantic Richfield Response: The text has been revised to include "In EPA's EJ Action Plan for Butte (EPA, 2020b), EPA focused on the potential EJ needs within BPSOU of the area covered by the RMAP. The Program will adopt the use of the EJSCREEN tool to identify potential EJ areas within BPSOU. Properties identified to be within a potential EJ area of BPSOU will be prioritized to receive annual community outreach materials in general accordance with direct communication methods identified within the BPSOU Community Engagement Plan for Remedial Design & Remedial Action (Atlantic Richfield, 2021). Properties within potential EJ areas of BPSOU that elect to participate in the program will be prioritized for assessment and abatement, as necessary, in accordance with Section 3." Additionally, the WIC program specifically targets the EJ community within Butte-Silver Bow.

    BSB and Atlantic Richfield feel it is difficult to provide numeric goals or objectives for potential EJ areas as program success is dictated by voluntary participation. EPA's EJ Action Plan has been referenced within the RMAP Program Plan. Additional clarification for EJ goals is requested to be provided by the Agencies.

14. *Section 5. Please rename Section 5 as "Residential Assessment and Remediation Timeframe" and change the table of contents accordingly. Delete the text in this section and replace with the following:*

    "The 2011 ESD modified the time allotted for assessment and abatement of all residential properties within the BPSOU. The 2011 ESD required three attempts to perform assessments of all residential properties (including residential quarters within commercial/industrial properties) within the BPSOU to occur in 10 years and all contaminated properties within the BPSOU to be remediated in 20 years, except for those properties for which access cannot be obtained. In November of 2020, the 10- and 20-year timeframes began as goals for completion of these activities in the BPSOU. The 2011 ESD stated that three attempts (by mail or other documented means) to obtain access from the current owner of record for sampling or remediation, without success, meets the directive for outreach and assessment of BPSOU residential yards, understanding that assessment and any required remediation will be

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

conducted later, when and if access is obtained to that property for RMAP purposes in the future. EPA will provide support to gain access as described in the ICIAP.

For residential properties outside of the BPSOU but within the 2020 RMAP Area, and properties used for outdoor residential or recreational purposes and properties used as a school or dormitory as described in Section 1.2, the program does not have a fixed schedule or duration of time established but a target of 20 years is established for assessing these properties. The 20-year target was set to coincide with completion of residential remediation within the BPSOU.

Environmental assessment of schools, playgrounds and play areas will begin in 2021. A systematic schedule to complete environmental assessments of structures and properties presently utilized as schools, playgrounds and play areas will be proposed annually, upon submittal of required RMAP QAPP revisions. The annually proposed implementation schedule will account for the results of previously completed environmental assessments, provision of access, and the availability of Program resources to implement and oversee subsequent environmental assessments and remediation, if required. Environmental assessment and remediation (if required) of schools and associated playgrounds and play areas will be scheduled to coincide with the school's summer vacation period. Environmental assessment and remediation (if required) of playgrounds and play areas within designated parks will be coordinated with the entity responsible for their management (e.g., BSB Parks and Recreation)."

Atlantic Richfield Response: The text proposed by EPA has been incorporated into the RMAP Program Plan with minor exceptions, as indicated in strikeout below. A schedule of program environmental assessments will be provided annually with revisions to the RMAP Non-Residential QAPPs.

The text has been revised in the Plan without stricken text shown as provided below:
"~~The 2011 ESD modified the time allotted for soil assessment and soil abatement of all residential properties within the BPSOU.~~ The 2011 ESD (EPA, 2020a) required 3 attempts to perform assessments of all residential properties (including residential quarters within commercial/industrial properties) within the BPSOU to occur in 10 years and all contaminated properties within the BPSOU to be remediated in 20 years, except for those properties for which access cannot be obtained. In November of 2020, the 10- and 20-year timeframes began as goals for completion of ~~these~~ assessment and remediation activities of residential properties in the BPSOU. The 2011 ESD also stated that 3 attempts (by mail or other documented means) to obtain access from the current owner of record for sampling or remediation without success meets the directive for outreach and assessment of BPSOU residential yards, understanding that assessment and any required remediation will be conducted later, when and if access is obtained to that property for RMAP purposes in the future. Three attempts ~~EPA will provide support~~ to obtain access to conduct assessment

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

activities of residential properties will continue to meet the outreach objective of the Program. EPA will provide support to gain access, as described in the ICIAP (BSP and Atlantic Richfield, 2019), to properties whose owners refuse to provide Program access for completion of assessment and/or remediation activities.

For residential properties, designated parks and playgrounds, and schools and dormitories outside of the BPSOU but within the 2020 RMAP Area~~used as a school or dormitory as described in Section 1.2~~, the Program does not have a fixed schedule or duration of time to complete assessment and any potentially required remediation activities. However, ~~established but~~ a ~~target~~ goal of 20 years is established for completing ~~assessing~~ assessment of these properties. ~~The~~ This 20-year target ~~was~~ has been set to coincide with the anticipated completion of residential remediation within the BPSOU.

A systematic schedule to complete environmental assessments of structures and properties presently utilized as schools, playgrounds, and play areas will be proposed annually, upon submittal of required RMAP QAPP revisions. The annually proposed implementation schedule will account for the results of previously completed environmental assessments, provision of access, and the availability of Program resources to implement and oversee subsequent environmental assessments and remediation, if required. Environmental assessment and remediation (if required) of playgrounds and play areas within designated parks will be coordinated with the entity responsible for their management (e.g., BSB Parks and Recreation)."

15. *Section 6.2. Please modify the first sentence to read: "Residential property outside of BPSOU, but within the 2020 RMAP Area shown on Figure 1, will…". Insert the following new sections:*

"Section 6.4 BPSOU Rental Property Access"

Rental properties may require special attention, particularly if children are involved and the landlord is refusing access to the property. The process for obtaining access to rental properties is the same as that described in Section 6.1 for residential properties. If access to a rental property cannot be obtained through the standard process, EPA/DEQ will be notified to initiate extra steps to obtain access, particularly if children may be impacted. These steps include additional phone contacts, certified mailings, setting up a private meeting with the landlord, and, if necessary, legal action in order to obtain access.

"Section 6.5 BPSOU Properties with Incompatible Uses"

Within the BPSOU, there are instances of usage or activities on properties that are incompatible with an RMAP remedy or the Butte Reclamation Evaluation System (BRES) reclaimed caps over mine waste or soils with elevated metals. Known examples include

Atlantic Richfield Company

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

pasturing of animals and industrial activities that compromise cap integrity. These cases will be referred to EPA/DEQ and handled on a case-by-case basis as each situation is unique.

Follow-on actions by EPA/DEQ include additional phone contacts, certified mailings, setting up a private meeting with the landowner, and, if necessary, legal action in order to obtain access and/or improve site conditions consistent with maintaining the remedy. BSB will monitor future changes in ownership annually; if ownership changes, EPA/DEQ will be notified and renewed steps, as necessary, to address the incompatible activities will be made by EPA/DEQ."

Atlantic Richfield Response: Sections 6.2 and 6.4 have been revised as requested. Text recommended as Section 6.5 has been included in the Solid Media Management Program Plan as Section 2.7 Properties with Incompatible Uses.

16. *Section 6.3. Please clarify the difference in how schools inside the BPSOU will be assessed and sampled compared to schools outside the BPSOU in the 2020 RMAP Area.*

Atlantic Richfield Response: There will be no difference in how schools inside the BPSOU will be assessed and sampled versus schools outside the BPSOU.

17. *Section 7.1.2.2. Please describe how it is determined if an exposure pathway is present for attics and crawlspaces.*

Atlantic Richfield Response: The following text has been added: "An exposure pathway exists if there is a reasonably identifiable means of contaminants coming into contact (physical, inhalation, oral, etc.) with occupants of the residence. Exposure pathways may include physical openings or access points where contaminated materials accumulate. An exposure pathway evaluation performed by RMAP personnel includes physical examination of the areas to determine if a method of exposure is present."

18. *Section 7.1.2.3. Please describe how it is determined if an exposure pathway exists between attics/crawlspaces and interior, publicly accessible areas of schools and dormitories. Also, please define what is meant by a publicly accessible area. In Bullet d, more information is needed on what is meant by the "risk-based (time-weighted) average approach" for the determination of a remediation threshold for exposures hazards in schools and dormitories and how the sampling data will be used to inform this process.*

Atlantic Richfield Response: This section has been revised to address the comment. This verbiage will be specifically addressed in the appropriate program QAPPs.

Atlantic Richfield Company

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

19. *Section 7.1.3. The BPSOU ROD did not specify a residential action level for lead-based paint. Please clarify the basis and value of the paint action level that will be used to support remediation decisions for paint and briefly describe the HUD paint assessment process and the HUD XRF standard to determine lead-based paint.*

Atlantic Richfield Response: BSB and Atlantic Richfield are not aware of a numeric action level established for lead-based paint (LBP). The U.S. government defines "lead-based paint" as any "paint, surface coating that contains lead equal to or exceeding 1 milligram per square centimeter (1.0 mg/cm2) or 0.5% by weight." Some states have adopted this or similar definitions of "lead-based paint."

According to EPA *Protect Your Family from Sources of Lead* (https://www.epa.gov/lead/protect-your-family-sources-lead), peeling, chipping, chalking, or cracking LBP is a hazard and needs immediate attention. Lead-based paint may also be a hazard when found on surfaces that children can chew or that gets a lot of wear and tear. The condition of the LBP is the determining factor for abatement.

Paint inspections will be performed as a component of an elevated blood lead investigation. Existing protocols implemented by the RMAP Program to address identification and abatement of LBP include inspection of painted surfaces and testing using potable X-ray fluorescence (XRF) units to determine the presence or absence of LBP hazards, as defined under applicable statutes or regulations. If LBP is detected, safe and effective lead hazard control options are discussed with the owner to determine the most effective option.

20. *Section 7.1.4. Please insert the following after the first sentence: "Drinking water will be sampled as a component of an elevated blood lead investigation under the RMAP. The RMAP staff will collect a sample of the drinking water from the primary tap of the household during these investigations. This sample should be a first draw (no purging) to identify if old lead pipes are a source contributing to elevated blood lead levels.*

Atlantic Richfield Response: The text has been revised to include "Residential drinking water will be sampled as a component of an elevated blood lead investigation under the Program where exposure pathways to other potential causes (i.e., lead-contaminated soil, dust, or paint) are not apparent. The Program staff will collect a sample of the drinking water from the primary tap of the household during these investigations. This drinking water sample will be obtained from a first draw (no purging) to identify if old lead pipes are a source contributing to elevated blood lead levels."

Additional detail regarding RMAP protocols and sequence of elevated blood lead investigation activities are in Section 7.1.4.

Atlantic Richfield Company

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

21. *Section 7.1.5. The mercury action level of 147 mg/kg is intended to apply to yard soils and indoor dust derived from any area, not just crawl spaces. Please modify the sampling approach to perform indoor air sampling for mercury vapors if any soil, interior dust, or attic dust sample exceeds the soil/dust action level of 147 mg/kg. Likewise, modify the remediation strategy to address outdoor yard soils, if it is determined these soils are a potential source for mercury vapors inside the property.*

    Atlantic Richfield Response: Reference to crawl space dust or earthen basement soil has been removed from Section 7.1.5. The sampling approach has been revised to clarify air monitoring for mercury vapor will be performed if any soil, interior dust, or attic dust sample exceeds residential action levels for mercury.

    Section 8.7 has been modified to include remediation of outdoor yard soil if it is determined that outdoor yard soil is a potential source for mercury vapors inside the property.

22. *Section 8. After the first sentence, insert the following: "Homes in the 2020 RMAP Area where the action levels for lead, arsenic, or mercury in attic dust are exceeded will be addressed in the same manner as homes within the BPSOU".*

    Atlantic Richfield Response: The text has been revised "Homes in the 2020 RMAP Area where the action levels for lead, arsenic, or mercury in attic/crawl space dust are exceeded will be addressed in the same manner as homes within the BPSOU."

23. *Section 8.1. Please add to this section "Action levels are protective of sensitive and vulnerable populations, including potential EJ areas."*

    Atlantic Richfield Response: The text has been revised as recommended.

24. *Section 8.3.2. No option is discussed to remove accessible soils in earthen basements exceeding action levels, only to encapsulate. Add to this section a discussion of a removal option, particularly if mercury action levels are exceeded. The 2006 ROD (Section 5.2.1) notes that earthen basements were addressed in the following manner: "Earthen basements with elevated levels of lead, arsenic and/or mercury are addressed by removing excess contaminated soil from the walls and floor. The walls are covered with a geo-textile liner and plywood is applied over the liner to prevent direct contact with contaminated soil. Cement is placed over earthen basement floors." Please describe BSB's removal approach including when mercury action levels are exceeded.*

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Direct (406) 782-9964
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Atlantic Richfield Response: Earthen basements with elevated levels of lead, arsenic, and/or mercury are addressed by removing excess contaminated dirt, if necessary, from the walls and floor using an appropriate method based on the configuration of each basement or crawlspace project (5-gallon buckets, conveyor belt, skid steer, etc.). All excess contaminated dirt will be taken to the designated repository. Following excavation of excess soil, concrete is placed over the earthen basement or crawlspace floor. The earthen walls are then covered with a geotextile membrane. Following placement of the membrane, stud walls are constructed around the perimeter of the crawlspace and covered with treated plywood when necessary. If mercury is present, a bladder is installed to promote collection and management of mercury vapor. Stud walls are constructed around the perimeter of the crawlspace following installation of geotextile liner when necessary. If mercury vapor is still detected and the source of the mercury vapor cannot be removed, a Mercury Vapor Reduction System will be installed. Access panels and vents will be installed in the walls for access to utilities where needed.

25. *Section 8.3.5. The seed mixture specified in this section is not the same as the one provided in the Butte Hill Revegetation Specifications. Please provide the history and provenance of this alternate seed mixture.*

Atlantic Richfield Response: Alterations to the seed mixture have been made at the recommendation of a reclamation vegetative specialist in consultation with, and after approval by, the Agencies. Seed mixes deployed within the BHRS on the Butte Hill are included in the Reclaimed Areas Maintenance and Monitoring Plan, a component of the Solid Media Management Program Plan. Seeding applications performed in RMAP will remain consistent with the mixture specified in the latest revision of the BHRS. The seed mix has been removed from the RMAP Program Plan and replaced with reference to BHRS.

26. *Section 8.4.1. Please add additional discussion here as to how the efficacy of HEPA vacuuming will be assessed to determine the need for carpet removal. Also specify the efficacy threshold above which HEPA vacuuming will be deemed sufficient.*

Atlantic Richfield Response: Additional clarification to address the efficacy threshold is requested from the Agencies. Dust samples will be obtained from carpet area using an HSV3 vacuum and analyzed. If the sample COC concentrations are greater than residential action levels, the carpet will be cleaned using a HEPA vacuum. Upon completion of cleaning, the carpet will be resampled using the HSV3 to confirm a COC concentration level less than residential action levels. If a HEPA vacuum is incapable of removing the contaminant material, the carpet will be removed and replaced. If the carpet is removed, the RMAP team will refer the resident to protocols described in the Community Protective Measures Plan.

Atlantic Richfield Company

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

27. *Section 8.5. The text states that remediation of paint is driven by biomonitoring data obtained by the Medical Monitoring Program. However, Section 7.1.3 indicates the use of a paint action level to guide remedial decisions. Please modify the text to clarify the basis for remediating paint inside a residence. Additionally, please provide a summary of the cap protection procedures from the HUD guidelines.*

Atlantic Richfield Response: Atlantic Richfield and BSB are not aware of an action level associated with lead-based paint. Reference to an action level has been removed from Section 7.1.3. Paint inspections inside a residence will be performed as a component of an elevated blood lead investigation.

Section 7.1.3 has been updated to include discussion of existing protocols that are implemented by the RMAP to address identification and abatement of lead-based paint following identification of an elevated blood lead through the Medical Monitoring Program. A summary of U.S. Department of Housing and Urban Development (HUD) guidelines can be found via website The HUD Guidelines for the Evaluation and Control of Lead-based Paint in Housing | HUD.gov / U.S. Department of Housing and Urban Development (HUD). Painted surfaces of residential properties will be sampled using an XRF instrument in accordance with the procedures detailed in the applicable RMAP QAPP. According to EPA , "*Peeling, chipping, chalking or cracking lead-based paint is a hazard and needs immediate attention. Lead-based paint may also be a hazard when found on surfaces that children can chew or that gets a lot of wear-and-tear*." Paint assessment begins with visual inspection of the residential property in accordance with HUD guidelines to determine if there are potential lead-based paint hazards.

Interior and exterior components of the residential property, including outbuildings and fences, will also be sampled and analyzed with the portable XRF unit to determine the presence of lead-based paint. Sampling results from painted surfaces are evaluated to determine if lead is detectable from the painted surface(s). The information obtained during the environmental assessment is recorded on a lead-based paint data sheet in accordance with the RMAP Residential QAPP. A report containing all lead-based paint information is provided to the property owner, and the report is recorded in the Program database and tracking system. Sampled properties are remediated if lead-based paint is determined to be an exposure source.

Cap protection is not considered an abatement technique in the HUD guidelines. Cap protections were a strategy developed to maintain integrity of a remedial cap. The term is used in this instance to avoid a dual approval process from EPA as lead-based paint is covered by a different division of the EPA. Cap protection projects will be conducted in accordance

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317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

with the HUD guidelines. The methodologies used for cap protection projects will include paint stabilization, encapsulation, or enclosure.

Section 8.5 has been revised to include "Remediation of interior residential paint is driven by biomonitoring data obtained from the Medical Monitoring Program, and/or results of paint inspections.

Deteriorated and peeling lead paint will be abated in accordance with the guidelines of the EPA lead-based paint Renovation, Repair, and Painting Program Rule (see, e.g., 40 CFR 745, Subpart E). Exterior lead-based paint that is determined to be in fair or poor condition in accordance with HUD guidelines will be remediated when determined necessary for cap protection; or when determined to be a potential source of elevated interior dust levels; and when interior painted surfaces are determined to be a source of exposure to an affected individual as determined by the Medical Monitoring Program.

Properties and painted surfaces are sampled per protocols provided in the respective RMAP QAPP annual revision. If LBP is detected and determined to be an exposure source, the surfaces will be remediated according to HUD Guidelines."

28. *Section 8.7. As noted in the comment for Section 8.3.2, removal of mercury-contaminated soils must also be part of the "toolbox" for remediation of basements. Please add to this section a discussion of an excess soils' removal in basements.*

Atlantic Richfield Response: See response #24.

29. *Section 10.1. Please add additional details to Section 10.1 to be consistent with the 2020 UAO requirements and insert the following text: "Sampling for remedial design/remedial action under the RMAP shall be documented by the Respondents through annual Data Summary Reports (DSRs) submitted for review and approval by the Agencies. Sample data, with their laboratory and data usability qualifiers, will be maintained electronically by BSB/AR and reported in the annual report. The annual report will be a DSR prepared based on the guidelines in CFRSSI Pilot Data Report Addendum (ARCO, 2000b) following each year of data collection. Note: Please consider adding these guidelines to the RMAP QAPP instead of using references. The annual report will describe the sampling activities for the year, provide a summary of the data obtained, discuss the results of data validation, and provide a detailed listing of any deviations from the QAPP. The DSR will also include a data usability assessment for XRF and laboratory data. The data usability assessment has a data summary table with all the samples and analyte concentrations listed, along with the laboratory- and data validation-assigned qualifiers. The Level A/B checklists, XRF and laboratory validation*

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Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

checklists, and data validation summary will provide an overall assessment of the quality and usability of the data."

Atlantic Richfield Response: The following text has been added: "Sampling for remedial design/remedial action under the RMAP will be documented by the respondents through annual DSRs submitted for review and approval by the Agencies. Sample data, with their laboratory and data usability qualifiers, will be maintained electronically by BSB/Atlantic Richfield and reported in the annual report. The annual report will be a DSR prepared based on the guidelines in the Clark Fork River Superfund Site Investigations (CFRSSI) Pilot Data Report Addendum (ARCO, 2000a) following each year of data collection. The annual report will describe the sampling activities for the year, provide a summary of the data obtained, discuss the results of data validation, and provide a detailed listing of any deviations from the respective RMAP QAPP. The DSR will also include a data usability assessment. The data usability assessment will have a data summary table listing all the samples and analyte concentrations, along with the laboratory- and data validation-assigned qualifiers. The Level A/B checklists, laboratory validation checklists, and data validation summary will provide an overall assessment of the quality and usability of the data."

30. Section 10.2. *Please add additional details to Section 10.2 to be consistent with the 2020 UAO requirements and insert the following text: "Implemented cleanups shall be documented by BSB/AR through individual and annual Construction Completion Reports (CCRs) submitted for review and approval by the Agencies. A CCR documents the residential cleanup construction activities during the previous year. Copies of the individual property-specific CCRs should be provided to the property owner as requested for their records. The CCR shall contain the following information about the cleanup actions implemented at the properties:*

- *A brief synopsis of the remedial action objectives;*
- *Description of the construction activities, construction schedule, quantities of materials, dates of work, and problems encountered during construction;*
- *Health and safety, and educational activities;*
- *Post-construction operations, maintenance, and institutional controls requirements; and*
- *Documentation that the cleanup construction work was performed according to project specifications and performance standards including field notes, borrow source and other analyses, project correspondence, as-built drawings, and electronic images.*
- *A QA summary containing the results of the construction monitoring and testing."*

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

Atlantic Richfield Response: The text was revised as recommended.

31. *Section 11.1. Insert the following at the end of this paragraph: "The Existing Data QAPP prepared by BSB/AR as required by the Consent Decree will provide guidance for reviewing existing data that may be used or potentially be used by the RMAP or medical monitoring program."*

Atlantic Richfield Response: The text was revised as "The Existing Data QAPP prepared by BSB/Atlantic Richfield as required by the BPSOU Consent Decree (EPA, 2020a) will provide guidance for reviewing existing data that may be used or potentially be used by the Program."

Data related to medical monitoring will be discussed in the Medical Monitoring Plan.

32. *Section 11.2. Please change the name of this section to "Field and Laboratory Quality Control". Delete the text in this section and insert the following:*

"Required elements of field and laboratory QC, such as specific field and laboratory quality control samples, the frequency of analysis, holding times, and corrective action to be taken when holding times are exceeded are provided in the RMAP QAPP (BSB/AR, 2021). The RMAP QAPP will include sections that address field and laboratory quality control requirements including the final project checks conducted after the data collection phase of the project is completed to confirm that the data obtained meet the project objectives and to estimate the effect of any deviations on data usability. In the Clark Fork River Superfund Site Investigations (CFRSSI) Data Management/Data Validation Plan Addendum (ARCO, 2000a), the data review/validation process was streamlined to support the post-ROD decision-making process for both x-ray fluorescence (XRF) and laboratory generated data. The general processes in this plan will be followed and described in the RMAP QAPP.

Data analyzed by XRF will require a subset of samples be submitted for confirmatory analysis, particularly for results near the action levels. Presently, XRF results within 80% to 120% of an action level are to be submitted for confirmation analysis. Further confirmation samples will be selected for analysis from the lower, middle, and upper range of concentrations measured by XRF. Typically, it is recommended that a minimum of 5% of the XRF samples undergo confirmatory analysis using standard laboratory analytical methods.

Additionally, the laboratory data compiled under this QAPP will be subject to Level A/B criteria review and validation per the 2017 EPA National Functional Guidelines for Inorganic Superfund Methods Data Review (ISM02.4) and the project DQOs. Data review and validation will be

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Butte MT 59701
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Fax (406) 782-9980

conducted by a qualified technical consultant who is independent from the party conducting the sampling."

Atlantic Richfield Response: Reference to XRF confirmation samples was omitted. The XRF analysis is no longer the primary analysis method for soil and/or dust samples.

The text has been revised to "Required elements of field and laboratory QC , such as specific field and laboratory QC samples, the frequency of analysis, holding times, and corrective action to be taken when holding times are exceeded are provided in the respective RMAP QAPP annual revision. The RMAP QAPP will include sections that address field and laboratory QC requirements including the final project checks conducted after the data collection phase of the project is completed to confirm that the data obtained meet the project objectives and to estimate the effect of any deviations on data usability. In the CFRSSI Data Management / Data Validation Plan Addendum (ARCO, 2000a), the data review/validation process was streamlined to support the post-ROD decision-making process for laboratory-generated data. The general processes in this plan will be followed and described in the RMAP QAPP.

Additionally, the laboratory data compiled under the respective RMAP QAPP will be subject to Level A/B criteria review and validation per the 2017 EPA National Functional Guidelines for Inorganic Superfund Methods Data Review (ISM02.4) (EPA, 2017) and the project data quality objectives. Data review and validation will be conducted by a qualified technical consultant who is independent from the party conducting the sampling."

33. *Section 12. Insert the follow text at the beginning of the first paragraph: "All residential soils and attic dust information generated (e.g., sample results, survey data, Individual Site Work Plans [ISWPs], As-Builts, etc.) will be recorded in the RMAP database and Geographic Information System (GIS) and will be made available to regulators, prospective home buyers, lenders, contractors, and other interested parties, as appropriate with respect to usage and privacy concerns." The 8th bullet only mentions a record flag for long-term tracking if contaminated attic dust is present but was not abated. However, there should be record flags to indicate if there is any medium (i.e., soil, dust, vapor, paint, drinking water) that was not abated. After the first sentence of the second paragraph, insert the following sentence: "The Information Management System Plan will be updated in 2021 to address 2020 UAO SOW requirements specified by EPA."*

Atlantic Richfield Response: The requested text has been added. Data generated through implementation of the RMAP will be recorded in the RMAP database consistent with the requirements of the UAO and the capabilities of the RMAP database. Final development of the RMAP database is currently being completed. Once beta testing has been substantially completed, BSB and Atlantic Richfield will demonstrate the capabilities of the database and

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Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

provide agency access for additional beta testing and capability review. Once fully operational, non-administrative access to the RMAP database will be provided to agency representatives. All other entities may make written request to an RMAP representative for access to the database or to request production of a report from the database. Each request will be independently reviewed by BSB, who maintains the authority to permit or decline non-administrative database access or to produce a report for the requesting entity.
Additional flagging will be included within the database attributes to indicate if any medium, if containing concentrations of contaminants above action levels, at a property has not been abated.

The Information Management System Plan will be updated in 2021 to address 2020 Unilateral Administrative Order (UAO) Statement of Work requirements specified by EPA.

34. *Figure 1. Replace the definition of the purple line with "2020 RMAP BOUNDARY" instead of "2019 ADJUSTED RMAP BOUNDARY".*

Atlantic Richfield Response: Figure 1 has been revised as recommended.

End of Comments

If you have any questions or concerns, please call me at (406) 723-1834, or Eric Hassler at (406) 497-5042.

Sincerely,

Mike McAnulty

_____

Mike Mc Anulty
Liability Manager
Remediation Management Services Company
An affiliate of **Atlantic Richfield Company**

_____

Eric Hassler, Program Director
Department of Reclamation and
Environmental Services
Butte-Silver Bow

Atlantic Richfield Company

317 Anaconda Road
Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

Cc: Patricia Gallery / Atlantic Richfield - email
Chris Greco / Atlantic Richfield – email
Josh Bryson / Atlantic Richfield - email
Mike Mc Anulty / Atlantic Richfield - email
Loren Burmeister / Atlantic Richfield – email
Dave Griffis / Atlantic Richfield - email
Jean Martin / Atlantic Richfield - email
Irene Montero / Atlantic Richfield - email
David A. Gratson / Environmental Standards / email
Mave Gasaway / DGS - email
John Davis / PRR - email
Joe Vranka / EPA - email
David Shanight / CDM - email
Curt Coover / CDM - email
James Freeman / DOJ - email
John Sither / DOJ - email
Jenny Chambers / DEQ - email
Dave Bowers / DEQ - email
Carolina Balliew / DEQ - email
Matthew Dorrington / DEQ - email
Jim Ford / NRDP - email
Ray Vinkey / NRDP - email
Harley Harris / NRDP - email
Katherine Hausrath / NRDP - email
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Ted Duaime / MBMG - email
Gary Icopini / MBMG - email
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Robert Bylsma / UP - email
John Gilmour / Kelley Drye - email
Leo Berry / BNSF - email
Robert Lowry / BNSF - email
Brooke Kuhl / BNSF – email
Mark Engdahl / BNSF - email
Jeremie Maehr / Kennedy Jenks - email
Annika Silverman / Kennedy Jenks - email
Matthew Mavrinac / RARUS - email
Harrison Roughton / RARUS - email

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Butte MT 59701
Direct (406) 782-9964
Fax (406) 782-9980

Brad Gordon / RARUS - email
Mark Neary / BSB - email
Eric Hassler / BSB - email
Julia Crain / BSB - email
Chad Anderson / BSB - email
Brandon Warner / BSB – email
Abigail Peltomaa / BSB - email
Eileen Joyce / BSB – email
Sean Peterson/BSB – email
Gordon Hart / BSB – email
Jeremy Grotbo / BSB – email
Josh Vincent / WET - email
Craig Deeney / TREC - email
Scott Bradshaw / TREC - email
Brad Archibald / Pioneer - email
Pat Sampson / Pioneer - email
Mike Borduin / Pioneer - email
Joe McElroy / Pioneer – email
Andy Dare / Pioneer – email
Karen Helfrich / Pioneer - email
Leesla Jonart / Pioneer - email
Connie Logan/ Pioneer – email
Ian Magruder/ CTEC- email
CTEC of Butte – email
Scott Juskiewicz / Montana Tech – email

File: MiningSharePoint@bp.com - email
BPSOU SharePoint - upload

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REVISED FINAL

MULTI-PATHWAY RESIDENTIAL METALS ABATEMENT PROGRAM PLAN

SILVER BOW CREEK/BUTTE AREA
NATIONAL PRIORITIES LIST SITE
BUTTE, MONTANA

November 2021

Prepared by:

The City and County of Butte-Silver Bow

and

Atlantic Richfield Company

Contents

Figures

Tables

Acronyms

Acronym	Definition		Acronym	Definition
µg/m3	micrograms per cubic meter		**HUD**	U.S. Department of Housing and Urban Development
µg/dL	micrograms per deciliter		**ICIAP**	Institutional Control Implementation and Assurance Plan
µg/L	micrograms per Liter		**ISWP**	Individual Site Work Plans
Atlantic Richfield	Atlantic Richfield Company		**LBP**	Lead-Based Paint
BHRS	Butte Hill Revegetation Specifications		**LIEAP**	Low-Income Energy Assistance Program
BPSOU	Butte Priority Soils Operable Unit		**mg/kg**	milligrams per kilogram
BSB	City and County of Butte-Silver Bow		**MMP**	Medical Monitoring Plan
CCR	Construction Completion Report		**QA**	Quality Assurance
CFRSSI	Clark Fork River Superfund Site Investigations		**QAPP**	Quality Assurance Project Plan
COC	Contaminant of Concern		**QC**	Quality Control
DEQ	Montana Department of Environmental Quality		**QMP**	Quality Management Plan
DSR	Data Summary Report		**RMAP or Program**	Residential Metals Abatement Program
EJ	Environmental Justice		**ROD**	Record of Decision
EPA	U.S. Environmental Protection Agency		**SSHASP**	Site Specific Health and Safety Plan
ESD	Explanation of Significant Differences		**UAO**	Unilateral Administrative Order
GIS	Geographic Information System		**WIC**	Women, Infants, and Children
HVAC	Heating, Ventilation, & Air Conditioning		**WSSOU**	West Side Soils Operable Unit
HEPA	High Efficiency Particulate Air		**XRF**	X-Ray Florescence

PURPOSE STATEMENT

To ensure public and environmental health of the residents of the Butte Priority Soils Operable Unit (BPSOU) and certain adjacent areas by effectively identifying and mitigating potentially harmful exposures to sources of lead, arsenic, and mercury in residential yards, living spaces, attics that have a pathway to the living space, schools, daycare facilities, parks, and playgrounds.

1 INTRODUCTION

The multi-pathway Residential Metals Abatement Program (RMAP) (hereafter referred to as RMAP or the Program) is designed to protect residents within the Silver Bow Creek/Butte Area Superfund Site from potentially harmful sources of lead, arsenic, and mercury contamination. Figure 1 shows the 2020 RMAP boundary, which encompasses BPSOU; areas within the West Side Soils Operable Unit (WSSOU)[1]; and the urban corridor of the City and County of Butte-Silver Bow (BSB). The contaminants addressed by the Program may originate from both mining-related sources (e.g., waste rock, tailings, aerial emissions) and non-mining-related sources (e.g., lead-based paint [LBP], lead solder, other construction materials). The contaminants can be found in soil, interior living space dust, attic dust, interior and exterior paint, and potentially in drinking water due to lead pipes or solder.

The Program addresses both contaminant sources (mining- and non-mining-related) and exposure pathways. Residential homes and yards and other living spaces that are found to have contaminant sources that present a human health risk (i.e., are above action levels) will be remediated. The Program is implemented by BSB through funding provided by Atlantic Richfield Company (Atlantic Richfield). Beginning in 2021, Atlantic Richfield will address assessment, sampling, and related remediation at schools, parks, play areas, and daycares in parallel with the BSB residential assessment process.

This plan will be reviewed annually in coordination with program quality plans and updated as appropriate to reflect changes to the program scope or structure.

[1] At the time of this report, the WSSOU boundary is undefined. Remedial investigation of areas outside of BPSOU have been initiated by EPA , and by Atlantic Richfield Company in accordance with the Unilateral Administrative Order for Remedial Investigation Data Collection for the West Side Soils Operable Unit (OU 13) of the Silver Bow Creek / Butte Area Superfund Site (EPA, 2019). These remedial investigation activities are expected to inform future definition of the WSSOU boundary.

1.1 Program Development

The Program, as identified in the U.S. Environmental Protection Agency (EPA) Record of Decision (ROD) for the BPSOU (included as Appendix A of the BPSOU Consent Decree, EPA, 2020a), initially focused on BPSOU. Subsequently, an additional one-time sampling event occurred north of BPSOU in an area identified as the Adjacent Area. In 2011, the Program boundary was expanded (for attic sampling and abatement only) by the Explanation of Significant Differences (ESD) to the 2006 BPSOU ROD (included in Appendix A of the BPSOU Consent Decree) to include additional areas outside of the BPSOU and Adjacent Area boundaries. The Program was again expanded in accordance with the 2020 ROD Amendment (included in Appendix A of the BPSOU Consent Decree). The boundary of the Program described in the 2020 ROD Amendment is shown on Figure 1. The 2020 ROD Amendment made the following specific changes to the Program:

1. *2020 RMAP Area*: The geographic extent of the Program was expanded as indicated on Figure 1. The Expanded Area encompasses the urban corridor of BSB and also includes the 2006 ROD Adjacent Area and the 2011 ESD attic expansion area.

2. *Expanded Area Sampling by Request*: Sampling outside BPSOU within the Expanded Area will be completed at the request of property owners ("by request").

3. *Schedule*: The 2011 ESD (EPA, 2020a) modified the time allotted for assessment and abatement of all residential properties within the BPSOU. The 2011 ESD required 3 attempts to perform assessments of all residential yards within the BPSOU to occur in 10 years and all contaminated residential yards within the BPSOU to be remediated in 20 years, except for those properties for which access cannot be obtained. On November 16, 2020, the 10- and 20-year timeframes began as goals for completion of these activities in the BPSOU. The assessment and remediation of properties outside of the BPSOU and within the 2020 RMAP boundary are not subject to these 10- and 20-year timeframes.

4. *Properties*: In addition to residential yards and living spaces, the Program now addresses contaminants and pathways at schools, playgrounds and play areas, and commercial / industrial properties with residential living quarters. Administering and sampling areas of new development are addressed through protocols described in the BPSOU Institutional Control Implementation and Assurance Plan (ICIAP) (BSB and Atlantic Richfield, 2019) and BSB Excavation and Dirt Moving Ordnance.

1.2 Program Eligibility

Participation in the Program is voluntary and requires cooperation of property owners and occupants. Assessment and sampling of attics will only occur in residential structures constructed wholly or partly before 1980. In addition to being within the Program boundary, as shown on Figure 1, properties must meet one or more of the following criteria to be eligible for participation in the Program:

1. The property consists of a residential structure (with or without a residential yard) that is used for primary occupancy and can be categorized as:
    a. A single-family residence,
    b. A multi-family residence, or
    c. A residential living quarter within a commercial or industrial property.
2. The property is used for outdoor residential or recreational purposes and can be categorized as a yard, playground, or play area located adjacent to or within one of the following:
    a. A residential property,
    b. A municipal park, or
    c. A school or daycare center.
3. The property is utilized as a school or dormitory and can be categorized as:
    a. Eligible schools can be public or private institutions that provide educational services to pre-school (pre-K), elementary (grades K-6), middle-school (grades 7-8), or high-school (grades 9-12) students.
    b. Eligible dormitories include pre-college or college dorms and residence halls for students living on campus of an eligible school or recognized college or university.
4. The property is a current or former primary residence of an affected individual, as identified by protocol established in the Medical Monitoring Program (refer to Section 3).

Properties that meet one or more of the eligibility criteria can receive Program benefits that include environmental assessment (exposure pathway assessment and environmental sampling) and remediation of sources of contaminants that are confirmed to exceed action levels applicable to the defined property use.

2 COMMUNITY AWARENESS AND EDUCATION

The community awareness and education components of the Program are included as part of an overall community protection measures plan that is presented in detail in Appendix F of the BPSOU ICIAP (BSB and Atlantic Richfield, 2019).

The Program provides a range of education components to enhance and maintain the community's awareness of potential contaminant sources and risks of exposure to lead, arsenic, and mercury.

The Program relies on educational materials to ensure that residential property owners, tenants, contractors, developers, home inspectors, and potential buyers are aware that:

1. Lead, arsenic, and/or mercury contamination may be present in both structures and soils that may pose a risk to residents.
2. It is important to restrict access to potentially impacted portions of affected properties to prevent resident exposure to contaminants.
3. The Program offers free services to all eligible properties to complete environmental assessment and remediation if applicable action levels are exceeded and, specific to attics, a pathway for exposure is present.

Educational materials describe measures that can be taken to mitigate exposure to contaminant sources. Educational materials are available through the Program and its website (https://co.silverbow.mt.us/467/Residential-Metals-Abatement-Program). Educational materials are provided directly to Program participants and are made available to local contractors (e.g., electricians, roofers, carpenters), hardware/lumber suppliers, childcare facilities and afterschool programs (e.g., Head Start, YMCA, and PAWs), housing authorities (e.g., Human Resource Council – Section 8 and Low-Income Energy Assistance Program [LIEAP]), realtors, and the BSB Building Department. Informative presentations are available by request. Periodic mailings to BPSOU residential property owners and public service announcements broadcast by radio and television are also designed to improve public awareness. In addition, public communication efforts in regard to RMAP sampling efforts are included in the BPSOU Community Engagement Plan for Remedial Design & Remedial Action (Atlantic Richfield, 2021a). Specific mailing efforts will be limited to within BPSOU. Program reminders will be provided as an informational insert within utility water billing information on a quarterly basis.

3 SENSITIVE AND AFFECTED POPULATIONS

The Program prioritizes environmental assessment and remediation (if needed) of properties occupied by sensitive and affected populations. Sensitive populations include children (0-6 years of age) and pregnant or nursing mothers. Affected populations, as determined through medical monitoring[2], have elevated levels of lead in blood samples or elevated arsenic or mercury in urine samples. Eligible properties with sensitive or affected populations will be prioritized for environmental assessment and remediation based on the following criteria, arranged from highest priority to lowest priority:

- Residential properties occupied by one or more children with a blood lead equal to or greater than 5 micrograms per deciliter (µg/dL).
- Residential properties occupied by an individual with elevated urinary arsenic listed in the Medical Monitoring Plan[3] (MMP) and thresholds provided in Table 1 of the MMP.
- Residential properties occupied by an individual with elevated urine mercury listed in the MMP and thresholds provided in Table 1 of the MMP.
- Secondary residences[4] occupied by children with elevated blood lead equal to or greater than 5 µg/dL.
- Residential properties previously occupied by children with elevated blood lead equal to or greater than 5 µg/dL, even if no child is currently living at the address.
- Residential properties with sensitive populations even if no individual with elevated blood lead, or urinary arsenic or mercury, has been identified.
- Residential properties located in census block groups identified as potential Environmental Justice (EJ) areas within BPSOU.
- Residential properties with no children, but with one or more sources suspected to contribute to elevated blood lead of residents. Particular attention should be given to homes built prior to 1940.

[2] Medical monitoring data are collected and disseminated in accordance with the BSB Medical Monitoring Program.

[3] At the time of this report, the Butte-Silver Bow Butte-Silver Bow Medical Monitoring Program Plan is being updated.

[4] A primary residence is anywhere a person lives for the majority of time. Secondary residence is any additional residence where the child routinely stays for all or part of the day, typically where the child lives part time, or where a secondary caregiver resides.

- Playgrounds and play areas at schools and designated parks.
- School interiors based on age of construction (oldest to newest).
- All other areas that meet the criteria for RMAP sampling or remediation.

4 ENVIRONMENTAL JUSTICE

The RMAP does not discriminate based on race, color, religion, national origin, or economic status. Potential EJ concerns are addressed by providing environmental assessments as a priority (Section 3) for potential EJ areas. The respective property of any property owner within BPSOU that participates in the Program and provides access for environmental assessment and remediation activities will be scheduled for assessment. Potential EJ areas will be addressed by prioritizing properties within potential EJ areas when conducting community outreach and planning for and completing environmental assessments (Section 3). Assessments will be scheduled and completed for participating properties in order of highest priority to lowest priority following BSB evaluation of prioritization criteria of reach participating property (Section 3). Each year, the Program will concentrate community outreach efforts on potential EJ areas in BPSOU. Community outreach to potential EJ areas may be conducted consistent with the recommendations provided within the BPSOU Community Engagement Plan for Remedial Design & Remedial Action (Atlantic Richfield, 2021a).

To increase participation in RMAP, the Program performs outreach through the Women, Infants and Children (WIC) Program at the BSB Health Department. The BSB Health Department directly offers Program and medical monitoring services to WIC participants. In addition to the WIC Program which specifically targets the potential EJ community within BSB, RMAP educational materials are provided to the Southwest Montana Community Health Center for distribution to patients. WIC and the Community Health Center both provide services to residents in low-income brackets.

The Program will work to expand collaboration with local organizations that work regularly with other residents who may have potential EJ concerns, including the State of Montana Department of Public Health and Human Services, Action, Inc., and other interested organizations. RMAP information and education will be provided to expand the reach of the Program, with the goal of improving the health and well-being of all persons in the impacted community. In EPA's EJ Action Plan for Butte (EPA, 2020b), EPA focused on the potential EJ needs within BPSOU or the area covered by the RMAP. The Program will adopt the use of the EJSCREEN tool to identify potential EJ areas within BPSOU. Properties identified to be within a potential EJ area of BPSOU will be prioritized to receive annual community outreach materials in general accordance with direct communication methods identified within the BPSOU Community Engagement Plan for Remedial Design & Remedial Action (Atlantic Richfield, 2021a). Properties within potential EJ areas of BPSOU that elect to participate in the Program will be prioritized for assessment and abatement, as necessary, in accordance with Section 3.

5 RESIDENTIAL ASSESSMENT AND REMEDIATION TIMEFRAME

The 2011 ESD (EPA, 2020a) required 3 attempts to perform assessments of all residential properties (including residential quarters within commercial/industrial properties) within the BPSOU to occur in 10 years and all contaminated properties within the BPSOU to be remediated in 20 years, except for those properties for which access cannot be obtained. In November of 2020, the 10- and 20-year timeframes began as goals for assessment and remediation activities of residential properties in the BPSOU. The 2011 ESD stated that 3 attempts (by mail or other documented means) to obtain access from the current owner of record for sampling or remediation without success meets the directive for outreach and assessment of BPSOU residential yards, understanding that assessment and any required remediation will be conducted later, when and if access is obtained to that property for RMAP purposes in the future. Three attempts to obtain access to conduct assessment activities of residential properties will continue to meet the outreach objective of the Program. EPA will provide support to gain access, as described in the ICIAP, Appendix H (BSB and Atlantic Richfield, 2019), to properties whose owners refuse to provide Program access for completion of assessment and/or remediation activities.

For residential properties, designated parks and playgrounds, and schools and dormitories outside of the BPSOU but within the 2020 RMAP Area, the Program does not have a fixed schedule or duration of time to complete assessment and any potentially required remediation activities. However, a goal of 20 years is established for completing assessment of these properties. This 20-year target has been set to coincide with the anticipated completion of residential remediation within the BPSOU.

A systematic schedule to complete environmental assessments of structures and properties presently utilized as schools, playgrounds, and play areas will be proposed annually, upon submittal of required RMAP Quality Assurance Project Plan (QAPP) revisions (submitted annually). The annually proposed implementation schedule will account for the results of previously completed environmental assessments, provision of access, and the availability of Program resources to implement and oversee subsequent environmental assessments and remediation, if required. Environmental assessment and remediation (if required) of playgrounds and play areas within designated parks will be coordinated with the entity responsible for their management (e.g., BSB Parks and Recreation).

6 ACCESS

It is essential to obtain access to properties as early as possible in the Program process. Experience has shown that various means of communication (mail, email, phone calls, and knocking on doors) must be employed to successfully obtain access to some properties. Additional detail on procedures for obtaining property access is provided in the applicable RMAP QAPP and the BPSOU ICIAP (BSB and Atlantic Richfield, 2019).

Prior to conducting an environmental assessment or remediation of a property, access must be obtained from the property owner. A written Sample Request form (included in Appendix H of the ICIAP [BSB and Atlantic Richfield, 2019]) signed by the property owner must be obtained to authorize completion of an environmental assessment and a written Access Agreement (included in Appendix H of the ICIAP) must be obtained prior to completion of any remediation, if required. If the property owner completes the Sample Request, then environmental assessment of the property will be completed in accordance with Section 7 (Sampling). If the results of the environmental assessment determine that property remediation is necessary, then remediation will be completed in accordance with Section 8 (Remediation and Abatement).

6.1 BPSOU Residential Property Access

Access to residential properties within BPSOU will be proactively sought by Program representatives, as described in this Plan and the BPSOU ICIAP (BSB and Atlantic Richfield, 2019). Proactive attempts to gain access to residential properties within BPSOU will continue until all eligible residential properties have been assessed and remediated, if needed. If access is denied, the property will be flagged in the Program database and reported to the Agencies (i.e., EPA and Montana Department of Environmental Quality [DEQ]). Attempts to access the property will be made twice more through contacts with the property owner to confirm consent and obtain owner signature to the required agreements. Following completion and refusal of three recorded access attempts to a property, proactive solicitation of access to the subject property will be suspended. Repeated access refusals will be reported to the Agencies, and the Agencies may elect to file a notice in the real property records that access for assessment and/or abatement has been denied. Subsequent to three access attempts, and preceding any property transfer or sale, the current owner of the property may obtain access to Program benefits by signing the required legal agreements and requesting Program services. Upon transfer or sale of the property, proactive solicitation for access to the property will be reinitiated. The status of property access will be tracked in the Program's tracking and database

system, which will be made available by BSB to the public (e.g., prospective buyers) upon request.

6.2 Expanded Area Residential Property Access

Residential property outside of BPSOU, but within the 2020 RMAP Area boundary shown on Figure 1 will be sampled on a by-request basis submitted by the property owner. The Program will not proactively seek access to complete environmental assessments at these properties. Any environmental assessments or remediation completed for eligible properties in the Expanded Area will be recorded in the Program's tracking and database system.

6.3 Schools, Dormitories, Playgrounds and Play Areas Access

Access to eligible schools, dormitories, playgrounds and play areas will be proactively sought by Program representatives. Proactive attempts to gain access to eligible schools, dormitories, playgrounds and play areas will continue until the eligible properties have been environmentally assessed and remediated, if needed. If access is denied, the property will be flagged in the database and reported to the Agencies. Access attempts to assess the property will be made twice more, for a total of three attempts. Subsequent to three access attempts, the property may obtain access to the Program benefits by request, and the Agencies may elect to file a notice in the real property records that access for assessment and/or abatement has been denied. The status of property access will be tracked in the Program's tracking and database system, which will be made available by BSB to the public upon request. There will be no difference in how schools inside vs. outside BPSOU will be assessed.

6.4 BPSOU Rental Property Access

Rental properties may require special attention, particularly if children are involved and the landlord is refusing access to the property. The process for obtaining access to rental properties is the same as that described in Section 6.1 for residential properties. If access to a rental property cannot be obtained through the standard process, EPA/DEQ will be notified to initiate extra steps to obtain access, particularly if children may be impacted. These steps include additional phone contacts, certified mailings, setting up a private meeting with the landlord, and, if necessary, legal action in order to obtain access.

7 SAMPLING

7.1 Sampling Procedures

Detailed discussion of sampling procedures and quality assurance (QA) protocol is provided in the annually revised RMAP QAPP. General discussion of sampling procedures for soil, dust, paint, drinking water and mercury vapor of eligible properties is described in this Section.

7.1.1 Soil

7.1.1.1 Residential Yards

Sampling of residential yards is completed on a predetermined grid pattern developed from a scaled map of the property. Composite samples are collected at specified grid locations from the required sampling depth intervals. Collected samples are managed in accordance with the procedures set forth in the annually revised RMAP QAPP.

Residential yards sampled prior to 2019 to a depth interval of 0 to 2 inches and remediated will not be re-sampled. Residential yards sampled prior to 2019 to a depth interval of 0 to 2 inches, but which did not receive remediation, will be re-sampled in the 2- to 6-inch and 6- to 12-inch depth intervals. If the residential action level for any single contaminant (arsenic, lead, or mercury) is exceeded then the yard will be remediated.

Yards of multi-family residences and residential living quarters within a commercial or industrial property will be assessed using the same protocols applied to residential yards.

7.1.1.2 Earthen Basements

Sampling of earthen basements is completed regardless of the results of a pathway assessment. Sampling results from earthen basements are compared to residential action levels. Sampled properties are remediated if an action level for arsenic, lead, or mercury is exceeded. Properties that exceed action levels but are not remediated (due to lack of access provided from the property owner) will be monitored in the Program tracking and database system over the long-term to provide future opportunity to remediate the property.

7.1.1.3 Large Lot Sampling

Residential properties within the Program area can have yards that are atypical of the moderately dense residential development pattern of uptown Butte. These atypical properties can have substantially larger yards. In these cases, sampling will occur to a maximum horizontal distance of 125 feet from the outer edge of the residential structure (the yard). This distance may be less if the parcel boundary or a natural or constructed boundary (e.g., fence,

retaining wall, hedge, curb, road, landscape feature, pasture, open space) occurs on the property prior to reaching the maximum distance of 125 feet.

7.1.1.4 Playgrounds and Play Areas

Playgrounds and play areas will be assessed to determine appropriate sampling requirements based on the use of the property. The following definitions are provided to define use and estimate the level of activity occurring within playgrounds and play areas of eligible properties. Based on the estimated level of activity, an appropriate environmental assessment protocol will be assigned.

- Land Use Category #1 – This category consists of playground areas. This will typically be defined as the area around playground equipment such as swings, slides, jungle gyms, and other types of equipment.
- Land Use Category #2 – This category consists of high accessible areas near school buildings such as school courtyards. Also contained within the category will be barren sports areas such as a baseball/softball infield.
- Land Use Category #3 – This category consists of maintained grassy areas such as sodded school grounds and turf-covered sports fields.
- Land Use Category #4 – This category consists of low use/low maintenance areas that are rarely accessed by children. Examples include school grounds that are fenced off to restrict access by students.
- Land Use Category #5 – This category consists of vegetable and/or flower gardens.

7.1.2 Dust

7.1.2.1 Residential Property Living Space

Dust in residential living space is sampled using a vacuum sampler. Sampling results from residential living spaces are compared to residential action levels. Sampled properties will be remediated if an action level for arsenic, lead, or mercury is exceeded. Properties that exceed action levels but are not remediated (due to lack of access) will be monitored in the Program tracking and database system over the long-term to provide future opportunity to remediate the property.

Interior sampling of multi-family residences and residential living quarters within a commercial or industrial property is limited to the residential living space of such structures. Sampling of these areas is completed in a manner consistent with residential properties to determine if abatement is required. Sampling results from multi-family residences and residential living quarters within a commercial or industrial property are compared to residential action levels. Sampled properties will be remediated if an action level for arsenic, lead, or mercury is exceeded. Multi-family residences and residential living quarters within a commercial or

industrial property that exceed action levels but are not remediated (because property owner access and consent is not obtained through multiple attempts) will be monitored in the Program tracking and database system over the long-term to provide future opportunity to remediate the property.

7.1.2.2 Residential Property Attics and Crawl Spaces

Sampling results from attics and crawl spaces are compared to residential action levels. Residential property attics and crawl spaces will be remediated (i) if an action level for arsenic, lead, or mercury is exceeded; and (ii) if an environmental assessment determines that an exposure pathway is present. An exposure pathway exists if there is a reasonably identifiable means of contaminants coming into contact (physical, inhalation, oral, etc.) with occupants of the residence. Exposure pathways may include physical openings or access points where contaminated materials accumulate. An exposure pathway evaluation performed by RMAP personnel includes physical examination of the areas to determine if a method of exposure is present.

Properties that exceed action levels but are not remediated (due to lack of access / property owner consent or lack of presence of an exposure pathway) will be monitored in the Program tracking and database system over the long-term to provide future opportunity to remediate the property.

7.1.2.3 School and Dormitory Interior Sampling

An environmental assessment will be completed at non-residential schools, preschools, and daycares to determine appropriate interior sampling requirements. This assessment includes both public and privately owned facilities. The Program will prioritize environmental assessments of school structures where exterior soil impacts have been reported in excess of Agency-approved action levels first and will focus on interior areas regularly accessed by students and staff. These areas include hallways, classrooms, offices, cafeterias and kitchens, gyms and changing rooms and auditoriums, and are termed “publicly accessible areas.” Inaccessible areas, such as boiler rooms, crawl spaces, attics, rafters, and other areas only periodically accessed for maintenance or other activities will be reviewed to assess a potential for releasing or tracking dust into the publicly accessible areas but will not be a priority for sampling unless viable transport and exposure pathways exist.

Sampling will be performed per protocol described in the RMAP Non-Residential Parcels QAPP (ERM, 2021). Sample results will be compared to residential action levels for arsenic, lead, and mercury. Areas where an action level is exceeded, and an exposure pathway is identified will be remediated. Properties/areas that exceed action levels but are not remediated (due to lack of access / property owner consent or lack of presence of an exposure pathway) will be monitored in the Program tracking and database system over the long-term to provide future opportunity

to remediate the property. Site assessments, sampling, and potential remediation will be coordinated around school terms and schedules to minimize impacts to the users to the extent possible.

7.1.3 Paint

Paint inspections will be performed as a component of an elevated blood lead investigation and may be performed as a courtesy for any residence when requested by the property owner. Painted surfaces of residential properties are sampled using an X-ray florescence (XRF) units in accordance with the procedures detailed in the RMAP QAPPs. According to EPA *Protect Your Family from Sources of Lead* (https://www.epa.gov/lead/protect-your-family-sources-lead), peeling, chipping, chalking, or cracking LBP is a hazard and needs immediate attention. Lead-based paint may also be a hazard when found on surfaces that children can chew or that get a lot of wear and tear. The condition of the LBP is the determining factor for abatement.

Paint assessment begins with visual inspection of the residential property in accordance with U.S. Housing and Urban Development (HUD) guidelines to determine if there are potential LBP hazards.

Interior and exterior components of the residential property, including outbuildings and fences, are also sampled with the portable XRF unit to determine the presence of LBP. If LBP is detected, safe and effective lead hazard control options are discussed with the owner to determine the most effective option. The information obtained during the environmental assessment is recorded on a LBP data sheet in accordance with the annually revised RMAP QAPP. A report containing all LBP information is provided to the property owner, and the report is recorded in the Program database and tracking system.

7.1.4 Drinking Water

Sampling of drinking water in residential properties is initiated through the Program. Residential drinking water will be sampled as a component of an elevated blood lead investigation under the Program where exposure pathways to other potential causes (i.e., lead-contaminated soil, dust, or paint) are not apparent. The Program staff will collect a sample of the drinking water from the primary tap of the household during these investigations. This drinking water sample will be obtained from a first draw (no purging) to identify if old lead pipes are a source contributing to elevated blood lead levels. EPA and DEQ will be notified of any elevated blood lead case resulting from drinking water issues identified in the 2020 RMAP Area. Properties that exceed drinking water action levels but are not remediated (due to lack of access from the property owner) will be monitored in the Program tracking and database system over the long-term to provide future opportunity to remediate the property.

7.1.5 Mercury Vapor

Air monitoring for mercury vapor will be performed if mercury contamination in any soil, interior dust, or attic dust sample exceeds residential action levels. Air monitoring for mercury vapor is completed in accordance with the procedures specified in the RMAP QAPP. If mercury vapor exceeds residential action levels within the residential structure, then the crawl space or earthen basement of the structure will be remediated. Properties that exceed action levels but are not remediated (due to lack of access from the property owner) will be monitored in the Program tracking and database system over the long-term to provide future opportunity to remediate the property.

7.2 Sample Management

Sample identification, preparation, logging, tracking, and custody are completed and managed in accordance with the RMAP QAPP.

8 REMEDIATION AND ABATEMENT

Remediation of eligible properties is completed if sampling data confirm that applicable action levels for arsenic, lead, and/or mercury are exceeded and, specific to attics and crawl spaces, a pathway for exposure is present. Homes in the 2020 RMAP Area where the action levels for lead, arsenic, or mercury in attic/crawl space dust are exceeded will be addressed in the same manner as homes within the BPSOU. Remediation is completed by appropriately trained Program representatives or independent contractors. All personnel conducting remediation must read, understand, and sign the Site-Specific Health and Safety Plan prior to commencing any remediation or abatement work. All remediation work is conducted in accordance with applicable state and federal rules and regulations in addition to ordinance or procedures adopted by BSB. The decision logic for determining if remediation of an eligible property is required, and what form of remediation is required, is provided in the annually revised RMAP QAPP.

8.1 Remedial Action Levels

Action levels for remediation of the contaminants and exposure scenarios are listed in Table 1. These action levels apply to all eligible properties within the Program area as described herein. Action levels are protective of sensitive and vulnerable populations, including potential EJ areas.

Table 1. Soil, Dust, Backfill, and Vapor Action Levels in Residential Areas

Contaminant of Concern	Exposure Scenarios	Concentration
Lead	Residential Property[1]	1,200 mg/kg
	Non-Residential Property	2,300 mg/kg
Arsenic	Residential Property[1]	250 mg/kg
	Commercial/Industrial Property	500 mg/kg
	Recreational Space	1,000 mg/kg
Mercury	Residential Property[1]	147 mg/kg
	Residential Property (Vapor)	0.43 µg/m^3

1 - Includes residential living quarters within a commercial or industrial property.

mg/kg: milligrams per kilogram. µg/m^3: micrograms per cubic meter.

8.2 Remediation Work Plans

Program representatives will develop Remediation Work Plans that define the activities necessary to remediate eligible properties confirmed to have exceedances of action levels of one or more contaminants. Each eligible property will have an independent Remediation Work Plan. Remediation of each contaminant source (soil, dust, paint, drinking water), if more than one, will be independently discussed. Project representatives will interview property owners and residential property occupants, if different, to integrate their concerns into the Remediation Work Plan. At a minimum, each Remediation Work Plan will include the following content:

- The concentration(s) of contaminant(s) in samples with exceedance(s) and the locations or features of the property where these exceedances occur.
- The scope of the required remediation work to address the contaminant exceedance(s).
- General property description, including date of construction of any structure(s) to be remediated, and an inventory of any site feature that will be intentionally removed or potentially impacted during completion of the remediation activities.
- A list of site features that will be repaired or replaced during completion of the work, and measures that will be taken to minimize damage to site features that are not intended to be demolished or removed during completion of the remediation activities.
- A proposed schedule for completion of the remediation activities.
- Contact information for Program oversight personnel and any third-party contractors completing the remediation activities.

Each Remediation Work Plan will be submitted to the Agencies for review. Program representatives will integrate appropriate Agency comments and issue a final revision for approval by the Agencies prior to implementation of the work.

At least one week prior to initiating remediation activities, Program representatives will review the Agency-approved work plan with the property owner and residential property occupant, if different. Written approval of the work plan must be obtained from the property owner and property occupant, if different, prior to beginning remediation activities. Before any abatement activities are performed, the property owner must sign the Program Access Agreement, including the Notice of Covenants (BSB and Atlantic Richfield, 2019), to confirm consent and the property owner's commitment to protect and preserve the integrity of the remediation activities to be performed on the property. Any dispute concerning the proposed Remediation Work Plan or procurement of access to complete the work will, after good faith efforts to resolve the dispute, be brought to the attention of the Agencies.

Property owners are required to maintain their property following completion of remediation activities in accordance with the Program Access Agreement and Notice of Covenants (BSB and Atlantic Richfield, 2019).

8.3 Remedial Actions

8.3.1 Soil

Contaminated soil that exceeds arsenic, lead, or mercury action levels will be removed from residential yards and play areas to a maximum depth of 12 inches or to the soil bedrock interface (if bedrock is encountered before the 12-inch depth), and to a depth of 24 inches in vegetable garden areas. Contaminated soil is excavated using conventional equipment such as backhoes, small skid steer-type loaders, and hand tools. Contaminated soil that is excavated will be transported to the Butte Mine Waste Repository for disposal.

At each removal location, prior to backfilling, a layer of lightweight geotextile fabric is placed over the exposed surface as a marker of the extent of soil removed and as a visual indicator that the underlying soil may contain arsenic, lead, or mercury concentrations above action levels.

8.3.2 Earthen Basements

If soil in earthen basements exceeds arsenic, lead, or mercury action levels, the soil will be encapsulated by installation of an impermeable geomembrane barrier. In the instance where mercury vapor is present and in excess of residential action levels, a bladder and vapor mitigation system will be installed to provide adequate ventilation and air exchange of the basement.

Earthen basements with elevated levels of lead, arsenic, and/or mercury are addressed by removing excess contaminated dirt, if necessary, from the walls and floor using the appropriate method needed for each basement project (5-gallon buckets, conveyor belt, skid steer, etc.). All contaminated dirt will be taken to the designated repository. Concrete will be placed over earthen basement floors. Stud walls will be built on top of the concrete floor using 2x4s and covered with treated plywood. Earthen walls will be covered with a geotextile liner and if mercury is present a bladder. Following installation of geotextile liner, stud walls will be constructed around the perimeter of the crawlspace and covered with treated plywood when necessary. Access panels and vents will be installed in the walls for access to utilities and to prevent frozen pipes as needed. If mercury vapor is still detected and the source of the mercury vapor cannot be removed, a Mercury Vapor Reduction System will be installed.

8.3.3 Soil Backfill

Excavated areas will be backfilled with soil that meets the requirements described in the Butte Hill Revegetation Specifications (BHRS) included in the Reclaimed Areas Maintenance and Monitoring Plan (Atlantic Richfield, 2021b). Sources of backfill material will be sampled in accordance with the RMAP QAPP to determine soil properties and presence of contamination. Each source of backfill material must be approved by the Agencies prior to use in remediation activities. Alternate backfill materials may be proposed within a Remediation Work Plan, subject to approval by the Agencies.

8.3.4 Cover Materials

8.3.4.1 Driveways

For driveways, a compacted lift of pit-run gravel base capped with 6 inches of road-mix gravel will be applied in most cases. Each source of gravel will be analyzed for metals in the same manner as soil backfill. Concrete or asphalt surfaces will be replaced (in kind) if removed or damaged during completion of remediation activities.

8.3.4.2 Sod

A weed-free sod, composed of Kentucky bluegrass and/or a sod-forming fescue species, will be placed over soil in remediated residential yards and sodded play areas of low-impact or low-intensity use.

8.3.4.3 Play Surfacing

Play surfacing removed during completion of remediation activities at playgrounds or play areas will be replaced with in-kind materials to protect remediated soil in high-impact or high-intensity use areas. Such loose-fill materials may include rubber mulch, wood chips, pea gravel, or sand. Program representatives may recommend use of unitary materials (e.g., rubber matting or tiles, pour-in-place surfaces) where additional protection of remediated soil is necessary.

8.3.5 Seeding

Seeding will be used for open spaces. Soil surface preparation and seeding will be completed in accordance with the BHRS included in the Reclaimed Areas Maintenance and Monitoring Plan (Atlantic Richfield, 2021b). Before altering the seed mixture or rates, Program representatives must obtain approval from the Agencies.

8.4 Dust

8.4.1 Interior Living Spaces

If living space dust samples exceed arsenic, lead, or mercury action levels, all living space surfaces will be thoroughly cleaned with a remediation-grade High Efficiency Particulate Air (HEPA) filter vacuum and re-sampled to determine if contaminants of concern (COCs) are below residential action levels.

If this method is unable to successfully remove contaminants from carpets, then remaining impacted carpets will be removed and replaced and the resident provided with information about protocols described in the Community Protective Measures Plan. Non-living spaces will be remediated if an action level in those areas is exceeded and there is a pathway allowing migration of contaminated dust into the living space.

8.4.2 Attics and Crawl Spaces

During the environmental assessment of attics or interior living space, attics and/or crawl spaces areas will be sampled. A pathway assessment will be conducted concurrently to determine if abatement is necessary. If samples confirm that contaminant concentrations of arsenic, lead, or mercury exceed residential action levels, then the property will be remediated. Attic insulation (excluding heating, ventilation, and air conditioning [HVAC] insulation and thermal system insulation, and debris) will be removed in conjunction with contaminated attic dust. Removal of insulation is necessary because it cannot be efficiently segregated from contaminated dust. Any insulation that is removed will be replaced to provide a thermal insulation rating (R-value) in accordance with Municipal Code. Any electrical components that may contact the thermal insulation must comply with applicable Municipal Codes.

8.4.3 Residential Remodels

Existing dust contamination contained within buildings does not pose risk to human health or the environment if an exposure pathway does not exist. Completion of property renovation or remodel can create exposure pathways that were not previously existent. Application of the procedures identified in Section 2 (Community Awareness and Education) and Section 12 (Long-Term Tracking and Database Management) is critical to identification of properties intended for renovation and remodel. Proactive identification of these properties, through participation of property owners, contractors, lumber and hardware retailers, inspectors, and BSB, can lead to mitigation of exposure to potentially contaminated dust.

The BSB Planning Department requires contractors to obtain building permits for renovations and remodels that could impact the structural integrity of a residence or that add square

footage (vertically or horizontally) to a structure. Resident owners performing renovations and remodeling are encouraged to obtain a construction permit from the BSB Planning Department. Property owners can voluntarily notify Program representatives of their intent to renovate or remodel their property. Advance notification enables Program representatives to review existing property records. Properties that have been previously sampled and remediated to residential action levels will not be re-sampled or scheduled for further remediation. Properties that have not previously been sampled or remediated may require environmental assessment and potential remediation. In either case, Program representatives will contact the property owner to seek access through signature of the required Property Access Agreement and to schedule an environmental assessment of the property.

During environmental assessment, Program representatives will review the scope of the renovation or remodeling plan with the property owner and/or contractor. This will inform Program representatives of the potential for exposure to potentially contaminated dust and if an exposure pathway may result from the work. Following this discussion, Program representatives will then conduct sampling of property components (living space, attics, crawl spaces) that may be disturbed during completion of the work. Emergency XRF field sampling protocol may be implemented, in consultation with the Agencies, to expedite sampling results and identify potential mitigation measures. Analysis of samples will be expedited to the extent possible to minimize impact to the construction schedule and completion of renovation or remodeling activities.

If sampling confirms that contamination of arsenic, lead, or mercury exceeds residential action levels, then the property will be remediated prior to completion of the renovation or remodeling activities, if consent for abatement is confirmed by the property owner through signature of the required Property Access Agreement. Following remediation, the Program will furnish participating property owners or contractors completing renovations and remodels with the following construction materials:

- Plastic sheeting and tape to isolate portions of the property to minimize transport of construction dust.
- Safety glasses and gloves to reduce the potential for injury to eyes and hands.
- Tyvek suits to reduce the transfer of dust to clothing.
- HEPA-filter equipped construction vacuums to collect pre- and post-demolition dust.
- Heavy-duty construction trash bags for collection of remaining dust, remaining insulation and plastic sheeting following completion of demolition activities.

For the property owners and contractors who provide advance notification to the Program and voluntarily participate in the abatement process described above, Program representatives will collect and dispose of any accumulated COC-impacted construction debris produced during the

renovation or remodel process. The presence of COCs in demolition dust and debris will be confirmed by XRF analysis prior to collection and disposal.

The Program is not responsible for completion of any work or provision of any materials associated with renovation or remodeling activities including but not limited to:

- Demolition,
- Disposal of non-impacted demolition debris,
- Electrical wiring upgrades,
- Pipe or plumbing upgrades not associated with lead contamination,
- Placement of wall coverings or painting if not associated with lead contamination, or
- Provision or supply of any construction materials not specifically listed in this section.

8.5 Paint

Remediation of interior residential paint is driven by biomonitoring data obtained from the Medical Monitoring Program, and/or results of paint inspections. Paint assessment begins with visual inspection of the residential property in accordance with HUD guidelines to determine if there are potential LBP hazards. Deteriorated and peeling lead paint will be abated in accordance with the guidelines of the EPA LBP Renovation, Repair, and Painting Program Rule.[5] Exterior LBP that is determined to be in fair or poor condition in accordance with HUD guidelines will be remediated when determined necessary for cap protection; or when determined to be a potential source of elevated interior dust levels; and when interior painted surfaces are determined to be a source of exposure to an affected individual as determined by the Medical Monitoring Program.

Paint renovation will be performed if paint inspections detect the presence of LBP. Interior paint renovation will be completed in accordance with HUD guidelines. Exterior paint surfaces will be remediated when determined to be necessary to maintain cap protection.

Properties and painted surfaces are sampled per protocols provided in the RMAP Residential QAPP. If LBP is detected and determined to be an exposure source, the surfaces will be remediated according to HUD guidelines. Cap protection projects will be conducted in accordance with the HUD guidelines. The methodologies used for cap protection projects include paint stabilization, encapsulation, or enclosure.

[5] *See, e.g.*, 40 CFR 745, Subpart E.

8.6 Drinking Water

Remediation of drinking water systems is driven by biomonitoring data obtained from the Medical Monitoring Program. If lead (i.e., lead solder at pipe joints) exists in the home's plumbing system resulting in elevated concentrations of lead in the drinking water, the plumbing system will be modified or replaced.

8.7 Mercury Vapor

Concentrations of indoor mercury vapor that exceed residential action levels will lead to remediation of interior areas. Mercury vapor remediation includes installation of an impermeable geomembrane barrier over impacted soil. Following placement of the geomembrane, a bladder and vapor mitigation system will be installed to provide adequate ventilation and air exchange of the basement. Refer to Section 8.3.2 (Earthen Basements) for additional information regarding abatement. If it is determined that outdoor yard soil is a potential source for mercury vapors inside the property, outdoor yards will be remediated as described in Section 8.3.1 (Soil).

9 HEALTH AND SAFETY

The Program is administered in accordance with the BSB Health and Safety Plan. The BSB Health and Safety Plan is updated periodically to ensure current and applicable health and safety standards and procedures are implemented to protect Program representatives from contaminant exposure. Third-party contractors completing work on behalf of the Program are required to develop site-specific health and safety plans (SSHASPs). Each SSHASP must meet the minimum requirements of the BSB Health and Safety Plan and is subject to Agency review and approval. The SSHASPs must describe site-specific hazards and mitigations, the air monitoring and dust suppression methods that will be employed, and when work will be temporarily stopped, if necessary, to prevent potentially unacceptable exposures of abatement workers or the public to COCs.

Prior to conducting any contaminant abatement, all workers are required to read, understand, and sign the SSHASP. BSB will provide the signature page of the plan to the Agencies upon request.

9.1 Respirable Dust Monitoring

Air monitoring for respirable dust during open space reclamation was conducted as part of the remedial investigation and feasibility study for the BPSOU. It was determined by EPA that levels of respirable dust generated during land reclamation activities do not present a risk to human health. Consequently, air monitoring of respirable dust during soil remediation is not required.

9.2 Best Management Practices and Controls

Routine dust control, including wetting of soil or lawns with water, will be performed as necessary during soil remediation. Soil being transported to or from each project site will be wetted or the trucks will be covered with tarps to prevent fugitive dust emissions. All excavation, dirt moving, and reclamation activities are required to adhere to both state (e.g., Montana DEQ General Permit for Construction Activities) and local ordinances (e.g., BSB Excavation and Dirt Moving Protocol) when applicable. Program representatives will minimize off-site tracking and will coordinate street cleaning on an as-needed basis.

10 REPORTING

10.1 Data Summary Reports

An annual data summary report(s) (DSR) will be prepared summarizing sampling activities completed by the RMAP. Multiple DSRs may be prepared as appropriate to reflect specific sampling projects completed (i.e., residential sampling, exterior areas of schools and day cares, parks, etc.). The DSR will be made available to the Agencies upon request. Annual DSRs will include applicable figures, a summary of samples collected, analytical laboratory results, and copies of all field data. Preparation of non-residential DSRs will be required and prepared as described in the appropriate QAPP. All annual DSRs will be completed by the end of February of the following year in which sampling was performed.

Sampling for remedial design/remedial action under the RMAP will be documented by the respondents through annual DSRs submitted for review and approval by the Agencies. Sample data, with their laboratory and data usability qualifiers, will be maintained electronically by BSB/Atlantic Richfield and reported in the annual report. The annual report will be a DSR prepared based on the guidelines in the Clark Fork River Superfund Site Investigations (CFRSSI) Pilot Data Report Addendum (ARCO, 2000a) following each year of data collection. The annual report will describe the sampling activities for the year, provide a summary of the data obtained, discuss the results of data validation, and provide a detailed listing of any deviations from the respective RMAP QAPP. The DSR will also include a data usability assessment. The data usability assessment will have a data summary table listing all the samples and analyte concentrations, along with the laboratory- and data validation-assigned qualifiers. The Level A/B checklists, laboratory validation checklists, and data validation summary will provide an overall assessment of the quality and usability of the data.

10.2 Construction Completion Reports

Construction completion reports (CCRs) will be completed annually and will summarize the previous year's completed environmental assessment and remediation activities. The annual CCR will be distributed internally and then to the Agencies by the end of February of the following year.

Implemented cleanups will be documented by BSB/Atlantic Richfield through individual and annual CCRs submitted for review and approval by the Agencies. A CCR documents the residential cleanup construction activities during the previous year. Copies of the individual property-specific CCRs should be provided to the property owner as requested for their records. The CCR will contain the following information about the cleanup actions implemented at the properties:

- A brief synopsis of the remedial action objectives.
- Description of the construction activities, construction schedule, quantities of materials, dates of work, and problems encountered during construction.
- Health and safety and educational activities.
- Post-construction operations, maintenance, and institutional controls requirements.
- Documentation that the cleanup construction work was performed according to project specifications and performance standards including field notes, borrow source and other analyses, project correspondence, as-built drawings, and electronic images.
- A QA summary containing the results of the construction monitoring and testing.

10.3 Record Disclosure

Data and records developed and maintained by the Program are publicly available within annually submitted DSRs and CCRs. Because these reports are of public record, the Program can distribute certain property information to potential buyers, real estate agents, financiers, and insurers if requested. Program representatives can share the following information:

- Whether or not a property has been subject to an environmental assessment,
- If the results of the environmental assessment determined if the property was or was not contaminated,
- Whether or not the property was remediated, and
- Covenants or deed restrictions recorded on the property following completion of environmental assessment or remediation activities.

Program representatives cannot disclose any information related to the health or personal welfare of the property owner or property occupant(s).

11 DATA QUALITY CONTROL

11.1 General Requirements

The BPSOU Quality Management Plan (QMP) (BSB/Atlantic Richfield, 2016a) provides the requirements to ensure that collection and management of environmental data are completed in accordance with EPA-quality requirements. The annually revised RMAP QAPP provides QA/quality control (QC) procedures applied during data collection and analyses of samples.

The Existing Data QAPP prepared by BSB/Atlantic Richfield as required by the BPSOU Consent Decree (EPA, 2020a) will provide guidance for reviewing existing data that may be used or potentially be used by the Program.

11.2 Field and Laboratory Quality Control

Required elements of field and laboratory QC, such as specific field and laboratory QC samples, the frequency of analysis, holding times, and corrective action to be taken when holding times are exceeded are provided in the annually revised RMAP QAPP. The RMAP QAPP will include sections that address field and laboratory QC requirements including the final project checks conducted after the data collection phase of the project is completed to confirm that the data obtained meet the project objectives and to estimate the effect of any deviations on data usability. In the CFRSSI Data Management/Data Validation Plan Addendum (ARCO, 2000b), the data review/validation process was streamlined to support the post-ROD decision-making process for laboratory-generated data. The general processes in this plan will be followed and described in the RMAP QAPP.

Additionally, the laboratory data compiled under the respective RMAP QAPP will be subject to Level A/B criteria review and validation per the 2017 EPA National Functional Guidelines for Inorganic Superfund Methods Data Review (ISM02.4) (EPA, 2017) and the project data quality objectives. Data review and validation will be conducted by a qualified technical consultant who is independent from the party conducting the sampling.

12 LONG-TERM TRACKING AND DATABASE MANAGEMENT

All residential soil and attic dust information generated (e.g., sample results, survey data, Individual Site Work Plans [ISWPs], As-Builts, etc.) will be recorded in the RMAP database and Geographic Information System (GIS) and will be made available to regulators, prospective home buyers, lenders, contractors, and other interested parties, as appropriate with respect to usage and privacy concerns.

Sampling data gathered during environmental assessments and remediation will be recorded in the Program tracking and database system. The database includes the following information:

- Property address, geographical coordinates (Geo code), short legal description, and current roll and card numbers for the date of assessment and assessor code.
- Date of environmental assessment and remediation (if completed).
- Reason for environmental assessment (i.e., Agency request, owner request, elevated blood lead investigation, and permitting requirements).
- Property access refusal flag (if applicable) for long-term tracking and follow-up.
- Sample data including sample number, sample date, sample location, sample media, and sample results.
- XRF results (paint).
- Description of remediation completed, including dates of work and final inspection (if applicable).
- Flag for long-term tracking if contaminated attic dust is present but was not abated.
- Recommendations made to the property owner and whether the property owner provided work acceptance via signature.
- Notice of Covenants / Deed restrictions recorded at Roll/Card following completion of assessment / abatement activities.

The BSB Information Management System Plan (BSB/Atlantic Richfield, 2016b) provides additional details about the Program's tracking and database system. The Information Management System Plan will be updated in 2021 to address 2020 Unilateral Administrative Order (UAO) Statement of Work[6] requirements specified by EPA. The system is used as an electronic repository of environmental assessment and remediation data and other pertinent property information. Information available on the database is used to complete annual DSRs and CCRs. Electronic copies of completed Sampling Forms and Property Access Agreements are maintained by the database. The database enables Program representatives to identify and prioritize environmental assessment of properties of sensitive or affected populations. A key capability of the database is to track previously unreclaimed properties and to maintain the ability to remediate those properties in the future should access be provided by subsequent property owners. The database documents changes in property ownership. Long-term tracking will be continued in perpetuity.

Data collected through the Program can be used to improve collaboration between BSB departments and their respective processes. The database provides benefit to the Planning Department, Building Department, and Zoning Board when considering issues related to issuance of a planning variance, building permit, or zoning adjustment, among other things. Database programming that will allow communication between the RMAP database and BSB building permitting system will be completed. The ability of the database to communicate with the BSB building permit system will enable Program notification of planned remodels and in turn notify an applicant applying for a permit of the environmental history of a structure or parcel, which includes the results of any environmental assessments and whether the property has been remediated.

The BSB land records database will be reviewed annually to determine if properties owned by property owners who declined to grant access for Program activities have changed ownership. If so, proactive access attempts to the new property owner will be reinitiated.

[6] The Residential Solid Media Remedial Action Statement of Work outlines the remaining residential remedial action elements for the 2020 Amendment to the Administrative Order for Partial Remedial Design/Remedial Action Implementation and certain Operation and Maintenance at the Butte Priority Soils Operable Unit/Butte Site, Docket No. CERCLA-08-2011-0011 (2020 Order Amendment) in consideration of the 2006 BPSOU Record of Decision, as modified by the 2011 BPSOU Explanation of Significant Differences, and the 2020 Record of Decision Amendment (EPA, 2020a). The 2020 Record of Decision Amendment requires an expanded Residential Metals Abatement Program (RMAP).

13 REFERENCES

ARCO, 2000a. Clark Fork River Superfund Site Investigations (CFRSSI) Pilot Data Report Addendum. July 2000.

ARCO, 2000b. Clark Fork River Superfund Site Investigations (CFRSSI) Data Management/Data Validation (DM/DV) Plan Addendum. Prepared for ARCO by Exponent, Lake Oswego, Oregon. June 2000.

Atlantic Richfield, 2021a. Butte Priority Soils Operable Unit (BPSOU) Community Engagement Plan for Remedial Design & Remedial Action. Prepared by the Langdon Group, Inc. for Atlantic Richfield Company July 2021.

Atlantic Richfield, 2021b. 2021 – 2022 Final Reclaimed Areas Maintenance and Monitoring Quality Assurance Project Plan (QAPP) Butte Silver Bow and Atlantic Richfield Company September 2021.

BSB and Atlantic Richfield, 2019. Priority Soils Operable Unit Silver Bow Creek/Butte Area, National Priorities List Site, Institutional Controls Implementation and Assurance Plan (ICIAP). Butte-Silver Bow County and Atlantic Richfield Company, October 2019.

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EPA, 2020a. Consent Decree for the Butte Priority Soils Operable Unit. Partial Remedial Design/Remedial Action and Operation and Maintenance. U.S. Environmental Protection Agency. February 13, 2020. Available at https://www.co.silverbow.mt.us/2161/ButtePriority-Soils-Operable-Unit-Conse. The Consent Decree contains the 2006 Record of Decision, the 2011 Explanation of Significant Differences to the 2006 ROD, and the 2020 BPSOU Record of Decision Amendment in Appendix A.

EPA, 2020b. Environmental Just Action Plan, Butte, MT / Region 8. U.S. Environmental Protection Agency, December 2020. Available at https://semspub.epa.gov/work/08/100009205.pdf.

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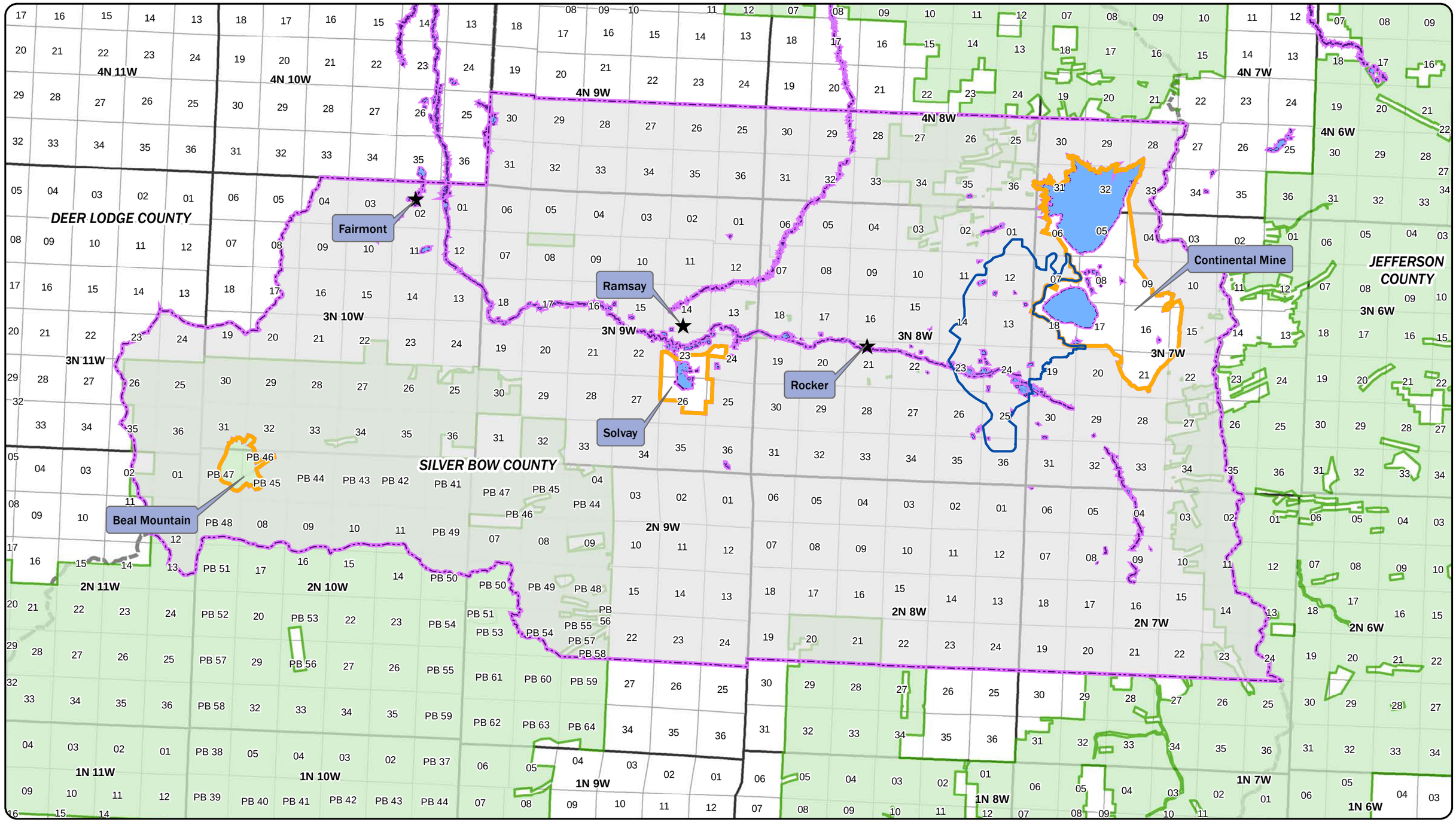
EPA, 2017. National Functional Guidelines for Inorganic Superfund Methods Data Review. Washington, DC: EPA, Office of Superfund Remediation and Technology Innovation. EPA-540-R-2017-001. January 2017.

ERM, 2021. Butte Priority Soils Operable Unit Draft Final Residential Metals Abatement Program (RMAP) Quality Assurance Project Plan (QAPP) – Non-Residential Parcels. ERM June 7, 2021.

Figures

Figure 1. 2020 RMAP Area Butte Priority Soils Operable Unit (Boundary)



LEGEND

- BPSOU BOUNDARY
- 2020 RMAP AREA
- AREAS EXCLUDED FROM RMAP (CONTINENTAL MINE, SOLVAY, BEAL MOUNTAIN)
- COUNTY BOUNDARY
- US FOREST SERVICE

N

DISPLAYED AS:
PROJECTION/ZONE: MSP
DATUM: NAD 83
UNITS: INTN'L FT
SOURCE: PIONEET/BSB/NRIS

0 1 2 4
Miles

FIGURE 1

2020 RMAP AREA
BUTTE PRIORITY SOILS OPERABLE UNIT

DATE: 11/11/2021

Path: Z:\Shared\Active Projects\ARCO\BPSOU\LandSupport\InstututionalControls\RMAP_2020Area_001_21.mxd