Nez Perce

TRIBAL EXECUTIVE COMMITTEE
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November 5, 2020

Submitted via email to: bodine.susan@epa.gov; wright.peter@epa.gov; shiffman.cari@epa.gov

Ms. Susan Parker Bodine
Assistant Administrator
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United States Environmental Protection Agency
Washington D.C. 20460

Mr. Peter C. Wright
Assistant Administrator
Office of Land and Emergency Management
United States Environmental Protection Agency
Washington D.C. 20460

Ms. Cari Shiffman
Chief of Staff
Office of Enforcement and Compliance Assurance
United States Environmental Protection Agency
Washington D.C. 20460

Re: ***Nez Perce Tribe's Comments on the Environmental Protection Agency's Draft Administrative Settlement and Order on Consent and Statement of Work, Stibnite Mining District.***

Dear Ms. Bodine, Mr. Wright, and Ms. Shiffman:

Thank you for the opportunity to comment on the Environmental Protection Agency's ("EPA") proposed Administrative Settlement Agreement and Order on Consent and a Statement of Work (collectively "ASAOC") for implementing phased removal actions at the Stibnite Mining District. These comments and the attached October 27, 2020 memo prepared by Jim Kuipers, P.E., Kuipers and & Associates, LLC ("Kuipers Memo") represent the comments of the Nez Perce Tribe ("Tribe").

As EPA is aware, the Stibnite Mining District is located within the aboriginal homeland of the Nez Perce people, the *Nimiipuu*. On June 11, 1855, the Tribe reserved by treaty, and the United

States secured to the Tribe, rights that the *Nimiipuu* have exercised since time immemorial, including the right to take fish at all usual and accustomed places and the rights to hunt, gather, pasture, and travel.[1] These were not merely "rights" that impose responsibilities on the United States. For the Nez Perce, they were and are a guarantee of our ability to preserve our culture and identity that are inextricably linked to the reserved rights. Treaty rights are the "supreme law of the land."[2]

Located within the headwaters of the East Fork South Fork Salmon River, the Stibnite Mining District ("Site" or "Stibnite Site") is heavily contaminated with millions of tons of "legacy" waste from past mining activities. In 2001, EPA proposed listing the Stibnite Site on the National Priorities List under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), but Idaho opposed the listing. Since then, EPA, the Forest Service, and the state of Idaho have performed various cleanup-related activities at the Site; however, the Site remains heavily contaminated and eligible for listing as a CERLA site.

Now, Canada-based Midas Gold Corp. and its subsidiaries seek authorization to construct and operate – for at least the next two decades – the Stibnite Gold Project ("Stibnite Project" or "Project"), an immense open pit gold mine within the Stibnite Mining District. Contrary to Midas Gold's promises to "restore" the Stibnite Site, the Project will not leave the Site in any condition approximating its pre-mining state. Instead, the Project will nearly triple the footprint of the historic mining area, using three open-pit mines and cyanide leaching to extract gold and antimony, create over one million tons of new tailings waste, leave two new tailings pits on the Site in perpetuity, and destroy over 20 percent of critical habitat for Chinook salmon and Bull Trout in the Project area. Most of Midas Gold's proposed activities would occur on previously-undisturbed land, and 75 percent of this disturbance would occur on public land.

The Tribe, as a co-manager of its Treaty-reserved resources, plays a leading role in restoring the East Fork South Fork Salmon River and South Fork Salmon River fisheries, expending approximately $2.5 million annually to restore Chinook salmon runs in both rivers through hatchery supplementation, fishery research, and watershed restoration. Further degradation of the habitat at the Stibnite Site and any additional degradation of water quality and fishery in the East Fork South Fork Salmon and South Fork Salmon rivers are unacceptable to the Tribe as they would further harm the physical, cultural, spiritual, and economic health of the Nez Perce people and citizens of surrounding communities.

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[1] Treaty with the Nez Perces, June 11, 1855, 12 Stat 957.
[2] U.S. CONST. art. VI, cl. 2.

Given these existential threats, in October 2018, the Tribe adopted a resolution opposing Midas Gold's Stibnite Project because of the significant and irreversible impacts it will have on the Tribe's Treaty-reserved rights and resources. The Forest Service's recently-released Draft Environmental Impact Statement concludes that under all action alternatives the Project will preclude Treaty-reserved access to the Site for 20 years, and will result in irreparable, long-term harm to the Tribe's Treaty-reserved resources and destruction of habitat on which those resources depend. The Project threatens surface water quality and the fishery in and downstream of the Stibnite Site through increased water temperature, risk of oil and toxic chemical spills, metalloid leaching, and the creation of pit lakes. The Project will also disturb important upland wildlife habitat.

In 2019, the Tribe filed a lawsuit in Idaho federal district court against Midas Gold and its affiliates for unpermitted discharges of various pollutants within the Stibnite Mining District, in violation of the Clean Water Act. Given the Tribe's pending lawsuit and limited success with the inadequacy of previous CERCLA removal actions at the Site, the Tribe has repeatedly and consistently emphasized to EPA the need to develop in agreement with Midas Gold an ASAOC that comprehensively and prescriptively addresses all of the pollutant discharges identified by the Tribe in its lawsuit. Most recently, the Tribe emphasized this point during the July 28, 2020 formal consultation with both Washington Office and Region 10 EPA officials. EPA must not issue an ASAOC if it will not require mandatory and substantive actions by Midas Gold considerably greater than, and independent of, its mining plan. Otherwise, an ASAOC may simply be used as a liability shield for Midas Gold, allowing the company to do the bare minimum, or even avoid altogether, cleanup of the Site.

Moreover, Midas Gold's recent decision to file a lawsuit against the Forest Service for unpermitted discharges at the Site in violation of the Clean Water Act further underscores the importance of EPA proceeding with ASAOC discussions in a manner that ensures meaningful, accountable, and objective cleanup requirements at the Site, consistent with the federal government's Treaty-based obligations to protect the Tribe and its resources, now and into the future.

Viewed against this essential backdrop, the draft ASAOC is woefully inadequate. The ASAOC's proposed removal actions are heavily influenced by, and appear designed to facilitate, Midas Gold's plans to re-mine the Site. Most of the ASAOC's removal actions are contingent on the approval of the company's mining Project, are entirely optional, and are based on protracted timelines that unreasonably delay cleanup of the Site. The only mandatory actions proposed during Phase One do not provide anywhere near the robust, comprehensive, and Site-wide cleanup necessary for the Stibnite Site that Midas Gold's numerous public statements have promised. Phase One completely excludes three areas included in the Tribe's lawsuit and would

require Midas Gold to remove just 500,000 tons of the estimated 16 million tons of toxic waste at the Site (or 1/32 of the total wastes). Phase One is also limited to performing less comprehensive engineering studies and related evaluations that are substantially less costly to Midas Gold than a typical remediation action, and require little or no oversight or supervision from EPA.

Given EPA's anemic and unacceptable approach to Phase One, the Tribe requests that the Agency give full consideration to our proposed cleanup approach for the Site which is described in the attached Kuipers Memo. Designed as a "no action"/CERCLA cleanup alternative to be incorporated into the environmental baseline conditions for the Site, the Tribe included the Kuipers Memo with its comments to the Payette National Forest on the Stibnite Gold Project Draft Environmental Impact Statement. The Tribe views the CERCLA cleanup alternative as not only superior, reasonable, and achievable to EPA's proposed Phase One approach; but also independent of, and not relying on, future mining activity to realize a successful and comprehensive cleanup of the Site. The Tribe thus requests that EPA not finalize the ASAOC in its current form, but instead develop a new CERCLA agreement based on the Kuipers Memo.

In addition to the foundational flaws in the ASAOC, the Tribe is deeply troubled by EPA's management of this process, in the following respects, each of which requires that EPA not finalize the ASAOC in its current draft form.

First, the ASAOC appears to provide a windfall not just for Midas Gold, but now for the Forest Service. As EPA is aware, the Forest Service has been involved in ASAOC negotiations with the Agency, Midas Gold, and others for over a year. Since Midas Gold recently sued the Forest Service for unpermitted pollutant discharges at the Site, EPA must carefully reevaluate the ASAOC negotiations in the context of Midas Gold's allegations against the Forest Service. As a potentially liable party under the Clean Water Act, the Forest Service now arguably has an incentive to approach the ASAOC negotiations from a defensive posture that minimizes its legal liability or exposure. Rather than require Midas Gold to complete a robust and comprehensive cleanup of the Site, the Forest Service's participation in the negotiations now raises legitimate, conflict-related concerns as to whether it would agree to less stringent terms and conditions for the Site to placate Midas Gold and encourage resolution of the lawsuit. The Tribe's concern is not unfounded; the proposed ASAOC is expressly contingent upon Midas Gold dismissing its legal claims against the Forest Service. This proposed term is highly troubling and requires serious explanation by EPA. Absent any convincing explanation from EPA, at a minimum any final approval of the ASOAC should delete the requirement that Midas Gold dismiss its Clean Water Act claims against the Forest Service, to ensure that there is no conflict of interest presented.

Second, the Tribe is concerned that EPA has unreasonably delayed responding to the Tribe's August 2020 FOIA request seeking, among other documents, communications with EPA concerning the ASAOC discussions. The latest correspondence from EPA regarding the Tribe's FOIA request raised questions about the nature and scope of our FOIA request which proved to be unfounded and resulted in unnecessary delay. EPA also indicated that it would provide responsive documents to us in March 2021 – also an unacceptable response. As a result of these delays, the Tribe has an incomplete understanding of the interactions to date between EPA, Midas Gold, and others which places the Tribe at a disadvantage in responding to EPA's request for comments on the ASAOC. The Tribe requests that EPA fully respond to the Tribe's August 2020 FOIA request, provide all responsive documents, and then allow the Tribe adequate time to review those documents and submit additional comments, before EPA might proceed to finalize the ASAOC. Such a course is consistent not only with FOIA but with EPA's Treaty-based duties to consult with the Tribe.

Third, the Tribe is troubled that EPA has not expressed any intention to invite public comment on the ASAOC. While EPA has determined that the ASAOC should be limited to removal actions and therefore arguably not subject to the usual public notice and comment requirements, the Tribe disagrees with the Agency's apparent decision to foreclose any public input on the document. Contamination of the Stibnite Site is a longstanding and highly volatile issue. This controversy is accentuated by Midas Gold's plans to re-mine the Site, and under permitting timelines that the Trump Administration has endeavored to expedite. Despite these political influences, EPA is not prohibited from soliciting public comment and reserves discretion to allow the public to comment on this and any other version of the ASAOC.

Moreover, the Tribe questions why Phase One in the ASAOC does not qualify as a Non-Time Critical Removal Action ("NTCRA") subject to the public comment requirements under 40 C.F.R. § 300.820(a). Because Phase One does appear to qualify as a NTCRA, public comment is required and no final action should be taken by EPA until it has provided for adequate notice and comment, and fully considered any public comments.

Finally, the Tribe does not see any evidence in the ASAOC acknowledging or reflecting the EPA's and Forest Service's overarching Treaty-based obligations to the Tribe in the context of this decision; or a description explaining how the ASAOC's terms and conditions are protective of the Tribe's Treaty-reserved rights. The Tribe requests that EPA fully explain in any final ASAOC how it is allegedly consistent with applicable federal law, agency regulations, and policies.

In summary, the ASAOC suffers from numerous flaws with its content and development. The Tribe urges EPA not to approve the ASAOC in its current form, but instead to pause the process, provide full information to the Tribe, and to make foundational changes to the ASAOC consistent with these comments. The Tribe also requests government-to-government consultation with EPA decisionmakers before any final decision is rendered on the ASAOC.

Please contact Nez Perce Tribal Executive Committee Executive Assistant Marie Baheza at (208) 843-2253 mariea@nezperce.org to schedule a consultation. For any other questions or coordination, please contact Michael Lopez, Senior Staff Attorney, Nez Perce Tribe Office of Legal Counsel, at (208) 843-7355 or mlopez@nezperce.org.

Sincerely,

Shannon F. Wheeler
Chairman

cc: Chris Hladick, Regional Administrator, EPA Region 10

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October 27, 2020

To: Nez Perce Tribal Executive Committee

From: Jim Kuipers P.E., Kuipers & Associates

Re: **Description of No Action Alternative Including Cleanup**

This memo responds to the Nez Perce Tribe's request to provide technical assistance in the development of an Environmental Impact Statement (EIS) level description of the No Action Alternative, including cleanup of existing historic mining contamination, as applied to the currently existing Stibnite abandoned mine site. It identifies the known sources of pollution and other past coincidental damage to the environment at the site, and suggests the remedial actions intended to address those sources and impacted areas. It also addresses areas that would be subject to natural resource damage considerations. The memo also addresses the anticipated environmental effects of the cleanup action in terms of the baseline conditions that would exist as a result of the No Action Alternative including cleanup of existing historic mine contamination as described.

The basis of this memo comes from three sources:

1. The Stibnite Gold Project Draft Environmental Impact Statement.
2. EPA's Proposed Bridge Approach for the Stibnite Mine with Phased Response Actions.
3. The author's extensive knowledge and expertise in hardrock mining cleanup including over 40 years of industry experience and 25 years working on Superfund sites, including for 15 years for EPA's Abandoned Mine Lands (AML) Program. I have worked directly on dozens of mine cleanups and have extensive knowledge as to the methods used by EPA, the Bureau of Land Management, the Forest Service and many states to remediate hardrock mining Superfund and similar sites. I have authored extensive guidance for EPA's Office of Solid Waste and Emergency Response which administers the Superfund Program that includes site characterization, source remediation, water management and treatment, long-term monitoring and maintenance and institutional controls, as well as cost estimation for mine site cleanup activities. I am also highly familiar with the Stibnite mine site going back to the 1980's, have visited the site on several occasions including recently in 2018, and have studied in detail the available information related to past site characterization activities for cleanup analysis purposes and the current geochemical and hydrological information with respect to the site.

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I. Background

The DEIS in Section 2.7 describes Alternative 5, as the No Action alternative required by NEPA. As described in the DEIS, *The No Action Alternative means that no permits would be issued, and the proposed project would not be undertaken.* Also, according to the DEIS, *"No action" in this case would mean the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward (CEQ 1981).* The DEIS goes on to describe the No Action alternative with respect to the remediation of existing site conditions saying *Additionally, there would be no removal and/or relocation of legacy materials (tailings and waste rock), backfilling of the Yellow Pine pit, rebuilding of the EFSFSR, or re-establishing fish passage to the headwaters of the EFSFSR.*

As noted by the *Nez Perce Tribe's EIS Scoping Comments* (p. 25) a true no-action alternative is not that the site will remain in its present polluted/degraded condition. Instead, the no-action alternative should address the extent of remediation if Midas Gold's current environmental liabilities were addressed under relevant and applicable requirements such as the Clean Water Act (CWA) and/or Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The DEIS however, only includes alternatives, including for cleanup of the existing abandoned mine site, that assume the proposed mine is operated and closed.

As noted in the Nez Perce Tribe's comments on the SGP DEIS, the DEIS should have included an alternative that involved not only No Action in terms of the proposed mining operations, but also addressed remediation of the mine site on a stand-alone basis as an alternative activity to address the unresolved conflict of the Nez Perce Tribe's present CWA lawsuit and subsequent discussions to address the lawsuit with a CERCLA driven process for restoration of the mine site. The expectation of the lawsuit and/or CERCLA process is that remediation of the existing conditions would be performed regardless of whether mining operations were permitted, started and then stopped, or occurred to completion.

Also as noted in the Tribe's comments, the DEIS fails to recognize that the restoration of the mine site without additional mining would be expected to result in a significant improvement to existing water quality conditions as compared to baseline conditions described in the DEIS. The DEIS should have used restored rather than existing conditions to establish and compare as baseline conditions for all other alternative considered in the DEIS.

Under normal circumstances, where a mining proposal was not being considered, the CERCLA Superfund process could be expected to require some time to determine a proposed remedy. The process includes various stages including a remedial investigation where the site and past impacts are characterized and describes, and ecologic and human health risk assessments are performed. Based on this information a feasibility study is performed that develops various alternative technical approaches to remediation of the site, evaluates their technical pros and cons, determines the estimated cost for each alternative, and evaluates them relative to EPA's

Nine Criteria[1]. Based on that information EPA recommends a Proposed Remedy which once approved is set forth in a Record of Decision (ROD). Public involvement includes comment periods after the RI/FS, Proposed Plan, and draft ROD. The remedial investigation and feasibility study (RI/FS) process by itself can take years and in some cases decades such as at Superfund mega-sites such as the Bunker Hill Superfund Site in Idaho and the Butte Silver Bow – Anaconda – Milltown Superfund Sites in Montana. Even at more typical mine sites the RI/FS process can be expected to require 3-5 years and the entire process of issuing a ROD 5-10 years.

The CERCLA process for the Stibnite abandoned mine site might be expected to take a minimum of 3-5 years under ordinary circumstances. However, there are three notable aspects of the Stibnite mine site that make the ordinary approach somewhat unnecessary.

- The history of the site is well documented and there has been extensive site characterization performed as a result of past investigations for site cleanup purposes, as well as site characterization for the currently proposed mining project, that provides a reasonable level of information for sources of contamination and related discharges into groundwater and surface water as the basis for the development of remedial alternatives.
- EPA, in negotiating a potential resolution to the Nez Perce Tribe's CWA lawsuit, developed a *Proposed Bridge Approach for the Stibnite Mine with Phased Response Actions.* The approach, further described herein, identifies actions that would be taken by Midas during various phases of the mine development and operations should mining not proceed. The actions are based on EPA's experience at other Superfund sites.
- As part of his work for EPA the author obtained and became highly familiar with a database that includes the description of cleanup activities actually taken at AML sites as a result of the Superfund process. The author is also knowledgeable as to the level of remediation in terms of improvements to water quality that might be anticipated as a result of applying remedial actions at AML sites.

[1] Nine Criteria - The analysis of alternatives under review reflects the scope and complexity of site problems and alternatives being evaluated and considers the relative significance of the factors within each criteria. The nine criteria are part of the National Contingency Plan (40CFR300.430(e)(9)). The nine evaluation criteria are as follows:
Threshold Criteria
1. Overall protection of human health and the environment
2. Compliance with ARARs (applicable or relevant and appropriate standards)
Primary Balancing Criteria
3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility or volume
5. Short-term effectiveness
6. Implementability
7. Cost
Modifying Criteria
8. State acceptance
9. Community acceptance

Based on this level of information and knowledge it is possible to develop a "prescriptive remedy" for the Stibnite abandoned mine site that is based on the application of cleanup actions that have taken place at other similar mine sites as part of the CERCLA Superfund process. That approach has been taken to describing the No Action Including Cleanup Alternative and the results from that action, as further described in this memo.

II. Stibnite Site Sources of Contamination

The hardrock mining legacy at the Stibnite site included mining, milling and processing activities that created extensive underground and multiple open pit mine workings, waste rock piles, tailings dumps, spent heap leach piles and other features that have resulted in the contamination of soils and impacted groundwater and surface water quality. These sources of contamination and associated impacted areas that would be expected to be addressed by the Superfund process are identified in this section.

The past and current site characterization information is contained in prior site documents that are largely identified and summarized in the SGP Draft Environmental Impact Statement (DEIS). The information in the DEIS and supporting documents identify both existing sources of contamination. The Nez Perce Tribes CWA lawsuit also identifies and provides information with respect to various sources of discharges of contamination at the site. The sources and other contaminated areas summarized in Table 1, and discussed in the following section. The sites and areas are identified in Figures 1 and 2.

As the various sites are described in the referenced documents they are not further described herein.

Table 1 – Stibnite Site Sources of Contamination

Source[1]	~Arsenic Loading (lb/year)[2]	Arsenic Loading % of Total	Included in NPT NOI[3]	Included in PRO[4]	Included in EPA ASAOC[5]	Included in SGP DEIS[6]
Open Pits						
Yellow Pine Pit/Pit Lake	1040	79.8%	Yes	Yes	No	Yes
Adits and Tunnels						
Bailey Tunnel	23	1.8%	Yes	No	Yes	No
Bonanza Adit	1	0.1%	Yes	No	Yes	No
DMEA Adit (includes DMEA Waste Rock Dump)	9	0.7%	Yes	No	Yes	No
Meadow Creek Mine Adit	6	0.5%	Yes	No	Yes	No
Monday Tunnel/North Tunnel/Cinnabar Tunnel	21	1.6%	Yes	No	Yes	No
Waste Rock						
NW Bradley Dumps & Hennessy Creek	86	6.6%	No	No	Yes	No
Bradley Mancamp Dumps	20	1.5%	No	No	Yes	No
Bradley Northeast Oxide Dumps	8	0.6%	No	No	Yes	No
Tailings						
Keyway Dam/Keyway Marsh	?	?	No	Yes	Yes	No
SODA and Bradley Tailings	28	2.1%	Yes	Yes	Yes	Yes
Hangar Flats (Pioneer) Tailings Pile and Hecla Heap Leach	61	4.7%	Yes	Yes (partial)	Yes	Yes (partial)
Meadow Creek Mill and Smelter	?	?	No	No	Yes	No

1. Sources include legacy areas included in the NP NOI, Midas and EPA proposed early actions, and PRO and represent the highest sources of arsenic loading to surface waters at the site.
2. Estimates of arsenic loading from SRK, 2017, Existing Conditions Site-Wide Water Chemistry (SWWC) Memo, November 22, 2017 memo to Piper Goessel, USFS, p. 46.
3. Alleged point sources in the Nez Perce CWA notice of intent.
4. Sources identified in Midas' Plan of Restoration and Operations (2016).
5. Sources Identified in EPA's Proposed Bridge Approach for the Stibnite Mine.
6. Sources identified in Stibnite Gold Project Draft Environmental Impact Statement (August 2020).

Figure 1 – Stibnite Site Sources of Contamination

Figure 4-3, Past Mining and Related Activities

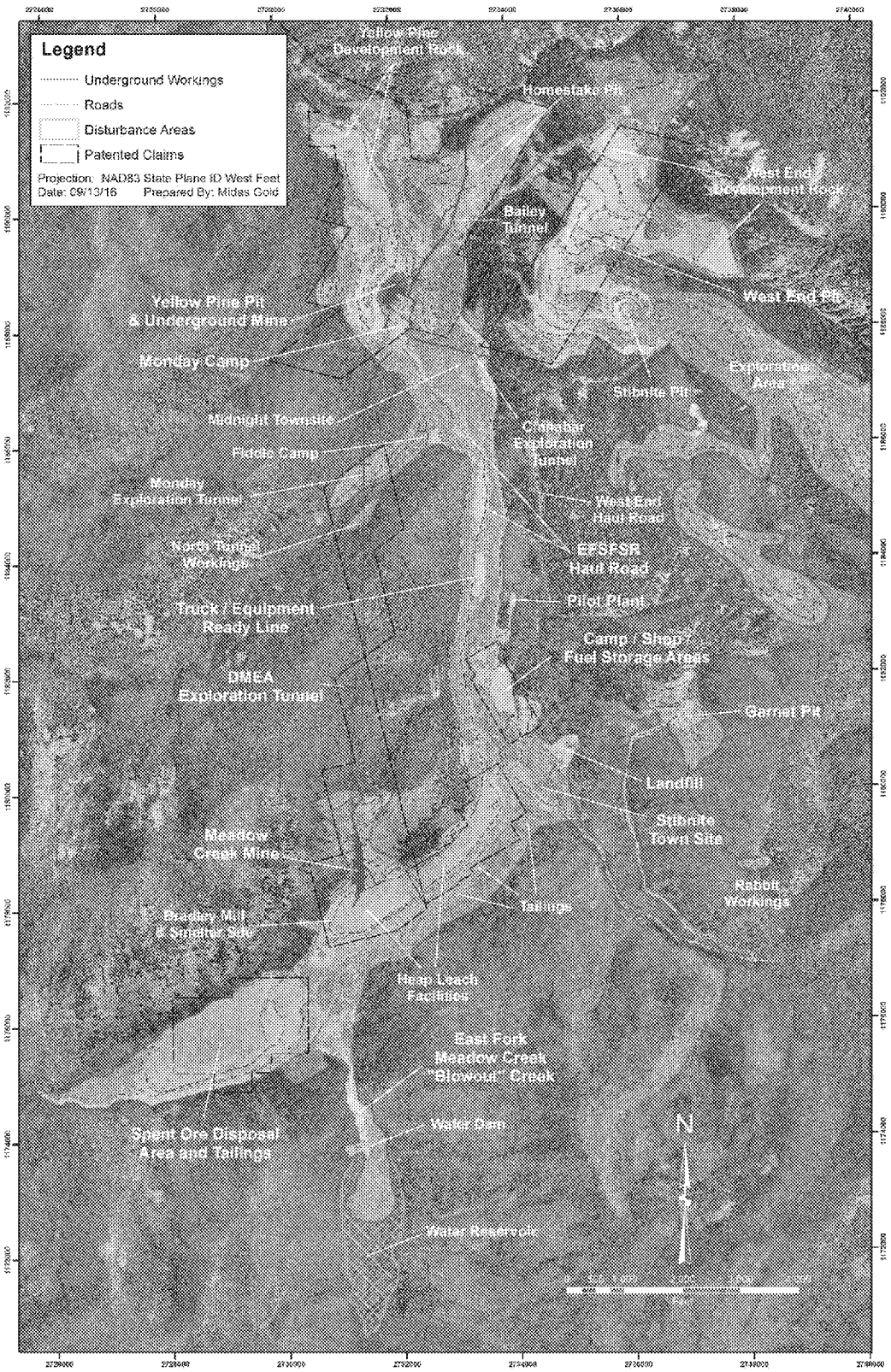
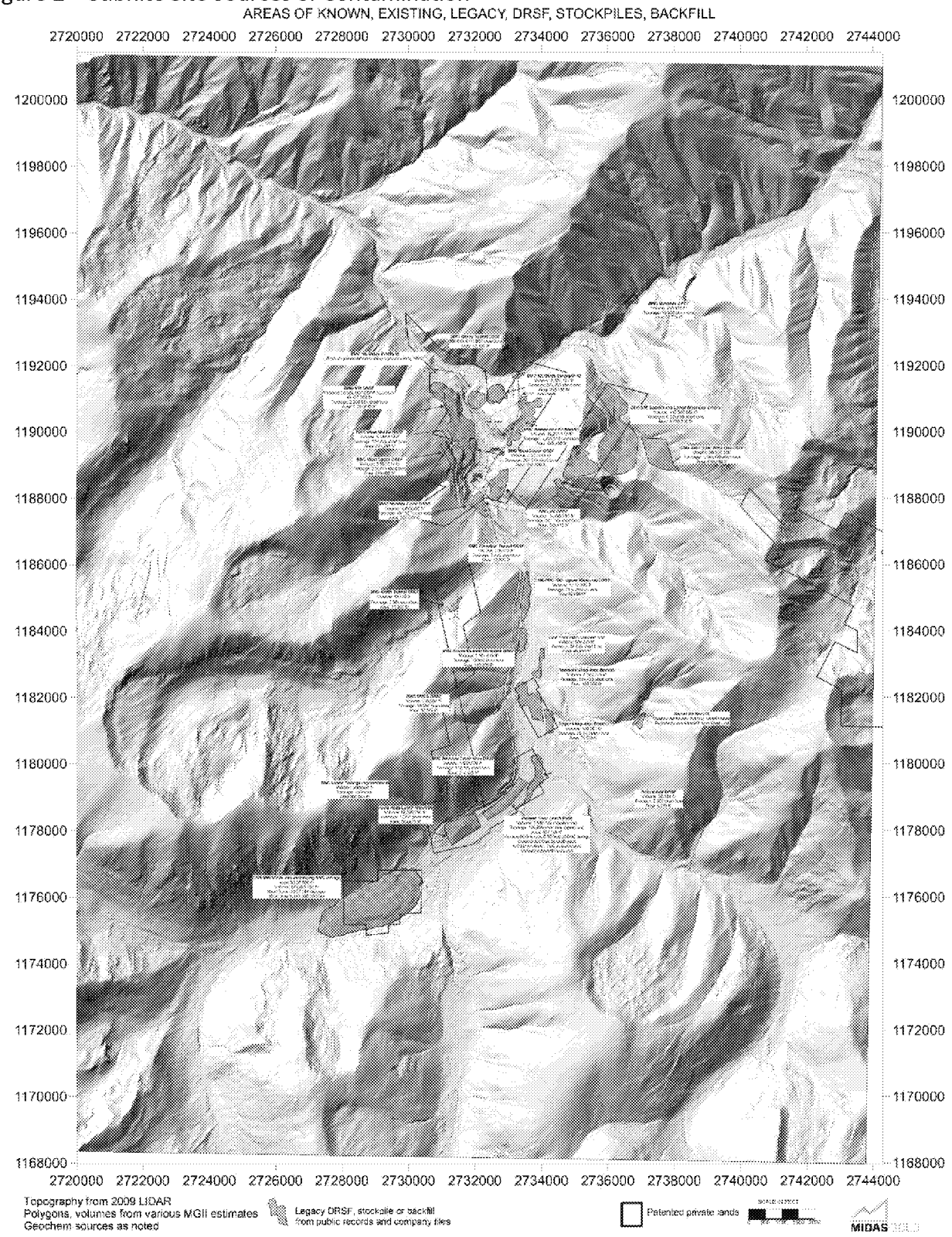


Figure 2 – Stibnite Site Sources of Contamination



III. Stibnite Site Remedial Actions

This section describes a proposed phased bridge approach to site remediation developed by EPA that is based on the mining operations proceeding or otherwise reverting to the RI/FS process. This section also describes the No Action Including Cleanup Alternative for site remediation and the prescriptive remedy approach used to develop the alternative.

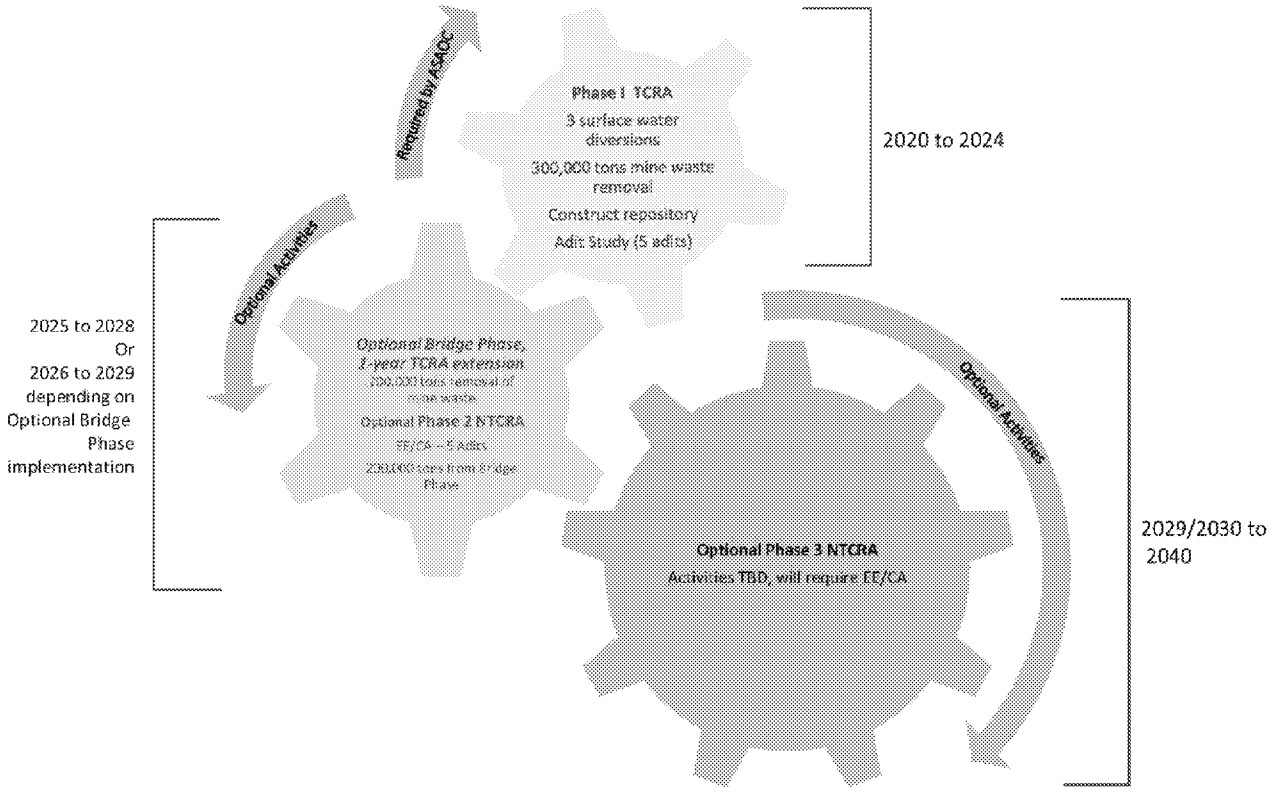
A. EPA Phased Bridge Approach

EPA has proposed an Administrative Settlement Agreement and Order on Consent (ASAOC) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for work to be performed by Midas Gold at the Stibnite Mine Site (Site) to address legacy mine wastes and associated water quality issues. As part of the ASAOC EPA proposed a "Bridge Approach" for the Stibnite Mine with Phased Response Actions. The attached Appendix A, Statement of Work for Stibnite Mine Time Critical Removal Actions and Non-Time Critical Removal Actions, Stibnite Mine Site, Valley County, Idaho describes EPA's proposed bridge approach in detail. Table 1 and Figure 1 from the document are shown below. Table 1 lists the ASAOC phases and years, along with calendar years and the mining activities anticipated during each phase. Figure 1 shows the remedial activities that would take place during the same time periods.

Table 1 ASAOC Phases

ASAOC Phase	AOC Years	Calendar years	Mining Schedule under PRO
1	1 - 4	2020 - 2024	Mine permitting & construction (if approvals & permits received)
Bridge	5	2025	Bridge phase if permits are not received by end of Phase 1
2	Receipt of mine permits & approvals through mine year 4	2025 to 2028 or 2026 to 2029	Mine construction, mine operations
3	Mine operations year 5 through mine reclamation	2029/2030 to 2040	Mine operations and reclamation

Figure 1 ASAOC Remediation During Phases



While EPA's phased bridge approach does provide some basis for a remedial action plan in the event mining did not occur as in a No Action Including Cleanup Alternative, because it is based on Midas proposed mining actions occurring, or otherwise then initiates the RI/FS process if mining is stopped, that basis is primarily limited to the identification and characterization of the sources of contamination, and the suggestion that waste rock, tailings, spent heap leach piles and other materials should be removed from their present locations.

While any actual cleanup under a No Action Including Cleanup Alternative would be expected to go through the RI/FS process or its equivalent (EE/CA), it is possible to develop a conceptual cleanup plan based on a prescriptive remedy approach that uses remedial actions that have been taken at similar hardrock mine sites. The prescriptive remedy approach is based on the following:

- EPA Abandoned Mine Lands Superfund Site Policy and Guidance[2] including:
  - Policy on Joint Repositories at Mixed-Ownership Hardrock Mine Sites, April 2005.
  - EPA's National Hardrock Mining Framework, September 1997
  - Abandoned Mine Land Site Characterization and Cleanup Handbook, August 2000.
  - Publications on Mining Waste Management in Indian Country, July 1999.
- EPA Technical Resources on:
  - AML contamination assessment and characterization techniques;
  - Types of waste found at AMLs;
  - Technologies used to remediate contamination found at AMLs;
  - Modeling and forecasting impacts from mining; and
  - Financial and bonding studies.
- EPA Database Containing:
  - Data on 126 Hardrock Mining AML Sites
  - Techniques used for remedial actions for each site
    - Source control methods
    - Water management methods
- The Global Acid Rock Drainage Guide[3] Chapter 6.0 Prevention and Mitigation
- Personal professional knowledge over 35 years and spanning remediation and reclamation and closure planning for hundreds of hardrock mine sites in the U.S.

B. No Action Including Cleanup Alternative

Based on the prescriptive remedy approach previously described, the following remediation actions, summarized in Table 2, are proposed for the No Action Including Cleanup Alternative:

[2] https://www.epa.gov/superfund/abandoned-mine-lands-policy-and-guidance
[3] http://www.gardguide.com/index.php?title=Main_Page

Table 2 – Stibnite Site Remedial Action Plan

Source	Type of Action No Action Including Cleanup Alternative
Open Pits	
Yellow Pine Pit/Pit Lake	Isolate EFSFSR from sources, backfill pit lake, collect and treat groundwater and pit wall runoff sources
Adits and Tunnels	
Bailey Tunnel	Collect discharge stream (surface and subsurface) and treat, bulkhead opening
Bonanza Adit	
DMEA Adit (includes DMEA Waste Rock Dump)	
Meadow Creek Mine Adit	
Monday Tunnel/North Tunnel/Cinnabar Tunnel	
Waste Rock	
NW Bradley Dumps & Hennessy Creek	Remove all contaminated waste rock and subsurface soils and locate in repository, collect and treat leachate.
Bradley Mancamp Dumps	
Bradley Northeast Oxide Dumps	
Tailings	
Keyway Dam/Keyway Marsh	Remove all contaminated tailings, heap leached materials and subsurface soils and locate in repository, collect and treat leachate.
SODA and Bradley Tailings	
Hangar Flats (Pioneer) Tailings Pile and Hecla Heap Leach	
Meadow Creek Mill and Smelter	Remove all contaminated tailings and locate in repository, collect and treat leachate.

1. Open Pits - Yellow Pine Pit/Pit Lake

Given the Yellow Pine pit/pit lake is the primary (~80% of total) source of arsenic contamination its remediation is a key aspect of this plan. It is also the most challenging aspect of the plan given that the EFSFSR runs through the pit, a pit lake is formed before spilling out, and primary sources of contamination are dispersed and include the pit walls, previously backfilled material, lake sediment, and upstream sources. While this is not unusual as an overall site characteristic

at hardrock mine sites, open pit sources are typically not the primary source of contamination. However, where open pits are a source of contamination the typically methodology used is to control the inflow of surface water and groundwater into and through the pit, and to collect any remaining contaminated surface water and groundwater by establishing the pit as a hydraulic sink, and to remove and treat contaminated water as necessary. Where surface water features go through a pit, they are typically instead routed around the pit to avoid their contamination, including placing the water in a lined channel if necessary. Unless the size is prohibitive, pit lakes are typically eliminated, unless they become part of a functional stream system or in some cases water management and treatment system.

The proposed action would start by routing the EFSFSR through the pit by construction of a new channel that would be protected from contaminated surface water and groundwater in the pit by surface water and groundwater controls. Surface water controls to prevent contaminated surface water in the pit from entering the EFSFSR would consist of stormwater run-on diversions designed for at least a 200-yr 24 hr precipitation event. Contaminated groundwater would be prevented entering the EFSFSR by lining the new channel. The new channel would be constructed to allow fish passage as described in Section IV of this memo.

Contamination resulting from the pit walls would be reduced by installing surface water run-on diversions around the pit to divert stormwater designed for at least a 200-yr 24 hr precipitation event. Surface water as a result of stormwater falling in the pit or from springs or seeps from the pit walls would be collected or otherwise diverted to the bottom of the pit. The bottom of the pit would be converted into a surface water/groundwater collection sump and backfilled with coarse materials so as to allow for seasonal surface water storage and prevent a pit lake from forming. The groundwater collection sump would be operated as a groundwater hydraulic control, and any additional groundwater emanating from the pit not captured by the control would be captured and managed additionally if necessary. All contaminated surface water and groundwater would be collected and treated at a central water treatment plant using active treatment methods for as long as is necessary to meet objectives that are described in Section V of this memo.

2. Adits and Tunnels

The Bailey Tunnel, Bonanza Adit, DMEA Adit (includes DMEA Waste Rock Dump), Meadow Creek Mine Adit and Monday/North/Cinnabar Tunnels combined account for approximately 5% of the total source load of arsenic contamination. Best practices for remedial actions for remediation of mines with underground workings have recently been developed by EPA as a result of the Gold King Mine release in 2015.[4] The report's best practices emanate from: (I) existing technical resources and publications. (2) lessons learned from relevant incidents, and

[4] Planning for Response Actions at Abandoned Mines with Underground Workings: Best Practices for Preventing Sudden, Uncontrolled Fluid Mining Waste Releases. https://semspub.epa.gov/work/HQ/176382.pdf

(3) technical contributions from professionals with mine waste characterization and mitigation expertise. The author was a contributor to the guidance.

The proposed action would characterize and then determine the nature of the mine pool associated with each adit or tunnel at the Stibnite site. A mine pool management plan would then be developed for each source or a combination of sources if hydrologically connected that would manage the mine pool and any discharge emanating either as surface water or groundwater. At the Stibnite site it is not anticipated that any of the underground workings would result in pressurized mine pools and that the formation of any pressurized pools such as might be caused by bulkheading would be deemed not desirable. As a result, the remedial plan would consist of isolation of the surface flows from the adits and tunnels so that they can be gathered and conveyed for treatment and construction of groundwater capture systems such as cutoff walls and/or groundwater wells and conveyances. All contaminated surface water and groundwater would be collected and treated at a central water treatment plant using active treatment methods for as long as is necessary to meet objectives that are described in Section V of this memo.

3. Waste Rock

The NW Bradley Dumps & Hennessy Creek, Bradley Mancamp Dumps, Bradley Northeast Oxide Dumps combined account for approximately 9% of the total source load of arsenic contamination at the Stibnite site. Best practices for waste rock remediation at hardrock mines are the application of source control measures, either in-place or after relocation to an alternative location. Source control measures prevent run-on of stormwater and minimize infiltration of stormwater through the waste rock. If the waste rock is left in place source control measures are limited to engineered covers to address stormwater, and groundwater infiltration through waste rock is not addressed. If the waste rock is removed to a repository which is not located adjacent to wetlands, riparian areas, or with shallow groundwater (defined for the purpose of this memo as the groundwater level being >100ft from the surface level), it is also placed on an engineered liner in additional to having an engineered cover. Typical liners include synthetic geomembrane liner such as HDPE and clay/geomembrane composite liners and incorporate leak detection and evacuation systems. In-situ source control engineered covers can be expected to function at a relatively high level of efficiency (<95%) in terms of reduction of infiltration from stormwater, however any seepage through the liner as well as any groundwater infiltration through the waste rock would not be addressed, so the approach is typically only applied at relatively dry locations without shallow groundwater. If a repository is constructed purposefully for the removal of waste materials then in addition to having the benefits of reducing infiltration from surface stormwater, it also has the benefits of no groundwater infiltration and capture of any seepage through the cover liner, resulting in a high level of efficiency (>99%). To maintain the efficiency as designed it is necessary for any cover and cover/liner system to be monitored, maintained, and operated for as long as necessary to meet the objectives of the remedy.

The proposed action for the Stibnite site, because they are predominately located in areas subject to groundwater infiltration and in close proximity to riparian areas and wetlands, or surface water, would remove the waste rock piles and relocate them to a central site repository (described later). Following excavation of the waste rock material the subsurface soils would be sampled, and if contaminated, also removed and placed in the repository. After removal of all contaminated material the area would be recontoured, any riparian, wetland and stream areas restored, and the area covered with suitable growth medium and revegetated with site appropriate native species. Long-term monitoring and maintenance of the reclaimed areas is discussed later in this memo.

4. Tailings

The Keyway Dam/Keyway Marsh, SODA and Bradley Tailings, Hangar Flats (Pioneer) Tailings Pile and Hecla Heap Leach combined account for about 7% of the total source load of arsenic contamination at the Stibnite site. Best practices for tailings and spent heap leach pile remediation are similar to those at hardrock mines and are the application of source control measures, either in-place or after relocation to an alternative location.

The proposed action for the Stibnite site, because they are predominately located in areas subject to groundwater infiltration and in close proximity to riparian areas and wetlands, or surface water, would remove the tailings and spent heap leach piles and relocate them to a central site repository (described later). Following excavation of the waste rock material the subsurface soils would be sampled, and if contaminated, also removed and placed in the repository. After removal of all contaminated material the area would be recontoured, any riparian, wetland and stream areas restored, and the area covered with suitable growth medium and revegetated with site appropriate native species. Long-term monitoring and maintenance of the reclaimed areas is discussed later in this memo.

5. Meadow Creek Mill and Smelter

Any contaminated materials identified at Meadow Creek Mill and Smelter would be removed and placed in a central repository. After removal of all contaminated material the area would be recontoured, the area covered with suitable growth medium and revegetated with site appropriate native species. Long-term monitoring and maintenance of the reclaimed areas is discussed later in this memo.

6. Ancillary Facilities

In addition to the remedial tasks associated with the sources of contamination as previously described, the No Action Including Cleanup Alternative would include a central repository for the management of the waste rock, tailings, heap leach, mill and smelter contaminated materials removed from their present locations as described in the previous sections. Also, the remedial plan would include water management and treatment as well as discharge features to

treat any contaminated water that is captured from tunnels, adits, open pit dewatering, surface runoff and from repository seepage collection.

a) Repository

The repository would need to have an estimated capacity of up to 15 million tons in order to hold all the waste rock, tailings, heap leach and other materials, including contaminated subsoil, from the Stibnite site that has been identified in this plan. If the materials are assumed to have a density of 120 lbs/cu ft and are placed at an average height of 50 ft depth, the area of the repository would be approximately 115 acres in size. A suitable location, depending on capacity, could be the West Pit area.

The repository would be designed with engineered liner in additional to having an engineered cover. The repository liner would consist of a prepared subgrade, and a clay geomembrane composite liner overlain by a leak detection network that in turn is overlain by a geomembrane liner. The repository would incorporate both a leak detection and evacuation system and also a system for detection and removal of any seepage that collects within the waste materials on top of the geomembrane liner. The engineered cover would be the same as has been described in Alternative 2 of the SGP DEIS.

b) Water Management and Treatment

The water management and treatment system for this plan includes all groundwater and surface water points of capture, conveyances including pumps and piping to a centralized water holding/equilibrium pond, and an active water treatment system for the removal or arsenic, antimony, mercury and other contaminants to meet objectives. The water treatment system would be an active system as described in Alternative 2 of the SGP DEIS. The plan would not anticipate conversion in the future to a semi-passive (sic passive) water treatment system as at this time the approach is unproven and speculative as compared to the ability to conduct active water treatment.

7. Long-Term Monitoring, Maintenance and Operations, and Institutional Controls

The Stibnite site remedial plan would include long-term monitoring, maintenance, operations, and an institutional control program. Long-term monitoring would be intended to demonstrate the effectiveness of the remedy by monitoring water quality and quantity as well as aquatic life in the areas where waste rock, tailings, heap leach and other materials have been removed in addition to the effectiveness of the repository and Yellowpine pit and in surface water downstream of the site. Monitoring would also need to be performed for erosion, stormwater controls, and revegetation. Maintenance would need to be performed on the repository cover system, stormwater controls and water management features, as well as on any remediated areas as required. Water treatment operations would need to be continued until no longer

necessary. An Institutional Controls program would be developed and implemented to protect the remedy from development or other unintended impacts. Financial assurance to ensure that long-term activities will be conducted in perpetuity would be included as part of this plan.

IV. Other Areas Impacted by Mining Activities

Both the main stem of Meadow Creek and its East Fork tributary have been severely impacted by past mining activity. The East Fork of Meadow Creek, locally known as "Blowout Creek", is today one of the largest sources of sediment for this part of the Salmon River. "Blowout Creek" got its name from a water dam that failed in the 1960s with a washout that scarified an erosional channel and drained the meadow and the productive wetlands above. The erosional and dewatering effects continue today, with sediment being rushed downstream with every spring melt and every summer rainstorm, the finer sediments choking the spawning grounds of the Salmon River.

As part of the No Action Alternative Including Cleanup Blowout Creek would be restored as part of a Natural Resources Damage claim. The restoration would be performed similar to that described in the SGP DEIS.

The EFSFSR, a branch of the Salmon River headwaters, currently runs though the old Yellow Pine pit (sometimes referred to locally as the "Glory Hole"). First mined in 1938 and abandoned in the late 1950s, the pit has since filled with river water and formed a lake. While recreationists currently camp on the old mine benches within the open pit and catch fish in the un-reclaimed pit lake, anadromous and local fish populations have not been able to migrate upstream from this point since 1938. The fish passage would be restored as part of the diversion of the EFSFSR as previously described for the Yellow Pine Pit in this memo.

V. Anticipated Environmental Effects

The anticipated environmental effects from any Superfund or other mine cleanup or even modern mine reclamation are difficult to predict, however it is nearly always predicted that the effect will be to meet the applicable water quality standards, with some exceptions. The objective of the Stibnite Mine No Action Including Cleanup Alternative would be to capture and treat all mine influenced water so as to meet applicable water quality objectives, and if possible, to restore baseline water quality as well as other conditions to the site.

The assumption for the Stibnite Mine No Action Including Cleanup Alternative is that water quality would be improved by 90% for key contaminants such as antimony and arsenic. The effect of this as it pertains to the SPG DEIS is shown in Table 3. Table 3 shows the current conditions as baseline conditions, and Alternative 2, the Agency Alternative, from the DEIS. It also shows the current conditions, improved by 90% removal or antimony and arsenic as a result of the No Action Including Cleanup Alternative. As indicated by the data in the table, the Alternative 2 Agency Alternative might result in some improvement of existing water quality if all the predictions contained therein were correct, which they rarely if ever are[5], and instead tend to over-predict water quality protection at modern mine sites. The results as compared to the existing conditions only represent a modest improvement and show the limits of the proposed action in terms of leaving the site in a degraded condition under the best circumstances predicted post-mining. The No Action Including Cleanup Alternative on the other hand shows that if current mining contamination was addressed significant improvements to water quality would be expected to result, meeting applicable water quality standards and returning the site to near historic baseline conditions.

Table 3 – Comparison of Water Quality Changes for SGP DEIS Alternatives and No Action Including Cleanup Alternative.

Description		SGP DEIS		No Action Including Cleanup Alternative
		No Action Baseline	Alternative 2 Agency Alternative	
Antimony	Low	0.012	0.009	0.001
(ppm)	High	0.031	0.026	0.003
Arsenic	Low	0.025	0.016	0.003
(ppm)	High	0.063	0.049	0.006

In summary, had the No action Including Cleanup Alternative been included in the SGP DEIS, it would have revealed the existing contaminated nature of the site that the DEIS portrays as

[5] See Kuipers and Maest 2006 Comparison of Predicted and Actual Water Quality in EISs. https://earthworks.org/publications/comparison_of_predicted_and_actual_water_quality_at_hardrock_mines/ EPA External Peer Review at https://ofmpub.epa.gov/eims/eimscomm.getfile?p_download_id=513568

baseline conditions is incorrect and in fact represents the contaminated nature of the existing site, and that if the existing site were remediated significantly improved water quality would be expected to result. Additional, by comparing the alternatives, it is clear that unlike the present portrayal in the DEIS that Alternative 2 would actually improve water quality if compared to present contaminated conditions, Alternative 2 would result in significant degradation of water quality as compared to the No Action Including Cleanup Alternative. This should result in the No Action Including Cleanup Alternative being recognized as the least environmentally damaging alternative and therefore the only alternative that can be recommended as a result of the NEPA analysis, if it is properly performed.

APPENDIX A

STATEMENT OF WORK FOR
Stibnite Mine Time Critical Removal Actions and Non-Time Critical Removal Actions

STIBNITE MINE SITE
VALLEY COUNTY, IDAHO

This Statement of Work (SOW) is Appendix A to the Administrative Settlement Agreement and Order on Consent (ASAOC) for implementation of response actions at the Stibnite Mine Site (hereafter referred to as "the Site"). The purpose of this SOW is to identify time critical and non-time critical removal actions at Source Areas at the Stibnite Mine Site.

The description of the technical work described herein is intended to provide information to the Respondents for the purpose of implementing the ASAOC. All terms used in this SOW shall be interpreted in a manner consistent with the definitions provided in the ASAOC. Any discrepancies between the ASAOC and the SOW are unintended, and whenever necessary the ASAOC will govern any interpretative disputes. This SOW is also consistent with both the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

This SOW sets forth the requirements for conducting investigation, design, and removal actions at Source Areas at the Site. Work under this SOW has been divided into three phases: Work in Phase 1 must be completed under the ASAOC. The Work in the subsequent Bridge Phase, Phase 2, and Phase 3 are not required under the ASAOC until the Respondents elect to do that Work as provided in the ASAOC, and the Agencies agree to the performance of the Work by Respondents. No removal or remedial actions have been chosen for the optional phases. The United States Environmental Protection Agency (EPA) and United States Forest Service (USFS) (the Agencies) will identify specific removal actions, if any, to be carried out at a Source Area in the optional phases after completion of the prior phase. As described in this SOW, Work set forth in this SOW is focused on addressing Waste Material in waste rock, tailings, and mine water at the Source Areas identified in Attachment 1.

The Agencies may, at their discretion, modify the timeframe set forth in this SOW for completion of Phase 1 and the optional Bridge Phase, and optional Phases 2 and 3. Actions to be performed in areas that are subject to mining and reclamation activities performed pursuant to an approved mine plan of operations (or "mine plan", "Plan of Restoration and Operations", or "PRO"), permits, and authorizations under state or other federal authorities are outside the scope of this agreement and not authorized by, covered by, nor subject to the terms of this ASAOC and SOW.

Once Respondents have committed to performing a particular phase of work, and after the necessary approvals, permits, and authorizations have been obtained for mine operations, Respondents may choose to conduct certain activities set forth in this SOW under an approved mine plan and/or a Clean Water Act (CWA) permit. Once Respondents make this election, the activities will be removed from the scope of the ASAOC and SOW.

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1.0 General Requirements

1.1 Oversight

Respondents' work conducted under the SOW will be overseen jointly by the Agencies and the Agencies' respective roles and responsibilities shall be addressed in a separate Memorandum of Understanding.

Respondents shall submit all documents and deliverables required as part of this SOW to the Agencies for their review and approval. Work will not be initiated until deliverables associated with that Work are reviewed and approved by the Agencies.

Throughout implementation of the Work, Respondents shall prepare and submit Quarterly Progress Reports to the Agencies to aid in project planning. The Reports shall list deliverables submitted during the quarter; summarize and provide the results of all data collected and of all analytical laboratory results received; and describe the actions and decisions taken, problems encountered, and activities scheduled during the upcoming quarter. Quarterly progress reports shall also summarize the extent to which the procedures and dates set forth in the ASAOC and SOW are being met. The parties may also hold more frequent meetings (for example, monthly), and may adjust the frequency of meeting as needed to accommodate current activities to implement the ASAOC.

1.2 Work Phases

Work under this SOW has been divided into three phases:

- Work in Phase 1 is required under the ASAOC and will be implemented as a Time Critical Removal Action (TCRA).
- The activities in the Bridge Phase are optional until the Respondents elect to perform them, and the Agencies agree to the performance of the Bridge Phase Work by Respondents.
- Phase 2 and Phase 3 are optional until the Respondents elect to perform them, and the Agencies agree to the performance of the Phases by Respondents. Phase 2 and 3 Work will be conducted as Non-Time Critical Removal Actions, and will be performed consistent with the SOW, any amended SOW, and approved Work Plans.

Table 1 describes the estimated timing of the ASAOC phases and potential mine activities assuming, that approvals and permits for mine operations are issued and mining proceeds accordingly. Attachment 1 lists Source Areas with Waste Material that may be addressed by this agreement.

2.0 Phase 1 – ASAOC Removal Actions (ASAOC Years 1 – 4 / 2020-2024)

2.1 Purpose

Phase 1 removal actions will occur during the mine permitting process and pre-mining activities. Phase 1 includes both time critical removal actions and time critical studies at several adits, as well as planning to inform potential removal actions in later phases. Phase 1 actions are described briefly in this section. Additional details are provided in Section 2.5. An overview of the Site is provided in Figure 1.

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2.2 Phase I TCRA Projects

The Respondents shall develop three detailed TCRA Work Plans, the associated design packages, and a Project Schedule for the Agencies' review and approval. After the Agencies' approval, the Respondents shall implement the TCRAs. TCRAs shall include the following actions:

- Stream Diversion Project: Interim measures to divert upgradient water around three historic mining features: NW Bradley Dumps / Hennessy Creek, the Defense Minerals Exploration Administration (DMEA) Waste Rock Dump, and Smelter Flats/Hangar Flats[1]. Stream diversion actions shall take into consideration the March 2013 USFS guide entitled, "Planning and Layout of Small-Stream Diversions.," A TCRA Work Plan and design package for the alignment of the diversions, shall define the Means and Methods used to divert water and the discharge areas, shall be prepared by the Respondents for review and approval by the Agencies prior to construction. Water diversions shall be designed to divert clean water from the following Source Areas:
    - The Northwest Bradley Dumps consist of extensive waste rock dumps covering over 30 acres along the East Fork of the South Fork of the Salmon River (EFSFSR) southwest of the confluence with Sugar Creek. Hennessy Creek currently leaks from a ditch system and infiltrates upgradient of the Northwest Bradley Dumps. Respondents' existing technical analyses indicate that this water likely infiltrates through waste rock in the dumps, potentially contributing to the elevated metals concentrations observed in the EFSFSR.
    - The DMEA Waste Rock Dump Area is on the western side of the EFSFSR valley approximately 0.75 miles south of Fiddle Creek. Respondents' analyses of existing data suggest that seeps from the DMEA Waste Rock Dump contribute to elevated metals concentrations at monitoring station YP-T-17. Work in this area will evaluate the potential for multiple seeps and water sources, e.g. manifestation of adit seeps (e.g. upper and lower seeps) versus surface flow contacting mine waste. If this is identified as a data gap, it will be described in the Site Characterization and Data Gaps Report (Section 2.3).
    - Smelter Flats/Hangar Flats is the site of former mineral processing activities in Meadow Creek valley approximately 0.75 miles southwest of the EFSFSR confluence. The area is southwest of the Hecla heap leach pad, and northwest of the Spent Ore Disposal Area (SODA) and Bradley Tailings Pile, and groundwater and seeps from this area impact water quality in Meadow Creek.
- Waste/Sediment Removal and On-Site Repository Project: Remove approximately 300,000 tons (of the approximately 15 million tons at the Site)[2] of contaminated Waste Material from streambanks and/or floodplains. Based on the arsenic loading from various source locations identified in Attachment 1 the sources shall be addressed sequentially from upstream to downstream. Sequencing of the Waste Material removal from upstream to downstream is essential. If downstream areas are cleaned up first, then they would likely be re-contaminated by releases of hazardous materials from upstream sources. The Keyway Dam and Marsh Area is a major source of metals from legacy tailings and the main source of suspended sediment from

[1] Also known as the Bradley Mill and Smelter and the Meadow Creek Mill and Smelter.
[2] Midas Plan of Restoration and Operations

the failure of the former tailings storage facility; therefore, remediation of the Keyway Dam and Marsh Area shall be conducted first to provide immediate benefit to downstream fish habitat.

  - If the Keyway Dam and Marsh Area removal has been completed and less than 300,000 tons have been removed, then contaminated sediments in streams or floodplains shall be removed from further downstream locations: the Bradley Man Camp Dumps, the Bradley NE Oxide Dumps, and finally, the BMC Northwest Bradley Waste Rock Dumps and areas adjacent to and SW of the Yellow Pine Pit. Respondents shall define the Means and Methods for removal as well as performance goals and associated industry standards. In addition, Respondents shall design and construct an on-site repository to accommodate the volume of Waste Material identified in the TCRA Work Plan for the waste/sediment removal project. Respondents shall site the repository in an uplands area with stable slopes, design a low-permeability foundation with underdrain and leachate collection layers, and submit construction QA/QC and Operations Monitoring and Maintenance Plans for the facility.

- Adit Study: Conduct baseline studies of Mine Influenced Water (MIW) at five adits: Bailey Tunnel, DMEA Adit, Bonanza Adit, Cinnabar Tunnel, and Meadow Creek Adit. Respondents shall take measurements of water quality, quantity and geotechnical data needed to inform removal actions. This data will be used to provide baseline conditions and seasonal measurements of current (pre-dewatering) and expected post closure groundwater quality, quantity elevations and flow. Initiating baseline studies to inform the design of removal action alternatives for the following existing mine features (ranked by relative arsenic load to surface water): Bailey Tunnel Adit, Meadow Creek Mine Adit, Cinnabar Tunnel Adit, DMEA Adit, and Bonanza Adit. The baseline studies for removal actions would include drilling and installing monitoring wells to measure groundwater elevations, installing surface water flow measurement weirs or flumes, continuously measuring hydraulic pressure, collecting water quality parameters including specific conductivity, temperature, pH, and seasonally measuring metals and suspended solids concentrations.

The TCRA Work Plans shall include, at a minimum, background information relevant to the project area, removal action objectives, identification of a preferred alternative, identification of ARARs, and summary of the Site conditions.

Design Packages shall include a basis for the design, specifications, drawings, supporting calculations, and construction quality control/quality assurance requirements for delineation of the excavation limits, and the basis for that delineation; method for determining when the depth and lateral extent of removal is sufficient; drainage design; repository design including mass balance calculations; permanent stormwater control; liner/cover requirements, geotechnical evaluation; hauling plan; means and methods for conducting the work including survey control, dust control, stormwater and erosion control during TCRA implementation, spill control/cleanup; and health and safety plans.

Data Analyses, Removal Action Area Investigations, and associated Time Critical Removal Action Work Plans and Design Packages:

- Using existing data compiled and/or collected by the Respondents at the time the ASAOC is signed, the Respondents shall develop a Site Characterization Report and Data Gaps Analysis. No data collection is necessary for this element of the SOW. Provide all data related to Waste Material at the Site to the Agencies in electronic format (e.g., Microsoft Excel or Access files for contaminant data and GIS files for maps).

- TCRA Work Plan and Design Package for diverting upgradient water around three historic mining features: NW Bradley Dumps / Hennessy Creek, the DMEA Waste Rock Dump, and the former Smelter Flats/Hangar Flats.
- TCRA Work Plan and Design Package for Waste/Sediment Removal and On-Site Repository Project. Respondents will develop a TCRA Work Plan, including a Quality Assurance Project Plan (QAPP) which includes elements of both a Sampling and Analysis Plan (SAP) and a Field Sampling Plan (FSP) to guide the collection of any additional data needed for the purpose of implementing the Phase 1 waste/sediment removal action. The TCRA Work Plan will include an evaluation of options for removing up to 500,000 tons (300,000 tons for Phase I, potentially 200,000 under the Bridge Phase) of Waste Materials from the shoreline and floodplain areas of the EFSFSR, Meadow Creek, and other tributary streams. Respondents will propose the location of Waste Material from the following Source Areas: the Keyway Dam and Marsh Area, the areas impacted by the Bradley Man Camp Dumps, the Bradley NE Oxide Dumps, and the BMC Northwest Bradley Waste Rock Dumps, and areas adjacent to and SW of the Yellow Pine Pit. The TCRA Work Plan and Design Package will also evaluate options and provide the detailed design for the on-Site disposal of up to 500,000 tons of Waste Material (to accommodate another 200,000 tons if Respondents agree to carry out additional excavation and disposal under optional Bridge phase or Phase 2).
- TCRA Work Plan for characterization of Adit Discharges. Respondents will develop a TCRA Work Plan, including a QAPP, to guide baseline studies of Mine Influenced Water (MIW) at five adits: Bailey Tunnel, DMEA Adit, Bonanza Adit, Cinnabar Tunnel, and Meadow Creek Adit. The studies will include measurements of volumetric flow and contaminant concentrations in water discharged from the adits, as well as geotechnical evaluations as needed to inform potential removal actions. Respondents will develop a Removal Alternatives Analysis (RAA) Report, in which they will evaluate data and potential response actions for each of the five adits.

2.3 WORK APPROACH AND KEY DELIVERABLES

Deliverables specified in this SOW shall be consistent with the NCP and appropriate EPA policy and guidance. Except where noted below, deliverables for removal actions shall include preparation, delivery of a draft, incorporation of the Agencies' comments, and finalization of the following:

1. Site Characterization Report and Data Gaps Analysis using existing data.
2. TCRA Work Plans (as described above and in Section 2.5) including QAPP and Construction Quality Assurance Plan (CQAP) (draft and final), as appropriate.
3. TCRA Design Documents (as described above and in Section 2.5).
4. Biological Assessment (BA), Clean Water Act (CWA) Section 404 Evaluation, and Cultural Resources Survey (may be included in the TCRA Work Plan for the Interim Water Diversion Removal Action, as identified in Section 2.5).
5. Waste/Sediment Removal Action Area Characterization Report. Adit Removal Action Area Discharge Characterization Report[3].

[3] TCRAs in Phase 1 to divert water around the NW Bradley Dumps / Hennessy Creek, Smelter Flats / Hangar Flats, and the DMEA Waste Rock Dump do not require a Removal Action Area Characterization Report.

6. Removal Alternative Analysis Report for the Adits.
7. Implementation of Removal Actions and weekly report documentation.
8. Removal Action implementation data including but not limited to field monitoring, laboratory analysis, geotechnical investigations, survey documentation.
9. Removal Action Completion Report(s).
10. Quarterly Progress Reports.
11. Post-Removal Site Control Report and Plan.

Table 2 provides a general schedule of deliverable deadlines for Phase 1 of this ASAOC/SOW. Data submittal requirement are defined in the following sections.

2.3.1 General Requirements for Deliverables

Respondents shall submit all deliverables required by this SOW, or any approved work plan, to Agencies in accordance with the schedule set forth in Table 2.

Respondents shall submit all deliverables in electronic form. Technical specifications for sampling and monitoring data and spatial data are addressed in Section 2.3.2. All other deliverables shall be submitted to the Agencies in the form specified by the OSC. If any deliverable includes maps, drawings, or other exhibits that are larger than 8.5 x 11 inches, Respondents shall also provide the Agencies with paper copies of such exhibits.

2.3.2 Technical Specifications for Deliverables

Sampling and monitoring data should be submitted in standard Regional Electronic Data Deliverable (EDD) format (see Region 10 Data Management Plan, Appendix B Data Element Dictionary). Other delivery methods may be allowed if the Agencies approve them in advance.

Spatial data, including spatially-referenced data and geospatial data, shall be submitted: (a) in the ESRI File Geodatabase format; and (b) as unprojected geographic coordinates in decimal degree format using North American Datum 1983 (NAD83) or World Geodetic System 1984 (WGS84) as the datum. If applicable, submissions should include the collection method(s). Projected coordinates may optionally be included but must be documented. Spatial data should be accompanied by metadata, and such metadata should be compliant with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata and its EPA profile, the EPA Geospatial Metadata Technical Specification. An add-on metadata editor for ESRI software, the EPA Metadata Editor (EME), complies with these FGDC and EPA metadata requirements and is available at https://edg.epa.gov/EME/.

Each file must include an attribute name for each site unit or sub-unit submitted. Consult http://www.epa.gov/geospatial/geospatial-policies-and-standards for any further available guidance on attribute identification and naming.

Spatial data submitted by the Respondents does not, and is not intended to, define the boundaries of the Site.

2.3.3 Electronic Database Requirements

Environmental sample data and related site physical data (e.g., water quality field measurements) shall be compiled and provided to the Agencies in a Scribe electronic database. Scribe is a free environmental

data management tool developed and maintained by the EPA, which is capable of producing the EDDs specified in Section 2.3.2. Additional details on Scribe data entry are provided in Attachment 2.

2.4 GENERAL TASKS TO BE IMPLEMENTED DURING PHASE 1

Health and Safety Plan (HASP)

Respondents shall develop a HASP designed to protect on-site personnel, area residents and visitors to the removal action areas from physical, chemical, biological, and all other hazards posed by the removal actions in this ASAOC/SOW. The HASP shall include the following items:

- Facility Description
- Personnel
- Levels of protection
- Safe work practices and safeguards
- Personal protective equipment including a respiratory protection program if appropriate
- Medical monitoring
- Personal Hygiene
- Decontamination of personnel and equipment from Site work zones
- Contaminant control
- Stop work authority; documentation of near misses, incidents, and accidents
- Contingency and emergency planning logs, reports and record keeping
- Task-specific or activity evaluation of hazards

The HASP shall be prepared in accordance with EPA's Standard Operating Safety Guidance (PUB 9285.1-03, PB 92-963414, June 1992). In addition, pursuant to 40 CFR Part 300.150, the plan shall comply with all currently applicable Occupational Safety and Health Act ("OSHA") requirements, standards and regulations found at 29 C.F.R. part 1910; (Occupational Safety and Health Standards), Part 1926 (Construction Standards), including the General Industry Standards found in Part 1910, and the general duty requirements of section 5(a)(1)(29 U.S.C. 654(a)(1); and any other applicable safety laws and regulations. The Respondents shall submit a draft HASP to the Agencies for review. A final HASP shall be prepared that incorporates the Agencies' comments on the draft HASP. If the Agencies determine that existing HASP(s) for other areas of the Site or other activities adequately address health and safety issues, the existing plans can be referenced. However, previously prepared HASPs and the general site-wide HASP must be amended to address new job tasks and associated safety issues/hazards, and employer-specific safety requirements for the Respondents' work scope.

Site Characterization Report and Data Gaps Analysis

The Respondents shall prepare a report presenting existing Site data relevant related to Waste Material in the areas of the Site described below, including information about:

- The site's physical features and underlying geology;
- Previous mining actions, past disposal practices, and reclamation actions;
- Previous environmental investigations and removal or other cleanup actions;
- The varieties and quantities of hazardous substances at the Site, including soil, sediment, surface water and groundwater sampling results; and
- Data gaps and uncertainties that exist and may affect implementation of the TCRA.

The report shall discuss existing data related to the following Site features:

- Keyway Dam and Marsh Area
- Smelter Flats / Hangar Flats

- Meadow Creek Mine adit area
- Hecla heap leach & Pioneer tailings (NE of Hecla leach pad)
- Canadian Superior Heap Leach Pads area
- Defense Minerals Exploration Administration (DMEA) Waste Rock Dump area
- DMEA adit area
- Bradley Man Camp Waste Rock Dump area
- Areas adjacent to and NE of the Yellow Pine Pit, including Monday Camp, Monday Camp Waste Rock Dump, and SE Bradley Waste Rock Dump
- Areas adjacent to and SW of the Yellow Pine Pit, and the BMC NW Bradley Waste Rock Dump
- Cinnabar Tunnel adit area
- Northwest Bradley Waste Rock Dumps / Hennessy Creek area
- Northeast Bradley Northeast Oxide Dumps area
- Bailey Tunnel outlet area
- Bonanza adit area (Sugar Creek)
- Bonanza Dump

Site Features containing hazardous materials are documented in the Hazardous Materials Baseline Study Prepared for Midas Gold Idaho Incorporated by HDR in 2015 and updated by Brown and Caldwell in 2017[4]. The report shall include a bibliography of the studies and reports cited, and electronic copies of cited reports shall be provided to the Agencies along with the report. In addition, data compiled by the Respondents shall be provided to the Agencies in a Scribe electronic database, as specified in Section 2.3.3.

Data Validation Summaries

Data collected to support characterization and TCRA activities shall be validated in accordance with EPA guidance and policies. Data Validation Reports shall be provided to the Agencies upon completion of each sampling event.

2.5 PHASE 1 REMOVAL ACTION AND SOURCE AREA INVESTIGATION TASKS

2.5.1 Interim Water Diversion Removal Actions Planning Documents

TCRA Work Plan

Respondents shall submit a TCRA Work Plan that will include an evaluation of alternative designs for implementation of the removal action selected in the Action Memorandum (Action Memo). The selected removal action requires diversion of water around NW Bradley Dumps/Hennessy Creek, Smelter Flats/Hangar Flats, and the DMEA Waste Rock Dump. In addition to the evaluation, the TCRA Work Plan will include the following elements:

- Executive Summary;
- Introduction;
- Procedures for addressing and protecting any cultural resources in the areas in which stream diversion will occur;
- Identification of Removal Action Objectives and performance goals (e.g. for the water diversion project and adit seep project, to reduce metal concentrations in surface water downgradient of

[4] Midas Gold. Hazardous Materials Baseline Study. April 2017.

the identified Source Areas to prevent erosion of contaminated soils into streams and reduce dissolved metal concentrations in surface water);

- Identification of Removal Action Technologies (e.g., for the water diversion project, unlined or lined ditches, pipes; for the waste/sediment removal project, excavation equipment, bank stabilization methods, Waste Material repository containment strategies; and for the adit seep project bulkheads, water treatment, water diversion, etc.);
- Identification of Removal Action Alternatives (e.g., for the water diversion project, conveyance routing, outfall locations; and for the waste/sediment removal project, what portions of dumps and tailings are targeted for removal, potential Waste Material disposal locations, and waste haul routes);
- Evaluation of Removal Action Alternatives;
- Schedule for recommended Removal Action;
- Biological Assessment that characterizes baseline conditions of existing habitat in and around TCRA areas; addresses potential project impacts that the projects may have on threatened or endangered species, their habitat, and their food stocks; and describes best management practices and conservation measures designed to avoid or minimize any negative impacts;
- A Clean Water Act Section 404 analysis memorandum, if the recommended removal action alternative will impact jurisdictional wetlands. The memorandum shall document the information gathered regarding practicability and cost, long and short-term effects from all proposed alternatives, minimization of adverse effects, and an analysis of the need for any mitigation;
- Procedures for processing design changes and securing the Agencies' review and approval of such changes to ensure changes are consistent with the objectives of the Removal Actions; and
- Procedures for coordinating with EPA regarding compliance with EPA's Off-Site Rule, as applicable.

Project Design Documents

After the Agencies have issued the Action Memo the Respondents shall produce design documents, including construction plans and specifications, supporting calculations, QAPPs, and CQAPs to implement the Removal Actions. Respondents shall meet regularly with the Agencies prior to and during development of design documents, and provide the Agencies for review and approval, the technical documents that support the removal design.

For the water diversion project, the Respondents shall submit:

- Initial 30% Design Report
- Prefinal design when the design effort is 60 percent complete,
- Draft Final design and
- Final design when the design effort is 100 percent complete.

Prefinal Design submittals for the water diversion project shall include three separate deliverables:

- Initial (30 percent) and Prefinal (60 percent) Design Analysis Report;
- Initial (30 percent) and Prefinal (60 percent) Construction Documents and Schedule;
- Initial (30 percent) and Prefinal (60 percent) Design Plans and Specifications.

Each 30% initial report will include a concise summary of the known elements of each report. This will allow for the agencies and Respondents to agree on a course of action.

The Prefinal (60 percent) Design Analysis Report shall provide the design criteria and the basis of design for the Removal Actions. Examples of the types of information to be included are described below:

- Technical parameters and supporting calculations upon which the design will be based;
- Descriptions of the analyses conducted to select the design approach, including a justification of design assumptions and verification that the design will meet performance goals and associated industry standards;
- Access and easement requirements (if any);
- Permit requirements or substantive requirements of permits;
- Plans for reducing negative effects on the environment during construction;
- An outline of the Post-Removal Site Control; and
- Analysis and recommendations on institutional controls and/or engineering controls that may be implemented to ensure long-term effectiveness of the removal actions that are likely to remain in place through and beyond mining activities under the PRO (see "Institutional Controls" OSWER 9355.0-74FS-P, EPA 540-00-005, September 2000).

The Prefinal (60 percent) Construction Documents and Schedule shall include:

- Construction plans/drawings and required specifications; and
- Schedule for construction and implementation of the Removal Action that identifies major milestones.

The Prefinal (60 percent) Design Plans and Specifications shall include:

- Draft Construction Drawings;
- Draft Technical Specifications; and
- Draft CQAP, detailing the remediation verification method and approach to quality assurance during construction activities in the project area. The CQAP will describe in detail the construction quality criteria and tolerances, field and laboratory testing and inspection requirements, methods for direct measurement to be made during construction to ensure removal action objectives and performance goals and associated industry standards will be met, and methods for resolving nonconforming conditions. Attachment 3 lists EPA guidance for CQAP preparation.

The Draft Final (100 percent) Design package shall include:

- Draft Final Design Analysis Report;
- Draft Final construction documents and schedule;
- Draft Final CQAP;
- Draft Operation, Maintenance, and Monitoring Plan; and
- Draft Final cost estimate for the Removal Action and estimated cost for long-term monitoring.

The Final (100 percent) Design package shall include:

- Final Design Analysis Report;
- Final construction documents and schedule;
- CQAP;
- Operation, Maintenance, and Monitoring Plan; and
- Final cost estimate for the Removal Action and estimated cost for long-term monitoring.

The final design shall fully address all the Agencies' comments made on the conceptual (e.g. 30%) and prefinal design (60%). The final design package shall be stamped by licensed Professional Engineer, registered in the State of Idaho.

A statement of qualifications for the construction contractor will be prepared after completion of the design documents and submitted for review and approval by the Agencies. The statement of qualifications for the construction contractor shall identify the appropriate areas of construction expertise including years of experience on projects with similar scope, size, and quality requirements to successfully implement the TCRA.

2.5.2 Waste/Sediment Removal and Repository Planning Documents

TCRA Work Plan

Respondents shall submit a TCRA Work Plan that will evaluate and recommend actions to remove 300,000 tons of Waste Material from any of the following areas, in the following order or priority: the Keyway Dam and Marsh Area, the Bradley Man Camp Dumps, the Bradley NE Oxide Dumps, and the BMC Northwest Bradley Waste Rock Dumps (i.e., areas adjacent to but not within the Yellow Pine Pit). In anticipation of the Optional Bridge Phase, the report must also evaluate and recommend actions to remove an additional 200,000 tons of Waste Material, for a total removal of 500,000 tons of Waste Material from streambank and floodplain areas. The TCRA Work Plan will also evaluate and scope design of an on-site repository for long-term containment of the excavated Waste Material.

In addition to the evaluation, the TCRA Work Plan shall include a QAPP. The TCRA Work Plan shall include, at a minimum, the following information:

- Executive Summary;
- Introduction/Purpose;
- Brief description of the Stibnite mining district characteristics, including ecological and physical characteristics;
- Summary of existing information about the history and operation of the Bradley Man Camp Dumps, BMC Northwest Bradley Waste Rock Dumps, and areas adjacent to, but not within, the Yellow Pine Pit (i.e., the Keyway Dam and Marsh Area, and the Bradley NE Oxide Dumps);
- Description of the physical features and nature and extent of contamination at the dumps and tailings piles listed above, including information about the volume and areal extent of Waste Materials, the frequency and extent of flooding and interaction of the Waste Materials with the adjacent waterbodies, and an estimate of the amount of contaminants of concern (e.g., aluminum, arsenic, antimony, cyanide, iron, manganese, mercury, and thallium) released annually from Source Areas through erosion and dissolved contaminant transport;
- Performance goals. Field survey of the floodplain and Waste Materials are necessary to implement Phase I removal actions including mapping the topography, presence of Waste Material in the stream and floodplain, nearby wetlands, and measuring surrounding grades and soil types so that temporary stream diversion can be designed and sediment control measures planned. Once final removal action locations are chosen, additional field survey of surrounding slopes will be necessary to design for slope and sediment stability once Waste Material is removed;
- Identification of the specific areas from which Respondents propose to remove Waste Material (as described in the fourth bullet, above). Discussion of the likely removal approach for each area selected, including the equipment that would be needed and any new roads or other improvements that would be required to facilitate construction;

- Discussion of potential Waste Material disposal locations, which may include stand-alone on-site permanent waste repository(ies);
- Identification of data needed to design waste/sediment removal actions and repository construction, which may include engineering characteristics of the Waste Materials, potential slope stability issues, and siting criteria (e.g., topography, geotechnical considerations, and soil properties information) in and around potential waste repository locations;
- Procedures for addressing and protecting any cultural resources in the areas in which stream diversion will occur;
- Identification of Removal Action Objectives and performance goals (e.g., for the waste/sediment removal project to prevent erosion of contaminated soils into streams and reduce dissolved metal concentrations in surface water) and for construction of the waste repository((ies);
- Identification of Removal Action Technologies (e.g., for the water diversion project, unlined or lined ditches, pipes; for the waste/sediment removal and waste repository project, excavation equipment, bank stabilization methods, Waste Material repository containment strategies; and for the adit seep project bulkheads, water treatment, water diversion, etc.);
- Identification of Removal Action Alternatives (e.g., for the water diversion project, conveyance routing, outfall locations; and for the waste/sediment removal and waste repository project, what portions of dumps and tailings are targeted for removal, potential Waste Material disposal locations, and waste haul routes);
- Schedule for recommended Removal Action;
- A Biological Assessment that characterizes baseline conditions of existing habitat in and around TCRA areas; addresses potential project impacts that the projects may have on threatened or endangered species, their habitat, and their food stocks; and describes best management practices and conservation measures designed to avoid or minimize any negative impacts;
- A Clean Water Act Section 404 analysis memorandum, if the recommended removal action alternative will impact jurisdictional wetlands. The memorandum shall document the information gathered regarding practicability and cost, long and short-term effects from all proposed alternatives, minimization of adverse effects, and an analysis of the need for any mitigation;
- A CQAP and statement of qualifications for the construction contractor. The CQAP will describe in detail the methods for direct measurement to be made during construction to ensure removal action objectives and performance goals and standards will be met. Attachment 3 provides relevant EPA guidance documents for CQAPs;
- Environmental Protection Plan detailing measures to minimize harm to the surrounding environment and prevent cross contamination during construction including best management practices (BMPs) for storm water management and dust control, waste management, spill control, decontamination requirements for equipment and personnel. Appropriate measures could include, for example, the use of silt fencing to reduce soil erosion into nearby waterbodies, procedures to reduce the risk of spills during onsite refueling of vehicles and equipment, and established traffic patterns to reduce the risk of vehicle accidents during construction, decontamination of haul trucks prior to traveling on clean haul roads, etc.;
- Procedures for processing design changes and securing the Agencies' review and approval of such changes to ensure changes are consistent with the objectives of the Removal Actions;
- Procedures for coordinating with EPA regarding compliance with EPA's Off-Site Rule, as applicable; and

- ARARs identification and a discussion of how the Removal Actions will meet the identified ARARs.

The procedures the Respondents plan to implement when conducting all field activities will be detailed in the approved QAPP that will be included in the TCRA work plan. The QAPP will ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and meet data quality objectives. The QAPP will follow the "EPA Requirements for Quality Assurance Project Plans" EPAQA/R-5 with DQOs developed and included in accordance with EPAQA/G-4, "Guidance on Systematic Planning Using the Data Quality Objectives Process". The QAPP will follow the Uniform Federal Policy (UFP) format, as described in the guidance documents listed in Attachment 3.

Waste/Sediment Removal Action Area Characterization Report

Respondents shall submit a Removal Action Area Characterization Report that includes information from field sampling events conducted to support possible removal actions including the Keyway Dam and Marsh Area, Bradley Man Camp Dumps, the Bradley NE Oxide Dumps, areas adjacent to and SW of the Yellow Pine Pit, and the BMC NW Bradley Waste Rock Dump including validated analytical results. The Removal Action Area Characterization Report shall include, at a minimum the following sections:

- Introduction/purpose;
- Summary of the field sampling effort that, at a minimum, includes field effort dates, a summary of sample collection efforts (e.g., Waste Material deposit mapping, topographic survey of the floodplain area including wetland demarcation and stream gradient, high water mark survey, and volume calculations, topographic surveying), field sample observations, and a summary of sample and station locations, with maps and figures;
- Deviations from the approved FSP; and
- Summary of all data, including a data validation report. Data from this effort shall be provided to the Agencies electronically as well as in report tables.

Project Design Documents

After the Agencies have issued the Action Memo for the waste/sediment removal and repository construction project, the Respondents will produce design documents, including construction plans and specifications, supporting calculations/justification, QAPPs, and CQAPs to implement the Removal Actions. For the repository, the design package shall include a closure plan identifying the final cap or cover requirements and Post-Removal Site Controls. Respondents shall meet regularly with the Agencies prior to and during development of design documents, and provide to the Agencies for review and approval, the technical documents that support the removal design.

For the waste/sediment removal and on-site repository project, the Respondents shall submit:

- Conceptual design when the design effort is 30 percent complete;
- Prefinal design when the design effort is 60 percent complete;
- Draft Final design; and
- Final design when the design effort is 100 percent complete.

The Conceptual Design for the waste/sediment removal project shall include an overall explanation of the selected alternative, and annotated outlines of the prefinal design analysis report, a list of anticipated plan drawings, and an annotated outline of technical specifications.

Prefinal Design submittals for the waste/sediment removal and on-site repository project shall include three separate deliverables:

- Initial (30 percent) and Prefinal (60 percent) Design Analysis Report;
- Initial (30 percent) and Prefinal (60 percent) Construction Documents and Schedule; and
- Initial (30 percent) and Prefinal (60 percent) Design Plans and Specifications.

Each 30% initial report will include a concise summary of the known elements of each report. This will allow for the agencies and Respondents to agree on a course of action.

The Prefinal (60 percent) Design Analysis Report shall provide the design criteria and the basis of design for the Removal Actions. Examples of the types of information to be included are described below:

- Technical parameters and supporting calculations upon which the design will be based;
- Descriptions of the analyses conducted to select the design approach, including a justification of design assumptions and verification that the design will meet performance goals and associated industry standards;
- Access and easement requirements (if any);
- Permit requirements or substantive requirements of permits (e.g., general construction and stormwater permits);
- Plans for reducing negative effects on the environment during construction;
- An outline of the Post Control Site Controls, and
- Analysis and recommendations on institutional controls and/or engineering controls that may be implemented to ensure long-term effectiveness of the removal actions that are likely to remain in place through and beyond mining activities under the PRO (see "Institutional Controls" OSWER 9355.0-74FS-P, EPA 540-00-005, September 2000).

The Prefinal (60 percent) Construction Documents and Schedule shall include:

- Construction plans / drawings and required specifications; and
- Schedule for construction and implementation of the Removal Action that identifies major milestones.

The Prefinal (60 percent) Design Plans and Specifications shall include:

- Draft Construction Drawings;
- Draft Technical Specifications; and
- Draft CQAP, detailing the remediation verification method and approach to quality assurance during construction activities in the project area. The CQAP will describe in detail the construction quality criteria and tolerances, field and laboratory testing and inspection requirements, methods for direct measurement to be made during construction to ensure removal action objectives and performance goals and associated industry standards will be met, and methods for resolving nonconforming conditions. Attachment 3 lists EPA guidance for CQAP preparation.

The Draft Final (100 percent) Design package shall include:

- Draft Final Design Analysis Report;
- Draft Final construction documents and schedule;
- Draft Operation, Maintenance, and Monitoring Plan; and

- Draft Final cost estimate for the Removal Action and estimated cost for long-term monitoring.

The Final (100 percent) Design package shall include:

- Final Design Analysis Report;
- Final construction documents and schedule;
- Operation, Maintenance, and Monitoring Plan; and
- Final cost estimate for the Removal Action and estimated cost for long-term monitoring.

The final design shall fully address all Agencies' comments on the conceptual and prefinal design. The final design package shall be stamped by licensed Professional Engineer, registered in the State of Idaho.

A statement of qualifications for the construction contractor will be prepared after completion of the design documents and submitted for review and approval by the Agencies. The statement of qualifications for the construction contractor shall identify the appropriate areas of construction expertise including years of experience on projects with similar scope, size, and quality requirements to successfully implement the TCRA.

2.5.3 Adits Planning Documents

TCRA Work Plan

Respondents shall prepare and submit for the Agencies' review and approval a TCRA Work Plan for adit investigations to characterize baseline (pre-mining) conditions at the Bailey Tunnel, DMEA Adit, Bonanza Adit, Cinnabar Tunnel, and Meadow Creek Adit. The TCRA Work Plan shall include:

- Executive Summary;
- Introduction;
- A summary of existing information about the history and operation of the Bailey Tunnel, DMEA Adit, Bonanza Adit, Cinnabar Tunnel, and Meadow Creek Adit;
- Description of the physical features of these adits and the nature and extent of contamination, including information about water quality and the volumetric flow and timing of the adit discharges;
- A preliminary Conceptual Site Model (CSM) for each adit. The CSM should include known and suspected sources of hazardous material contamination, types of contamination and affected media/resources and known and potential routes of contaminant migration;
- Identification of baseline data needed to characterize discharges from the five adits listed above which may include but is not limited to continuous flow measurements (e.g., high and low flow measurements), surface water quality sampling, groundwater sampling, sediment and/or soil sampling, and assessments of the physical characteristics of the adits, the surrounding geology, geotechnical data and upgradient background conditions;
- A QAPP detailing the procedures the Respondents plan to implement when conducting all field activities, which will conform to the QAPP Guidance listed in Attachment 3;
- A Job Hazard Analysis identifying the specific tasks workers will undertake during the adit investigations, and a HASP Amendment, if needed, to ensure the safety of workers implementing the field activities; and
- Schedule.

Adit Removal Action Area Characterization Report

Respondents shall submit a draft, draft final, and final Adit Removal Action Area Characterization Report for the adit seeps that includes information from the field sampling events to characterize baseline conditions at the Bailey Tunnel, DMEA Adit, Bonanza Adit, Cinnabar Tunnel, and Meadow Creek Adit. The Report shall include, at a minimum, the following sections:

- Introduction/purpose;
- Summary of the field sampling effort that, at a minimum, includes field effort dates, a summary of sample collection efforts (e.g., adit discharge flow measurements, water quality sampling), field sample observations, and a summary of sample and station locations, with maps and figures;
- Summary of adit physical properties including geotechnical characteristics to be used in evaluation of adit seep remedial technologies (e.g., structures etc.);
- Deviations from the QAPP;
- Summary of all data, including a data validation report. Data from this effort shall be provided to the Agencies electronically as well as in report tables;
- Updated CSMs based on current knowledge presented in the report;
- An evaluation of when in the planned mining sequence each adit would best be addressed; and
- Outstanding data gaps that will need to be filled during Design.

Removal Alternatives Analysis Report for the Adits

Respondent shall prepare a Removal Alternatives Analysis Report (RAA) identifying and evaluating alternatives for the adit removal actions. This report will be prepared based on characterization of the adits, discharges, and shall identify and provide an initial screening of removal action technologies. Individual technologies that are retained through the initial screening process shall be assembled into removal action alternatives and presented in the RAA Report. The removal alternative analysis shall include evaluation of implementability, effectiveness, and cost criteria. This analysis will be used to develop the EE/CA(s) prepared in Phase 2 and/or 3. The removal alternative analysis shall be prepared according to EPA's 1993 *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA*. Removal Actions recommended by the RAA Report may be implemented during optional Phase 2 after the completion of EE/CAs that evaluate adit removal alternatives.

2.6 Implementation of Removal Action

Respondents shall provide notification to the Agencies thirty (30) days prior to initiation of removal action related field work to all the Agencies to coordinate field oversight activities.

The Respondents shall complete the Removal Action in accordance with the approved Final Design documents and TCRA Work Plans. The following activities shall be conducted during construction of the Removal Action.

The Agencies and Respondents shall participate in an on-site preconstruction meeting(s) to:

- Review each construction location and confirm current site conditions;

- Review methods for documenting and reporting compliance with specifications and plans including methods for processing design changes and securing the Agencies' review and approval of such changes as necessary;
- Review methods for distributing and storing documents and reports;
- Review work area security and safety protocols, as appropriate;
- Demonstrate that construction management is in place, and discuss any appropriate modifications to the design (drawings, specifications, CQAP, QAPP, etc.) to ensure that project specific considerations are addressed; and
- Respondent shall transmit (electronically) draft key points and action items from the preconstruction meeting to all parties within seven (7) days of the meeting.

Weekly reports shall be prepared and submitted (electronically) to the Agencies for review during the Removal Action. Weekly reports shall include work performed, problems encountered, and solutions proposed, any monitoring results such as water quality monitoring, and work to be performed during the following week. If applicable, Respondents shall inform EPA of the off-Site disposal facility proposed to receive any debris or hazardous materials from the Removal Action areas and obtain approval per the CERCLA Off-Site Rule.

Depending on the repository design, independent QA oversight and certification by a licensed Professional Engineer registered in Idaho may be required. The need for independent Professional Engineer certification will be specified in the CQAP. The certification report will document that the repository liner system and/or final cap or cover system was constructed as designed.

Within seven (7) days after Respondents make a preliminary determination that construction is complete, Respondents shall verbally notify the Agencies for the purposes of scheduling prefinal and final inspections and/or meeting. Prior to scheduling the prefinal and final inspections, the Respondents shall send a letter to the Agencies stating that construction is substantially complete (prior to the prefinal inspection) and complete (for the final inspection) including completion of/ responding to any outstanding issues or punch-list items that were raised or identified by the Agencies during the prefinal inspection/meeting.

2.7 Removal Action Completion Report

Within 60 days after completion of construction of the Phase 1 removal actions, Respondents shall submit to the Agencies for review and approval a Removal Action Completion Report. This report shall contain a description of the work required in the TCRA Work Plan and/or design packages, and all approved deviations including nonconforming conditions and corrective actions. In the report, a professional engineer registered in the State of Idaho and the Respondents' project coordinator shall state that the TCRAs were constructed in accordance with the Final Design and the Final TCRA Work Plan. The written report shall include as-built drawings signed and stamped by a professional engineer registered in the State of Idaho, summary of data such as removal quantities and locations, analytical data collected in support of the Removal Action, an estimate of total costs for the TCRA, and any lessons learned. All analytical data collected under the ASAOC and SOW shall be provided electronically to the Agencies. The Removal Action Completion Report shall contain a description of any institutional controls that are in place, or engineering controls that are necessary to sustain the integrity of the Removal Action, along with copies of any agreements or other documents used to establish and implement such controls.

The final report shall also include the following certification signed by a person who supervised or directed the preparation of the report:

> "Under penalty of perjury under the laws of the United States, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of imprisonment."

2.8 Post-Removal Site Control

Post-Removal Site Control shall include actions necessary to ensure the effectiveness and integrity of the removal action to be performed pursuant to this Settlement consistent with Sections 300.415(l) and 300.5 of the NCP and "Policy on Management of Post-Removal Site Control" (OSWER Directive No. 9360.2-02, Dec. 3, 1990).

Respondents shall submit a plan for Post-Removal Site Control activities which shall include, but not be limited to: water diversion around NW Bradley Dumps/Hennessy Creek, Smelter Flats/Hangar Flats, and the DMEA Waste Rock Dump, removal of 500,000 tons of Waste Material from streambanks and floodplain areas, and the on-site repository for long-term containment of the excavated Waste Material. Upon Agency approval, Respondents shall either conduct Post-Removal Site Control activities, or obtain a written commitment from another party to conduct such activities, until such time as the Agencies determine that no further Post-Removal Site Control is necessary. Respondents shall provide the Agencies with documentation of all Post-Removal Site Control commitments.

2.9 Community Involvement Activities

Respondents shall provide information supporting community involvement programs related to the activities performed pursuant to this ASAOC and SOW and shall participate in public meetings upon the request of the Agencies. The public meetings may be held or sponsored by the Agencies to explain activities at the Removal Action Area or concerning Work performed pursuant to this ASAOC and SOW.

3.0 TCRA Optional Bridge Phase between Phase 1 and Phase 2 (ASAOC Year 5/2025)

After completion of all Work in Phase 1, if the approvals, authorizations, and permits have not been obtained for mine operations at the Site, Respondents may elect to perform activities in the optional Bridge Phase. Respondents must notify the Agencies in writing within thirty (30) days of issuance by the Agencies of a Notification of Completion of Phase 1 that they agree to perform the activities under the Bridge Phase. If the Agencies agree to Respondents' performance of the Bridge Phase, Respondents shall remove 200,000 additional tons of Waste Material (including waste/sediment) from streambank and floodplain areas and placement of these Waste Materials in an on-site repository. The Waste Materials may be placed in the same repository(s) as the 300,000 tons of Waste Material removed under Phase 1, if determined to be feasible by the Agencies and the Respondents.

Optional Bridge Phase Tasks are described below.

3.1 Additional Waste Material Removal

If, at the end of Phase 1, Respondents are still working to secure an approved mine plan and/or permits, Respondents may elect to perform the activities in the Bridge Phase. Respondents shall complete the optional Bridge Phase within one year of the date that the Agencies respond to the draft Time Critical Removal Action Work Plan for the Bridge Phase submitted by the Respondents. The activities to be performed during the optional Bridge Phase include removal and disposal of 200,000 additional tons of Waste Material from streambank and floodplain in the following Source Areas, in the following order of priority: the Keyway Dam and the Marsh Area, the Bradley Man Camp Dumps, the Bradley NE Oxide Dumps, the BMC Northwest Bradley Waste Rock Dumps and areas adjacent to and SW of the Yellow Pine Pit, or other Source Areas as appropriate. The removal objectives, planning documents, performance goals, and tasks are the same as those required for the Phase 1 Waste Material removal project, except for those tasks already completed in Phase 1 (for example, the Waste/Sediment Removal Action TCRA Work Plan prepared in Phase 1 will include the 200,000 tons of Waste Material scheduled for removal during the optional Bridge Phase, so a Waste/Sediment Removal TCRA Work Plan is not required in the optional Bridge Phase).

3.2 Post-Removal Site Control

Respondents shall continue to implement Post-Removal Site Control activities for all completed and ongoing removal actions during the Optional Bridge Phase. Respondents shall either conduct Post-Removal Site Control activities or obtain a written commitment from another party to conduct such activities, until such time as the Agencies determine that no further Post-Removal Site Control is necessary. Respondents shall provide the Agencies with documentation of all Post-Removal Site Control commitments.

4.0 Non-Time Critical Removal Actions

Two NTCRAs are described below as Optional Phase 2 and Optional Phase 3. NTCRAs shall be implemented in accordance with EPA's, *Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA*. EPA 540-R-93-057.

4.1 Optional Phase 2 (ASAOC Years 5-8, or 6-9 if Bridge Phase selected/2025-2028 or 2026-2029)

If Respondents elect to perform Phase 2, Phase 2 Work shall begin after completion of Phase 1 or after completion of the optional Bridge Phase. Phase 2 Work shall only be performed by Respondents if Respondents have obtained an approved mine plan and permits and the Agencies agree to the performance of Phase 2 by Respondents. Phase 2 work includes the following:

- Develop a detailed Project Schedule for the Agencies' approval;
- Remove 200,000 additional tons of Waste Material from streambank and floodplain Source Areas, if not already implemented under the optional Bridge Phase; and
- Develop a draft and final EE/CA, which will include an evaluation of removal actions for each of the five adits identified as Source Areas in this SOW. The EE/CA prepared during optional Phase 2 will build off the adit characterization TCRA performed during Phase 1 and incorporate the alternative evaluation documented in the RAA Report. Potential removal actions could include

collecting and treating MIW discharged from the adits, diverting clean upgradient water away from adit intake structures, constructing bulkheads, and installing passive treatment systems.

Implement an Action Memo (if one is issued by the Agencies) that is based on the EE/CA Report to address discharges of MIW at the five adits studied in Phase 1. An Action Memo will be based on the EE/CA Report prepared to address discharges of MIW at the five adits studied in Phase 1. The Respondents shall respond to and implement the Action Memo through the documents identified in Section 5.0, with removals complying with ARARs to the extent practicable and providing bases for any waivers in consultation with EPA, the USFS, and the State of Idaho.

OPTIONAL PHASE 2 TASKS

Removal of Waste Material from streambank and floodplain areas
If the optional Bridge Phase is not implemented, the first task under Phase 2 will be the removal of 200,000 additional tons of Waste Material from streambank and floodplain Source Areas, as described under optional Bridge Phase tasks, above.

Optional Additional Adit Investigation
During mining under an approved mine plan, dewatering the open pit mines could decrease discharge flows from many of the Site's adits. Dewatering may facilitate access and enable additional studies in one or more of the adits that could not be completed during normal flow conditions. If needed to support the selection and design of removal actions for the Bailey Tunnel, DMEA Adit, Bonanza Adit, Cinnabar Tunnel, or the Meadow Creek Adit, the Respondents may propose additional studies during Phase 2. These studies, which could include geotechnical and engineering investigations, should complement the baseline studies completed in Phase 1. If Respondents decide to collect additional data at the adits, they will prepare an EE/CA Work Plan for the Agencies' review and approval. Additional adit data collection must comply with EPA's memorandum on "Developing Consultation Packages for CERCLA Activities at Abandoned Hardrock Mining and Mineral Processing Sites in Preparation for the Fiscal Year 2017 Construction Season "or a future revised memo, if available. This memo assists the EPA regions in Fiscal Year planning for applicable CERCLA removal assessment, pre-remedial and remedial evaluation, investigation and response activities at hardrock mining and mineral processing sites with actual or potential fluid release hazards. The new EE/CA Work Plan shall incorporate by reference relevant portions of the approved TCRA Work Plan for Adits completed during Phase 1. The new EE/CA Work Plan shall also include:

- An updated Conceptual Site Model (CSM) for each adit. The updated CSM should explain how data collected during Phase 1 has informed changes to the CSM.
- Identification of data gaps to be filled.
- A QAPP detailing the procedures the Respondents plan to implement when conducting all field activities. Attachment 3 identifies guidance for preparation of a QAPP.
- A Job Hazard Analysis identifying the specific tasks workers will undertake during the additional adit investigations, and a HASP Amendment, if needed, to ensure the safety of workers implementing the field activities.

When the results of the additional investigations are available, Respondents shall present the additional data in an EE/CA report(s) that includes a newly updated CSM for the adits.

EE/CA for Adit Seeps

In optional Phase 2, Respondents shall prepare an EE/CA report for the five adits studied in Phase 1. The EE/CA shall evaluate and recommend potential remedial technologies consistent with EPA's 2017 guidance document entitled "Best Practices for Preventing Sudden, Uncontrolled Fluid Mining Waste Releases," OLEM Directive #9200.3-118, to address the adit seeps (e.g., installing bulkheads, diverting water away from adit intake structures, demolishing adit structures). The report shall discuss when in the planned sequence of mining activities construction would be most feasible. The EE/CA report will follow EPA's guidance document entitled "Guidance for Conducting Non-Time-Critical Removal Actions Under CERCLA," Office of Emergency and Remedial Response, EPA/540/R-93/057. For any recommended removal actions that require regular or continuous operations and maintenance (for example, passive or active water treatment), the report shall provide an estimate of annual operations costs. Additional documents required to complement and implement the EE/CA report are listed in the "Work Approach and Key Deliverables for all NTCRA Tasks" section of this SOW.

Implement Removal Action for Adit Seeps
In optional Phase 2, Respondents shall implement removal actions for the five adits recommended by the EE/CA and agreed upon by the EPA and USFS. Implementation of agreed-upon adit removal actions will follow steps 4 – 10 of Section 5.0 (Work Approach and Key Deliverables for all NTRA Tasks). Adit removals shall take into account any impacts mining may have on future adit discharge volume and chemistry.

Post-Removal Site Control
Respondents shall continue to implement Post-Removal Site Control activities for all completed Phase 1 and completed optional Bridge Phase removal actions, as well as for all completed removal actions during Phase 2.

The Agencies will amend the SOW for optional Phase 2 to address the details of Optional Phase 2 Work after Respondents have notified the Agencies in writing of their commitment to perform optional Phase 2. The amended SOW will include further definition of:

I. Project Planning and Support,
II. Removal Designs/Removal Actions, and
III. Schedule of Deliverables.
IV. Post-Removal Site Controls

If the Respondents elect to conduct Work under Phase 2, they shall submit a proposal for Post-Removal Site Control that addresses all Post-Removal Site Control work required in Phase 1, the Bridge Phase, and Phase 2. Upon Agency approval, Respondents shall either conduct Post-Removal Site Control activities, or obtain a written commitment from another party to conduct such activities, until such time as the Agencies determines that no further Post-Removal Site Control is necessary. Respondents shall provide the Agencies with documentation of all Post-Removal Site Control commitments.

4.2 Optional Phase 3 (ASAOC Years 9-20 or 10-20 / 2029 or 2030 - 2040)

Within thirty days of written notification by Respondents that they commit to perform the optional Phase 3 and agreement by the Agencies to continue with optional Phase 3, Respondents will develop and implement removal action work plans to address Waste Material remaining at the Site in Source Areas that are not covered by an approved mine plan or CWA permits, or other regulatory programs including earlier phases of this ASAOC.

During the optional Phase 3, Respondents will identify areas for implementation of removal actions and implement those actions in accordance with an Action Memo that may be issued by the Agencies to address releases of hazardous substances in areas that are not included in Phase 1, optional Bridge Phase, optional Phase 2, an approved mine plan, or permits. Respondents actions for Phase 3 shall include:

- Develop a detailed Project Schedule for the Agencies' approval.
- As necessary, conduct a supplemental Data Gaps Analysis to identify characterization needs that would inform an optimization of the overall remedy.
- Submit an Optimization Report proposing areas for implementation of further response actions.
- Develop an EE/CA for any actions not covered or completed under Phase 1 or 2, or an approved mine plan, or a Clean Water Act Permit which are needed to address remaining Waste Material.
- Implement any response actions selected by the Agencies in an Action Memo (if one is issued by the Agencies).

OPTIONAL PHASE 3 TASKS

If Respondents elect to perform Phase 3, Phase 3 Work shall begin after completion of Phase 2 work. Phase 3 Work shall only be performed by Respondents if the Agencies agree to the performance of Phase 3 by Respondents. If Respondents and the Agencies elect to continue work under the ASAOC in Phase 3, the Agencies will amend this SOW to identify the specific Source Areas to be addressed and the tasks to be performed. The Agencies will consider, where appropriate, the approved mine plan and mine operations and sequencing when approving the schedule for work in Phase 3. Areas and actions that could be addressed in Phase 3 include:

- Necessary upgrades to the water diversion projects at the NW Bradley Dumps / Hennessy Creek, the DMEA Waste Rock Dump, and the Smelter Flats / Hangar Flats. Replacement of the water diversion projects with more permanent and durable remedies (e.g. removal or capping of Source Areas), if the water diversion systems are difficult or costly to maintain;
- Construction and/or ongoing maintenance of final, permanent actions to address any of the Adit seeps in Phase 2 where interim removal actions were installed;
- Response actions to address Waste Material in the remaining portions of, Bradley Man Camp Dumps, the Bradley NE Oxide Dumps, the BMC Northwest Bradley Waste Rock Dumps and areas adjacent to, and SW of the Yellow Pine Pit;
- Response actions to address Waste Material in other Source Areas within Figure 1; and
- Source Areas within Figure 1 that were not previously known and were identified during ASAOC or mining activities.

Post-Removal Site Control

Respondents shall continue to implement Post-Removal Site Control activities associated with previous phases of Work under this ASAOC and shall implement Post-Removal Site Control activities for Work conducted under Phase 3.

If Respondents elect to perform Phase 3, and the Agencies agree to the performance of Phase 3 by Respondents, the agencies will amend this SOW set forth the Work to be performed in Phase 3. The amended SOW update will further define:

I. Project Planning and Support;
II. Removal Designs / Removal Actions;
III. Schedule of Deliverables; and
IV. Post-Removal Site Control.

Respondents shall provide all of the documentation associated with implementing these tasks as outlined above in optional Phase 2. If Respondents elect to conduct work under Phase 3, they shall submit a proposal for Post-Removal Site Control. Upon Agency approval, Respondents shall either conduct Post-Removal Site Control activities, or obtain a written commitment from another party to conduct such activities, until such time as the Agencies determine that no further Post-Removal Site Control is necessary. Respondents shall provide the Agencies with documentation of all Post-Removal Site Control commitments.

5.0 WORK APPROACH AND KEY DELIVERABLES FOR ALL NTCRA TASKS

Deliverables specified in this SOW shall be consistent with the NCP and appropriate EPA policy and guidance including "EPA's Guidance on Conducting Non-Time Critical Removal Actions under CERCLA" (EPA/540/R-93/057, OSWER 9360.0-32). illustrates requirements for documents and records generated during the NTCRA process that are to be included in the Administrative Record for the Site. Except where noted below, removal actions shall include preparation, delivery, and implementation of the following:

1. Engineering Evaluation/Cost Analysis (EE/CA) Work Plan including a Sampling and Analysis Plan (QAPP) (draft and final)
2. Removal Action Area Characterization Report (draft and final)
3. EE/CA Report (draft and final)
4. Biological Assessment (BA), Clean Water Act (CWA) Section 404 Evaluation, and Cultural Resources Survey
5. Removal Action Design Documents
6. Removal Action Work Plan
7. Implementation of Removal Actions
8. Removal Action Completion Report
9. Progress Reports
10. Post-Removal Site Control

Attachments

Table 1 – ASAOC Phases
Table 2 – Schedule for Phase 1 Tasks
Figure 1 – Map of the Stibnite Mine Site
Attachment 1 – Stibnite Site Source Areas
Attachment 2 – Scribe Data Element Dictionary
Attachment 3 – Regulations and Guidance Documents

Table 1 – ASAOC Phases

Table 1 lists the ASAOC phases and years, along with calendar years and the mining activities anticipated during each phase

ASAOC Phase	AOC Years	Calendar years	Mining Schedule under PRO
1	1 - 4	2020 - 2024	Mine permitting & construction (if approvals & permits received)
Bridge	5	2025	Bridge phase if permits are not received by end of Phase 1
2	Receipt of mine permits & approvals through mine year 4	2025 to 2028 or 2026 to 2029	Mine construction, mine operations
3	Mine operations year 5 through mine reclamation	2029/2030 to 2040	Mine operations and reclamation

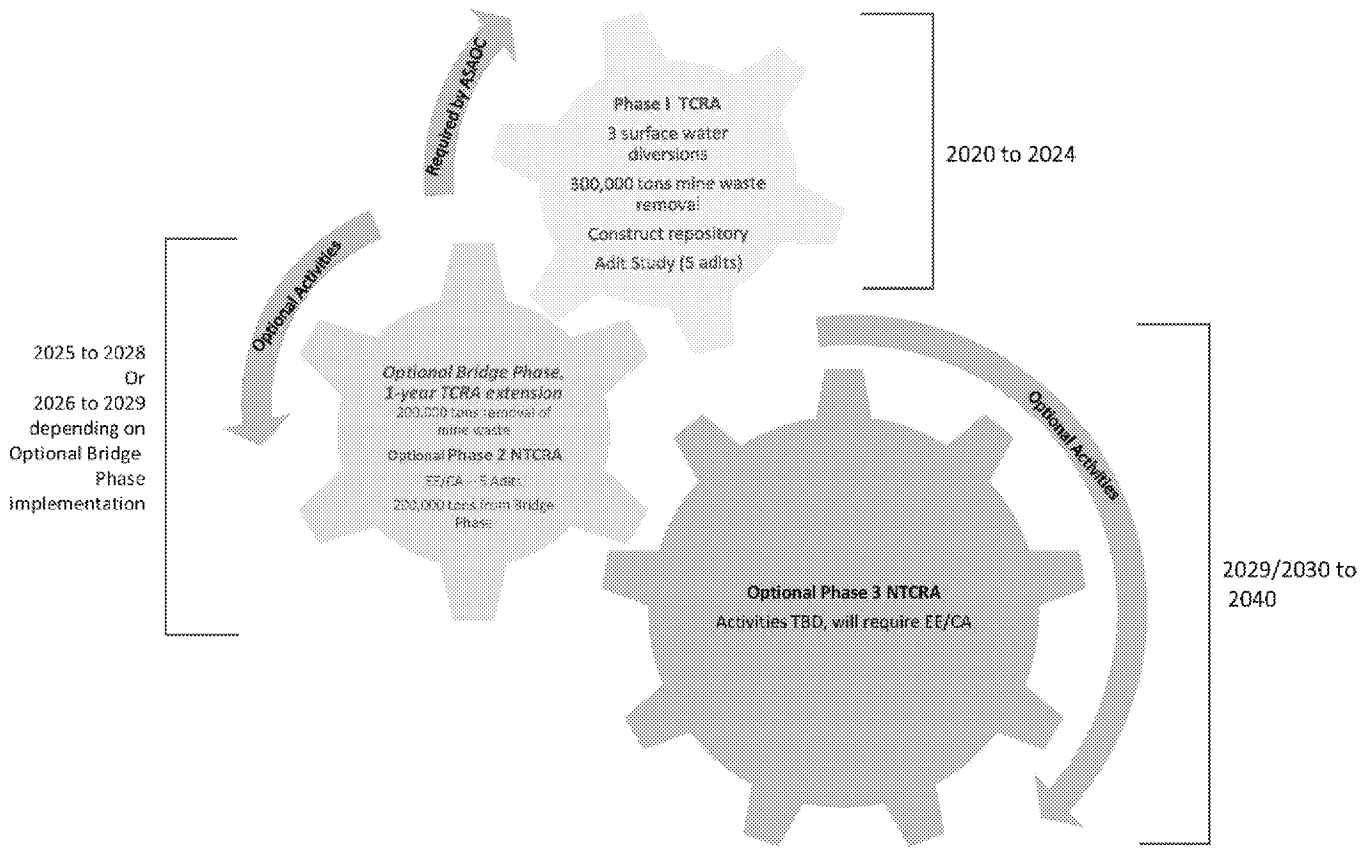
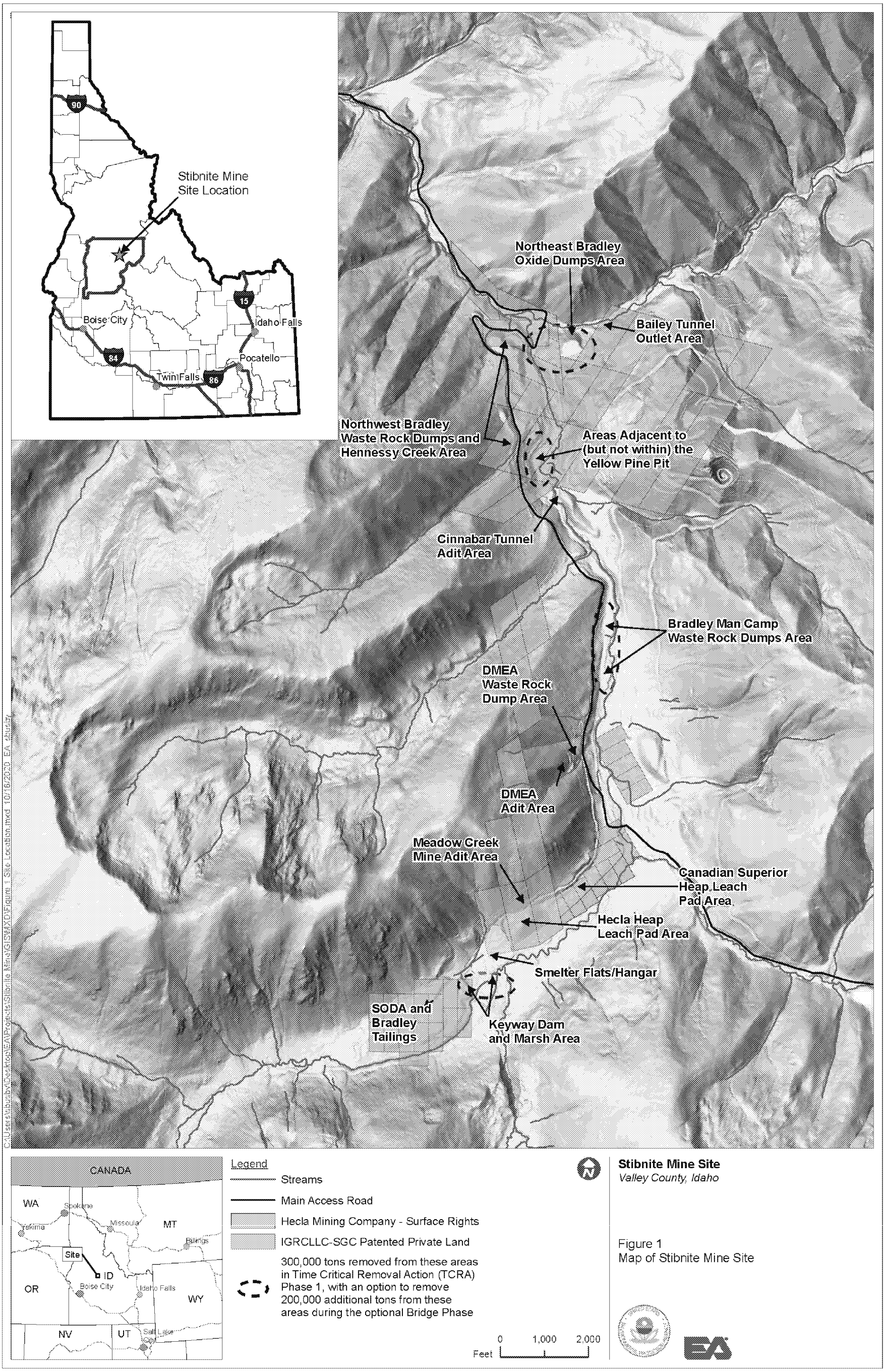


Table 2 – Schedule for Phase 1 Tasks

NOTE: The Respondents shall prepare a detailed schedule for review and approval by the Agencies.

Task or Deliverable	Schedule
Site Characterization Report and Data Gaps Analysis	Fall 2020
Health and Safety Plan(s)	Prior to implementation of field work and/or construction activities
Interim Water Diversion Removal Action	Completed within 18 months of ASAOC unless schedule extended by Agencies
TCRA Work Plan, draft and final	Winter 2020
Design Documents, draft and final • 30% and 60% Design Package • Draft final and final 100% Design Package and response to comments	Spring 2021
Removal Action Construction	Summer/Fall 2021
Removal Action Construction Completion Report, draft and final	Winter 2021
Post Removal Site Control, draft, draft final, and final	Winter 2021
Waste/Sediment Removal and On-Site Repository Project	Completed within 30 months of ASAOC unless schedule extended by Agencies
Removal Action Area Characterization Report, draft and final	Spring 2021
TCRA Work Plan, draft and final	Winter2021
Design Documents, draft and final • 30% Conceptual Design • 60% Design Package • Draft final and final 100% Design Package and response to comments	Spring 2021/2022
Removal Action Construction	Fall 2023
Removal Action Construction Completion Report, draft and final	Fall 2023
Post Removal Site Control, draft, draft final, and final	
Investigation of Baseline Conditions at Adits	Completed within 3 years of ASAOC unless schedule extended by Agencies
TCRA Work Plan, draft, draft final, and final	Summer 2021

Task or Deliverable	Schedule
Adit Characterization Adit Removal Action Area Characterization Report, draft, draft final, and final Removal Action Alternatives Report, draft, draft final, and final Preliminary Adit RA Implementation Plans & Schedule	Fall/Winter 2021 Spring 2022 Summer 2023
Data Validation Summaries	30 days after validation of data collected for each sampling event
Quarterly Progress Reports	15 days after end of previous calendar quarter


Stibnite Mine Site Location
90
15
84
86
Boise City
Idaho Falls
Pocatello
Twin Falls
Northeast Bradley Oxide Dumps Area
Bailey Tunnel Outlet Area
Northwest Bradley Waste Rock Dumps and Hennessy Creek Area
Areas Adjacent to (but not within) the Yellow Pine Pit
Cinnabar Tunnel Adit Area
Bradley Man Camp Waste Rock Dumps Area
DMEA Waste Rock Dump Area
DMEA Adit Area
Meadow Creek Mine Adit Area
Canadian Superior Heap Leach Pad Area
Hecla Heap Leach Pad Area
Smelter Flats/Hangar
SODA and Bradley Tailings
Keyway Dam and Marsh Area
CANADA
WA
Spokane
Yakima
Missoula
MT
Billings
Site
ID
OR
Boise City
Idaho Falls
WY
NV
UT
Salt Lake City
Legend
Streams
Main Access Road
Hecla Mining Company - Surface Rights
IGRCLLC-SGC Patented Private Land
300,000 tons removed from these areas in Time Critical Removal Action (TCRA) Phase 1, with an option to remove 200,000 additional tons from these areas during the optional Bridge Phase
0
1,000
2,000
Feet
Stibnite Mine Site
Valley County, Idaho
Figure 1
Map of Stibnite Mine Site

ATTACHMENT 1—Stibnite Site Source Areas

The following table lists Source Areas at the Stibnite Mine site that are candidates for removal actions under the SOW with their estimated annual arsenic loading.

Source[1]	Land Status	~ Arsenic loading (lb/year)[2]
NW Bradley Dumps / Hennessy Creek	Mixed	86
Smelter Flats / Hangar Flats[3]	Patented	59
DMEA Waste Rock Dump, Adit and Shaft	Unpatented	9
Bailey Tunnel	Patented MY - Outside of disturbance	23
Cinnabar Tunnel	Unpatented	21
Bonanza Adit	Unpatented	1 Note: The primary loading concern at this location and Sugar Creek is Mercury. This adit contributes approximately 0.5% of Hg loading to SC.
Bonanza Dump	Unpatented	Loading for this feature has not been determined.
Keyway Dam and Marsh Area	Mixed	29
Bradley Man Camp Dumps	Unpatented	20
Bradley NE Oxide Dumps	Mixed	8
Meadow Creek Adit Seep	Patented	6
Areas adjacent to and NE of the Yellow Pine Pit, including Monday Camp, Monday Camp Waste Rock Dump, and SE Bradley Waste Rock Dump	Mixed	Loading has not been determined.
Areas adjacent to and SW of the Yellow Pine Pit, and the BMC NW Bradley Waste Rock Dump	Mixed	Loading has not been determined.

Footnotes:

1. Estimates of arsenic loading from SRK, 2017, Existing Conditions Site-Wide Water Chemistry (SWWC) Memo, November 22, 2017 memo to Piper Goessel, USFS, p. 46.
2. One source of Bailey Tunnel is Yellow Pine Pit. Tunnel could continue to flow after completion of PRO due to connection to backfilled YPP unless bulkheading/closure is completed.
3. Also known as the Bradley Mill and Smelter and the Meadow Creek Mill and Smelter.

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ATTACHMENT 2 – Scribe Data Element Dictionary

Region 10 Data Element Dictionary and Example Electronic Data Deliverables

- This document is meant to serve as a guide to assist Region 10 Superfund data providers who are responsible for submitting project and monitoring location information for archive to Scribe.net.
- It can serve as a preliminary guide to assist data providers who are in the process of planning data collection activities and need to determine the necessary data elements for their projects.

- The data elements in this file represent a complete list of the data types used by all the EPA Regions and are produced in CLP Electronic Data Deliverables. Many of these data fields are not used by Region 10 and are labeled as "Not Applicable" or "NA".
- Required data elements are clearly labelled and represent the minimum amount of information needed to represent lab results and to describe the sample disposition in terms of location, date/time of sample collection, matrix types, etc.
- The layout of this data element dictionary is to facilitate corrections to information submitted by field personnel (through COC XML resubmittals) and/or to upload lab data back into the Scribe Lab Results Table.

Questions should be submitted to Don Matheny (matheny.don@epa.gov) or Meghan Dunn (dunn.meghan@epa.gov).

The Data Element Dictionary (next tab) contains the following information.

Data Element Field Names

EDD Type - identifies the association of the data element as either a "Lab Result" or as "Sample" related information.

Required, Optional, Conditional, Not Applicable (R/O/C/NA) - Identifies the data element as required, etc. The details for some conditional data elements may be found in the description column.

Description or Preferred Values - General description of the data element, where the values are derived and possible values.

Field Format/Length - Identifies the data element format type and field length.

Origin - Identifies the origin of the data element. Some elements are "pass through" fields originating from Scribe or lab scheduling (i.e., RSCC). Otherwise these may be generated by the lab or during validation.

Scribe Table.DataFieldName - Name of the corresponding Scribe Table and Data Field Name(s) for that data element. A data element may correspond to more than one Scribe data field.

COC XML Field Name - Name of the corresponding XML tag for that data element. Required for elements that originate from Scribe.

EDD Data Element Updated w/resubmittal of COC XML? - (Y or N) Identifies if the data element may be updated through a COC XML that is resubmitted at a later time after samples have arrived at the lab.

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Upload into Scribe from EDD? - (Y or N) Identifies whether the data element is uploaded into the Scribe "Lab Results Table".

Comments - additional explanation of data element.

Data Element Field Name	EDD Type	Required, Optional, Conditional, Not Applicable (R/O/C/NA)	Origin	Scribe Table.DataFieldName	EDC XML Field Name	EDD Data Element Updated w/resubmittal of EDC XML?	Upload into Scribe from EDD?	Comments
CASE_NUMBER	Lab Results	C	Scribe / Lab	COC.CaseNumber	Site.CaseNumber	N	N	In Scribe this is found in the "COC.CaseNumber" and "Site.CaseNumber" fields. In the xml file it is the Site.CaseNumber element. There's no place for this in the Scribe LabResults Table.
SAMPLE_DELIVERY_GROUP	Lab Results	C	Lab	LabResults.Lab_Batch_No		N	Y	Generated by the Lab.
SAMPLE_ID	Lab Results	C	Lab	SamplesTags.CLP_Samp_No LabResults.CLP_Samp_No	Sample.SampleNo	N	Y	Originates in Scribe from the "SamplesTags.CLP_Sample_No" field and is also uploaded into the "LabResults.Sample_CLP_No" field. Generated by Lab in EDD.
CAS_NUMBER	Lab Results	R	Lab	LabResults.Cas_No		N	Y	Generated by the Lab.
ANALYTE	Lab Results	R	Lab	LabResults.analyte		N	Y	Generated by the Lab.
FINAL_RESULT	Lab Results	R	Lab / Data Reviewer	LabResults.Result		N	Y	Generated by the Lab & verified by Data Reviewer. May be edited in EDM whereas the "Lab_Result" field below cannot be edited during data validation. The Final_Result field is mandatory for MEL and other task-contracted, government, etc. labs.
RESULT_UNITS	Lab Results	R	Lab	LabResults.Result_Units		N	Y	Generated by the Lab.
FINAL_VALIDATION_QUALIFIER	Lab Results	R	EDM / Data Reviewer	LabResults.Result_Qualifier		N	Y	Generated by the EDM or Data Reviewer
DATA_VAL_LABEL	Lab Results	R	EDM / Data Reviewer	LabResults.QA_Comment		N	Y	Generated by the EDM or Data Reviewer. The Scribe LabResults Table will utilize the QA Comment field in order to accommodate this critical data element.
SAMPLE_ADJUSTED_CRQL	Lab Results	R	Lab	LabResults.Quantitation_Limit		N	Y	Generated by the Lab.
SAMPLE_ADJUSTED_MDL	Lab Results	R	Lab	LabResults.MDL		N	Y	Generated by the Lab.
LAB_RESULT	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The "Final_Result" data element which passes validation/lab verification will be uploaded into the Scribe lab result table.
LAB_QUALIFIERS	Lab Results	C	Lab	LabResults.Lab_Result_Qualifier		N	Y	Generated by the Lab.
METHOD_CRQL	Lab Results	R	Lab	LabResults.Reporting_Limit		N	Y	Generated by the Lab.
CRQL_UNITS	Lab Results	R	Lab	LabResults.Quantitation_Limit_Units LabResults.Reporting_Limit_Units		N	Y	Generated by the Lab. The Quantitation and Reporting Limit data elements as we're applying them use the same units of measurement, so this data element needs to be uploaded into two different fields.
MDL_UNITS	Lab Results	R	Lab	LabResults.MDL_Units		N	Y	Generated by the Lab.
PERCENT_SOLIDS	Lab Results	R	Lab	LabResults.Percent_Solids		N	Y	Generated by the Lab.
PERCENT_MOISTURE	Lab Results	R	Lab	LabResults.Percent_Moisture		N	Y	Generated by the Lab.
DILUTION_FACTOR	Lab Results	R	Lab	LabResults.Dilution_Factor		N	Y	Generated by the Lab.
ANALYSIS_FRACTION	Lab Results	R	Lab	LabResults.analyte		N	Y	Generated by the Lab.
ANALYSIS_LEVEL	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
REPORTING_BASIS	Lab Results	R	Lab	LabResults.Basis		N	Y	Generated by the Lab.
SAMPLE_DATE_TIME	Samples	R	Scribe	Samples.SampleDate LabResults.Date_Collected	Location.SampleDate, Location.SampleTime	N	Y	Originates in Scribe but is not overwritten in COC XML resubmittals. This is due to the ability to edit this information in EDM during data validation. To allow overwrite via COC XML resubmittal would violate a business rule against dual overwrite input pathways and introduce an vulnerability to the system. Sample Date & Time are concatenated from two Scribe COC XML fields.
DATE_SHIPPED	Samples	R	Scribe	COC.DateShipped	TrInfo.DateShipped	Y	N	There's no data field for this in the Scribe LabResults Table and it already appears in the COC Table.
DATE_TIME_RECEIVED	Samples	R	Lab	LabResults.Date_Received		N	Y	Generated by the Lab. Need to double check the date/time fields in the LabResults Table. The Scribe Table Data file shows the length of these fields to be "10" but we need them to be "20".
PREP_DATE_TIME	Lab Results	R	Lab	LabResults.Date_Extracted		N	Y	Generated by the Lab.
ANALYSIS_DATE_TIME	Lab Results	R	Lab	LabResults.Date_Analyzed		N	Y	Generated by the Lab.
LAB_SAMPLE_TYPE	Lab Results	R	Lab	LabResults.QC_Type		N	Y	Generated by the Lab. This data type uses Lab QC long names (e.g. "Laboratory_Control_Sample) and perfectly matches the data definition of the QC_Type data field. The previously identified Sample_Type_Code was only 10 characters long.
SAMPLE_MATRIX	Lab Results	R	Lab	LabResults.Matrix_ID		N	Y	Generated by the Lab. CLP has it's definitions but does it also need to match up with the Samples Matrix Scribe data field? I thought these were populated separately.
RESULT_COMMENT	Lab Results	C	Lab	LabResults.Comments		N	Y	Generated by the Lab. For the CLP this was concatenated from the Form I comment field to provide information such as size fraction.
LAB_NAME	Samples	R	Lab	LabResults.Lab_Name		N	Y	Generated by the Lab.
LAB_CODE	Samples	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
CONTRACT_NUMBER	Samples	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
METHOD_NUMBER_OR_CLP_SOW	Lab Results	R	Lab	LabResults.Analytical_Method		N	Y	Generated by the Lab.
MA_NUMBER	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
TR_COC_NUMBER	Samples	R	Scribe	SamplesTags.COC LabResults.Lab_Coc_No	Analyte.TRNo	N	Y	Generated by the Lab.
LAB_SAMPLE_ID	Samples	C	Lab	LabResults.Lab_Samp_No		N	N	Generated by the Lab.
LAB_FILE_ID	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
INSTRUMENT_ID	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
SAMPLE_ALIQUOT	Lab Results	R	Lab	LabResults.SubSample_Amount		N	Y	Generated by the Lab.
SAMPLE_ALIQUOT_UNITS	Lab Results	R	Lab	LabResults.SubSample_Amount_Unit		N	Y	Generated by the Lab.
FINAL_VOLUME	Lab Results	R	Lab	LabResults.Final_Volume		N	Y	Generated by the Lab.
FINAL_VOLUME_UNITS	Lab Results	R	Lab	LabResults.Final_Volume_Unit		N	Y	Generated by the Lab.
SOIL_EXTRACT_VOLUME	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
SOIL_EXTRACT_VOLUME_UNITS	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).

SOIL_ALIQUOT_VOLUME	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
SOIL_ALIQUOT_VOLUME_UNITS	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
PURGE_VOLUME	Lab Results	C	Lab	LabResults.Final_Volume		N	Y	Generated by the Lab
PURGE_VOLUME_UNITS	Lab Results	C	Lab	LabResults.Final_Volume_Unit		N	Y	Generated by the Lab.
SPIKE_ADDED	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
CONCENTRATED_EXTRACT_VOLUME	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
CONCENTRATED_EXTRACT_VOLUME_UNITS	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
INJECTION_VOLUME	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
INJECTION_VOLUME_UNITS	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
PREPARATION_METHOD	Lab Results	R	Lab	LabResults.Extraction_Method		N	Y	Generated by the Lab.
GPC_CLEANUP	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
GPC_FACTOR	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
DECANTED	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
PH	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
COOLER_TEMP	Samples	R	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
SAMPLE_FRACTION	Lab Results	C	Scribe	LabResults.Total_Or_Dissolved		N	Y	Generated by the Lab.
METHOD_SPECIATION	Lab Results	C	Lab			N	N	Generated by the Lab. There's no data field for this in the Scribe LabResults Table.
SAMPLE_SUBMATRIX	Samples	R	Scribe	Samples.Matrix	Location.Matrix	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLING_REASON	Samples	R	Scribe	Site.Site_Action	Sites.Action	N	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLE_COLLECTION_METHOD	Samples	R	Scribe	Samples.SampleCollection	Location.CompositeGrab	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
EPA_REGION	Samples	R	Scribe	Site.EPARegionNumber	Sites.EPARegionNumber	N	N	Already in Scribe. No place for it in the Scribe LabResults Table.
STATION_LOCATION	Samples	R	Scribe	Location.Location	Station.StationName	N	N	Originates in Scribe but is not overwritten in COC/AML resubmittals. This is due to the ability to edit this information in EDM during data validation. To allow overwrite via COC/AML resubmittal would violate a business rule against dual movement input pathways and introduce an vulnerability to the system.
LOCATION_DESCRIPTION	Sample	R	Scribe	Location.LocationDescription	Location.LocationDescription	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SCRIBE_SAMPLE_NUMBER	Samples	R	Scribe	Samples.Samp_No LabResults.Samp_No	Location.SampleIdentifier	Y	Y	Originates in Scribe in the "Samples.Samp_No" field but is also extended into the "LabResults.Sample_QA_No" field.
LOCATION_ZONE	Samples	R	Scribe	Location.LocationZone	Location.LocationZone	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
LATITUDE	Samples	R	Scribe	Location.Latitude	Location.LatitudeX	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
LONGITUDE	Samples	R	Scribe	Location.Longitude	Location.LongitudeY	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
DATUM	Samples	R	Scribe	Location.Datum	Location.Datum	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
GEOMETHOD	Samples	R	Scribe	Location.GeoMethod	Location.LocationMethod	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SURFACE_ELEVATION	Samples	C	Scribe	Location.Surf_Elev	Location.SurfaceElevation	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SURFACE_ELEVATION_UNITS	Samples	C	Scribe	Location.Surf_Units	Location.SurfaceElevationUnits	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SURFACE_ELEVATION_METHOD	Samples	C	Scribe	Location.ElevMethod	Location.SurfaceElevationMethod	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SURFACE_ELEVATION_DATUM	Samples	C	Scribe	Location.ElevDatum	Location.SurfaceElevationDatum	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
TOP_DEPTH	Samples	C	Scribe	Samples.Samp_Depth	Location.Depth	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
BOTTOM_DEPTH	Samples	C	Scribe	Samples.Samp_Depth_To	Location.DepthTo	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
TOP_DEPTH_UNITS	Samples	C	Scribe	Samples.Samp_Depth_Units	Location.DepthUnit	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
BOTTOM_DEPTH_UNITS	Samples	C	Scribe	Samples.Samp_Depth_Units	Location.DepthUnit	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLER_NAME	Samples	R	Scribe	Samples.Sampler	Location.SamplerName	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLING_COMPANY_CONTACT	Samples	R	Scribe	Site.CTRContact	Sites.ProjectLeader	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLING_COMPANY_NAME	Samples	R	Scribe	Site.Contractor	Sites.SamplingCompany	N	N	Already in Scribe. No place for it in the Scribe LabResults Table.
PROJECT_NAME	Samples	R	RECC/EDM	Site.Site_Name	Sites.SiteName	N	N	Already in Scribe. No place for it in the Scribe LabResults Table. Originates from the laboratory request submitted during scheduling.
SITE_PROJECT_CODE	Samples	R	RECC/EDM	COC.ProjectCode	Sites.ProjectCode	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table. Originates from the laboratory request submitted during scheduling. Also hand entered into COC during COC generation and uploaded to lab in COC XML.
SITE_EVENT_ID	Samples	R	Scribe	Site.Control_No	Sites.EventID	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
STATE	Samples	R	RECC/EDM	Site.Site_State	Sites.State	N	N	Already in Scribe. No place for it in the Scribe LabResults Table. Originates from the laboratory request submitted during scheduling.
CITY	Samples	R	RECC/EDM	Site.Area		N	N	Already in Scribe. No place for it in the Scribe LabResults Table. Originates from the laboratory request submitted during scheduling.
CERCLIS	Samples	R	Scribe	Site.CERCLIS	Sites.CERCLIS	N	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SCRIBE_SITE_NUMBER	Samples	R	Scribe	Site.Site_No	Sites.SiteNumber	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SCRIBE_NET_PROJECT_ID	Samples	R	Scribe	Site.ScribeNetProjectID	Sites.ScribeNetProjectID	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLE_TAG	Samples	R	Scribe	SamplesTags.Tag	Bottle.TagNo	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SCRIBE_COMMENT	Samples	C	Scribe	Samples.Remarks	Location.SampleComments	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
FIELD_SAMPLE_TYPE	Samples	R	Scribe	Samples.SampleType	Samples.SampleType	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
QC_SPIKE_RECOVERY	Lab Results	R	Lab	LabResults.Percent_Recovery			Y	Generated by the Lab.

SOIL_ALIQUOT_VOLUME	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
SOIL_ALIQUOT_VOLUME_UNITS	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
PURGE_VOLUME	Lab Results	C	Lab	LabResults.Final_Volume		N	Y	Generated by the Lab
PURGE_VOLUME_UNITS	Lab Results	C	Lab	LabResults.Final_Volume_Unit		N	Y	Generated by the Lab.
SPIKE_ADDED	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
CONCENTRATED_EXTRACT_VOLUME	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
CONCENTRATED_EXTRACT_VOLUME_UNITS	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table. The analysis requires the use of too many fields (e.g., final volume is already filled).
INJECTION_VOLUME	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
INJECTION_VOLUME_UNITS	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
PREPARATION_METHOD	Lab Results	R	Lab	LabResults.Extraction_Method		N	Y	Generated by the Lab.
GPC_CLEANUP	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
GPC_FACTOR	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
DECANTED	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
PH	Lab Results	C	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
COOLER_TEMP	Samples	R	Lab			N	N	There's no data field for this in the Scribe LabResults Table.
SAMPLE_FRACTION	Lab Results	C	Scribe	LabResults.Total_Or_Dissolved		N	Y	Generated by the Lab.
METHOD_SPECIATION	Lab Results	C	Lab			N	N	Generated by the Lab. There's no data field for this in the Scribe LabResults Table.
SAMPLE_SUBMATRIX	Samples	R	Scribe	Samples.Matrix	Location.Matrix	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLING_REASON	Samples	R	Scribe	Site.Site_Action	Sites.Action	N	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLE_COLLECTION_METHOD	Samples	R	Scribe	Samples.SampleCollection	Location.CompositeGrab	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
EPA_REGION	Samples	R	Scribe	Site.EPARegionNumber	Sites.EPARegionNumber	N	N	Already in Scribe. No place for it in the Scribe LabResults Table.
STATION_LOCATION	Samples	R	Scribe	Location.Location	Station.StationName	N	N	Originates in Scribe but is not overwritten in COC/AML resubmittals. This is due to the ability to edit this information in EDM during data validation. To allow overwrite via COC/AML resubmittal would violate a business rule against dual movement input pathways and introduce an vulnerability to the system.
LOCATION_DESCRIPTION	Sample	R	Scribe	Location.LocationDescription	Location.LocationDescription	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SCRIBE_SAMPLE_NUMBER	Samples	R	Scribe	Samples.Samp_No LabResults.Samp_No	Location.SampleIdentifier	Y	Y	Originates in Scribe in the "Samples.Samp_No" field but is also extended into the "LabResults.Sample_QA_No" field.
LOCATION_ZONE	Samples	R	Scribe	Location.LocationZone	Location.LocationZone	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
LATITUDE	Samples	R	Scribe	Location.Latitude	Location.LatitudeX	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
LONGITUDE	Samples	R	Scribe	Location.Longitude	Location.LongitudeY	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
DATUM	Samples	R	Scribe	Location.Datum	Location.Datum	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
GEOMETHOD	Samples	R	Scribe	Location.GeoMethod	Location.LocationMethod	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SURFACE_ELEVATION	Samples	C	Scribe	Location.Surf_Elev	Location.SurfaceElevation	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SURFACE_ELEVATION_UNITS	Samples	C	Scribe	Location.Surf_Units	Location.SurfaceElevationUnits	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SURFACE_ELEVATION_METHOD	Samples	C	Scribe	Location.ElevMethod	Location.SurfaceElevationMethod	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SURFACE_ELEVATION_DATUM	Samples	C	Scribe	Location.ElevDatum	Location.SurfaceElevationDatum	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
TOP_DEPTH	Samples	C	Scribe	Samples.Samp_Depth	Location.Depth	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
BOTTOM_DEPTH	Samples	C	Scribe	Samples.Samp_Depth_To	Location.DepthTo	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
TOP_DEPTH_UNITS	Samples	C	Scribe	Samples.Samp_Depth_Units	Location.DepthUnit	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
BOTTOM_DEPTH_UNITS	Samples	C	Scribe	Samples.Samp_Depth_Units	Location.DepthUnit	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLER_NAME	Samples	R	Scribe	Samples.Sampler	Location.SamplerName	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLING_COMPANY_CONTACT	Samples	R	Scribe	Site.CTRContact	Sites.ProjectLeader	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLING_COMPANY_NAME	Samples	R	Scribe	Site.Contractor	Sites.SamplingCompany	N	N	Already in Scribe. No place for it in the Scribe LabResults Table.
PROJECT_NAME	Samples	R	RECC/EDM	Site.Site_Name	Sites.SiteName	N	N	Already in Scribe. No place for it in the Scribe LabResults Table. Originates from the laboratory request submitted during scheduling.
SITE_PROJECT_CODE	Samples	R	RECC/EDM	COC.ProjectCode	Sites.ProjectCode	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table. Originates from the laboratory request submitted during scheduling. Also hand entered into COC during COC generation and uploaded to lab in COC XML.
SITE_EVENT_ID	Samples	R	Scribe	Site.Control_No	Sites.EventID	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
STATE	Samples	R	RECC/EDM	Site.Site_State	Sites.State	N	N	Already in Scribe. No place for it in the Scribe LabResults Table. Originates from the laboratory request submitted during scheduling.
CITY	Samples	R	RECC/EDM	Site.Area		N	N	Already in Scribe. No place for it in the Scribe LabResults Table. Originates from the laboratory request submitted during scheduling.
CERCLIS	Samples	R	Scribe	Site.CERCLIS	Sites.CERCLIS	N	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SCRIBE_SITE_NUMBER	Samples	R	Scribe	Site.Site_No	Sites.SiteNumber	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SCRIBE_NET_PROJECT_ID	Samples	R	Scribe	Site.ScribeNetProjectID	Sites.ScribeNetProjectID	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SAMPLE_TAG	Samples	R	Scribe	SamplesTags.Tag	Bottle.TagNo	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
SCRIBE_COMMENT	Samples	C	Scribe	Samples.Remarks	Location.SampleComments	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
FIELD_SAMPLE_TYPE	Samples	R	Scribe	Samples.SampleType	Samples.SampleType	Y	N	Already in Scribe. No place for it in the Scribe LabResults Table.
QC_SPIKE_RECOVERY	Lab Results	R	Lab	LabResults.Percent_Recovery			Y	Generated by the Lab.

ATTACHMENT 3 – Regulations and Guidance Documents

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RD and RA process:

1. American National Standards Practices for Respiratory Protection. American National Standards Institute Z88.2-1980, March 11, 1981.

2. ARCS Construction Contract Modification Procedures September 89, OERR Directive 9355.5-01/FS.

3. CERCLA Compliance with Other Laws Manual, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988(DRAFT), OSWER Directive No. 9234.1-01 and -02.

4. Community Relations in Superfund – A Handbook, U.S. EPA, Office of Emergency and Remedial Response, June 1988, OSWER Directive No. 9230.0-3B.

5. A Compendium of Superfund Field Operations Methods, Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

6. Construction Quality Assurance for Hazardous Waste Land Disposal Facilities, U.S. EPA, Office of Solid Waste and Emergency Response, October 1986, OSWER Directive No. 9472.003.

7. Contractor Requirements for the Control and Security of RCRA Confidential Business Information, March 1984.

8. Data Quality Objectives for Remedial Response Activities, U.S. EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March 1987, OSWER Directive No. 9335.0-7B.

9. Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual, U.S. EPA Region IV, Environmental Services Division, April 1, 1986 (revised periodically).

10. EPA NEIC Policies and Procedures Manual, EPA-330/9-78-001-R, May 1978, revised November 1984.

11. EPA *Technical Guidance Document for Final Covers on Hazardous Waste Landfills and Surface Impoundments*. July 1989.

12. EPA OSWER Directive 9355.7-01. *Memorandum regarding Permits and Permit "Equivalency" Process for CERCLA On-site Response Actions*. February 19, 1992.

13. Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potential Responsible Parties, U.S. EPA Office of Emergency and Remedial Response, EPA/540/G-90/001, April 1990.

14. Guidance on Expediting Remedial Design and Remedial Actions, EPA/54O/G-90/006, August 1990.

15. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites, U.S. EPA Office of Emergency and Remedial Response (DRAFT), OSWER Directive No. 9283.1-2.

16. Guide for Conducting Treatability Studies Under CERCLA, U.S. EPA, Office of Emergency and Remedial Response, Prepublication version.

ED_005488A_00042451-00058

17. Guide to Management of Investigation-Derived Wastes, U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9345.3-03FS, January 1992.

18. Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Research and Development, Cincinnati, OH, QAMS-004/80, December 29, 1980.

19. Health and Safety Requirements of Employees Employed in Field Activities, U.S. EPA, Office of Emergency and Remedial Response, July 12, 1982, EPA Order No. 1440.2.

20. Interim Guidance on Compliance with Applicable of Relevant and Appropriate Requirements, U.S. EPA, Office of Emergency and Remedial Response, July 9, 1987, OSWER Directive No. 9234.0-05.

21. Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, U.S. EPA, Office of Emergency and Remedial Response, QAMS-005/80, December 1980.

22. Methods for Evaluating the Attainment of Cleanup Standards: Vol. 1, Soils and Solid Media, February 1989, EPA 23/02-89-042; vol. 2, Ground water (Jul 1997).

23. National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule, Federal Register 40 CFR Part 300, March 8, 1990.

24. NIOSH Manual of Analytical Methods, 2nd edition. Volumes I-VII for the 3rd edition, Volumes I and II, National Institute of Occupational Safety and Health.

25. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute of Occupational Safety and Health/Occupational Health and Safety Administration/United States Coast Guard/Environmental Protection Agency, October 1985.

26. Permits and Permit Equivalency Processes for CERCLA On-Site Response Actions, February 19, 1992, OSWER Directive 9355.7-03.

27. Procedure for Planning and Implementing Off-Site Response Actions, Federal Register, Volume 50, Number 214, November 1985, pages 45933-45937.

28. Procedures for Completion and Deletion of NPL Sites, U.S. EPA, Office of Emergency and Remedial Response, April 1989, OSWER Directive No. 9320.2-3A.

29. Quality in the Constructed Project: A Guide for Owners, Designers and Constructors, Volume 1, Preliminary Edition for Trial Use and Comment, American Society of Civil Engineers, May 1988.

30. *Remedial Design/Remedial Action (RD/RA) Handbook*, U.S. EPA, Office of Solid Waste and Emergency Response (OSWER) 9355.0-O4B, EPA 540/R-95/059, June 1995.

31. Revision of Policy Regarding Superfund Project Assignments, OSWEP Directive No. 9242.3-08, December 10, 1991. [Guidance, p. 2-21]

32. Scoping the Remedial Design (Fact Sheet), February 1995, OSWER Publ. 9355-5-21 FS.

33. Standard Operating Safety Guides, U.S. EPA, Office of Emergency and Remedial Response, November 1984.

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34. Standards for the Construction Industry, Code of Federal Regulations, Title 29, Part 1926, Occupational Health and Safety Administration.

35. Standards for General Industry, Code of Federal Regulations, Title 29, Part 1910, Occupational Health and Safety Administration.

36. Structure and Components of 5-Year Reviews, OSWER Directive No. 9355.7-02, May 23, 1991. [Guidance, p. 3-5]

37. Superfund Guidance on EPA Oversight of Remedial Designs and Remedial Actions Performed by Potentially Responsible Parties, April 1990, EPA/54O/G-90/001.

38. Superfund Remedial Design and Remedial Action Guidance, U.S. EPA, Office of Emergency and Remedial Response, June 1986, OSWER Directive No. 9355.0-4A.

39. Superfund Response Action Contracts (Fact Sheet), May 1993. OSWER Publ. 9242.2-08FS.

40. TLVs-Threshold Limit Values and Biological Exposure Indices for 1987-88, American Conference of Governmental Industrial Hygienists.

41. Treatability Studies Under CERCLA, Final. U.S. EPA, Office of Solid Waste and Emergency Response, EPA/540/R-92/071a, October 1992.

42. USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis, US. EPA, Office of Emergency and Remedial Response, July 1988.

43. USEPA Contract Laboratory Program Statement of Work for Organic Analysis, US. EPA, Office of Emergency and Remedial Response, February 1988.

45. Value Engineering (Fact Sheet), U.S. EPA, Office of Solid Waste and Emergency Response, Publication 9355.5-03FS. May 1990.

46.Clean and Green Policy, US. EPA, Region 10 Superfund, RCRA, LUST, and Brownfields (Regional Policy). August 13, 2009.

47. Superfund Green Remediation Strategy, US. EPA Office of Solid Waste and Emergency Response and Office of Superfund Remediation and Technology Innovation. September 2010. (http://www.epa.gov/superfund/greenremediation)

48. Guidance on Conducting Non-Time-Critical Removal Actions Under CERCLA, USEPA, Office of Emergency and Remedial Response, EPA/540/R-93/057, OSWER 9360.0-32. August 1993.

49. Guidance on Choosing a Sampling Design for Environmental Data Collection for Use in Developing a Quality Assurance Project Plan, USEPA, Office of Environmental Information. December 2002.

50.Technical Guides to Streamline Site Cleanup: Smart Scoping, Strategic Sampling and Data Management Best Practices, USEPA, Office of Land and Emergency Management. November 2018.

51.EPA Fact Sheet on Evapotranspiration Cover Systems for Waste Containment. February 2011.

52. EPA. 1993b. Technical Guidance Document: Quality Assurance and Quality Control for Waste Containment Facilities. September.

53. EPA Requirements for Quality Assurance Project Plans (QA/R-5). EPA/240/B-01/003, March 2001, Reissued May 2006.

53. EPA Guidance for Quality Assurance Project Plans (QA/G-5). EPA/240/R-02/009), December 2002.

54. Intergovernmental Data Quality Task Force, Uniform Federal Policy for Quality Assurance Project Plans. Optimized UFP-QAPP Worksheets. March 2012.

55. Intergovernmental Data Quality Task Force, Uniform Federal Policy for Quality Assurance Project Plans. Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs. Part 1: UFP-QAPP Manual. EPA-505-B-04-900A. March 2005.

56. EPA Guidance on Systematic Planning Using the Data Quality Objectives Process. EPA QA/G-4. February 2006.

57. Interstate Technology Regulatory Council (ITRC). Technical and Regulatory Guidance for Design, Installation, and Monitoring of Alternative Final Covers. December 2003.

58. ITRC Incremental Sampling Methodology. February 2012.

59. EPA Technical Guidance Document: Quality Assurance and Quality Control for Waste Containment Facilities. September 1993.

60. U.S. Forest Service. Planning and Layout of Small-Stream Diversions. March 2013.

61. EPA Region 10 Data Management Plan for Environmental Monitoring and Associated Geospatial Data, Office of Environmental Assessment. June 2014.