Identification of the Site by name, location, and description (including characteristics of the Site and a description of the surrounding areas, e.g., commercial/industrial/residential area, nearest public supply wells, nearby water bodies, potentially sensitive ecological areas).]

The Stibnite Mine Site (Site) is part of a mining area located along the East Fork of the South Fork of the Salmon River (EFSFSR), 14 miles southeast of Yellow Pine, Idaho. The physical environment at the Stibnite Site consists of narrow forested valleys (at an elevation of about 6,000 feet above sea level) surrounded by steep mountains rising to about 8,700 feet. Granite bedrock is penetrated by a large ring fault system containing oxide and sulfide ores rich in gold, silver, mercury, antimony, arsenic, cadmium and tungsten. Up to 60 feet or more of glacial deposits (gravels, sands, and silts) are present in the valley floors. Winters are cold and wet; precipitation (about 31 inches per year) falls mainly as snow between mid-October and April. Chief streams at the Site are the EFSFSR and several tributaries, including Meadow Creek and Sugar Creek.

Much of the Site is open space. Public land is administered by the Krassel Ranger District Payette National Forest, but most of the Site is privately owned. There are no permanent or year-long residents at the Site, and surrounding Forest Service land is not occupied

The southern boundary of the Site is about one-half mile above the Meadow Creek Diversion Channel; the northern boundary is one-quarter mile below the confluence of Sugar Creek and the EFSFSR. Tributaries to the EFSFSR within the Site boundaries include Meadow Creek, Blowout Creek, Garnet Creek, Fiddle Creek, Midnight Creek, Hennessey Creek, Sugar Creek, and West End Creek.

A brief history of the Site including Site ownership and operations (process or other activity producing waste, nature of wastes produced).

Mining and mineral processing, primarily of gold, antimony, and tungsten, have occurred at the Site intermittently since the early 1900s. Major historic mining operations included (1) the Meadow Creek Mine and ore processing facilities in the Meadow Creek Valley, which were operated between 1919 and 1927 by the Meadow Creek Silver Mines Company and between 1928 and 1938 by the Yellow Pine Company; (2) the Yellow Pine Mine underground workings and open pit on the EFSFSR, operated primarily by the Bradley Mining Company between 1937 and 1952; and (3) the West End mining area, which was mined between 1982 and 1990 by various entities including Canadian Superior Mining Company (a dissolved former subsidiary of Mobil), Twin River Developments (TRD), Pioneer Metals Corporation, and Barrier Reef, Inc. More recently, SMI, a subsidiary of Dakota Mining Corporation, mined gold in the West End area and Garnet Creek between 1991 and 1997, and Hecla mined oxide gold ore from the Homestake ore body between 1988 and 1992. SMI ceased mining operations in 1997 and declared bankruptcy in 1999. Both the Hecla and SMI operations conducted reclamation and closure activities in 2000.

Information that there are hazardous substances at the Site by listing specific chemicals found at the Site, and their locations, concentrations, and quantities where known

Commented [MT1]: Want to mention/describe waste rock piles (source areas), size and volumes?

Commented [CK2R1]: Good idea, Helen is reviewing the data and will add a summary

The principal environmental concern at the Site are releases of metals, cyanide, other chemical constituents, and sediment, from Bradley tailing, neutralized ore, or other historic or recent mining-related sources to surface water such that stream beneficial uses or water quality are significantly impaired. Potential impacts to the terrestrial and riparian environment and to human health are also concerns.

In groundwater, the highest concentrations of dissolved antimony (200 to 2,000 micrograms per liter [µg/L]) and arsenic (500 to 13,800 µg/L) were observed in samples collected within or in proximity to

saturated Bradley tailings. Concentrations over 1,000 µg/L dissolved arsenic were observed in groundwater and seep samples collected near the Meadow Creek Fault Zone on the Meadow Creek Mine hillside. Concentrations in seep samples were consistent with the groundwater results, depending on sampling location. The Federal and **Idaho Drinking Water Standards (WQS) for arsenic is 10 ug/l.**

In soil, mean arsenic concentrations were 1,350 milligrams per kilogram (mg/kg) in samples collected at the Meadow Creek Fault zone, 1,200 mg/kg in Bradley tailing, 1,400 mg/kg in neutralized ore, and 1,900 mg/kg to 4,300 mg/kg in Bradley waste rock samples.

Recent surface water sampling conducted by Midas Gold from Spring 2012 to February 2016 identified the following dissolved arsenic and antimony concentration in surface water.

Location	Arsenic (dissolved, ug/l)	Antimony (dissolved, ug/l)
Idaho WQS	**340 ug/l**	**5.6 ug/l**
Meadow Creek Adit	11,900 ug/l	56 ug/l
Hangar Flat and Tailings Pile	2450 ug/l	4840 ug/l
Bradley Tailing Pile - Keyway	4300 ug/l	391 ug/l

Description of actual and/or potential release (i.e., leaking drums, contaminated soils, etc.) and contaminant migration pathways, and possible or known routes of exposure, making clear that these are not exclusive.]

The majority of the ore processing occurred in the Meadow Creek Valley. Mine tailings were disposed of in impoundments throughout the Meadow Creek Valley floor. Leach pads and associated cyanidation processing facilities were constructed in the Meadow Creek Valley

In 1993, the Payette National Forest conducted sampling at the Site for a preliminary assessment/site investigation (PA/SI). Samples collected in 1993 as part of the PA/SI were from the Bradley tailings/neutralized ore pile and from waste piles in the lower Meadow Creek Valley. The sample results documented elevated concentrations of metals, including antimony, arsenic, cadmium, copper, lead, and mercury, in the tailings and spent ore material. Surface water and sediment samples collected in Meadow Creek and the EFSF Salmon River documented a release of metals, including antimony, arsenic, cadmium, lead, and mercury.

Lower Meadow Creek Valley Tailings and the Bradley Tailings/Neutralized Ore Pile consists of tailings/neutralized ore pile located in upper Meadow Creek Valley and piles of tailings and waste rock that were deposited throughout the valley floor.

A Site Characterization, conducted from 1997 through 1999 by the Stibnite Site Characterization Voluntary Consent Order Respondents, involved extensive sampling in the area of surface water, groundwater, seeps and springs, soil, sediment, and fish tissue. Surface water samples were collected in 1997 from both Meadow Creek and the EFSF Salmon River. The analytical results from these samples indicate an observed release of elevated concentration of antimony, arsenic, copper, and lead to Meadow Creek and antimony, arsenic, copper, lead, and mercury to the EFSF Salmon River.

The EFSF Salmon River is critical habitat for the Snake River spring/summer chinook salmon, a Federally designated threatened species, and is a critical spawning area for the maintenance of summer

chinook. The EFSF Salmon River is also habitat for the bull trout, another Federally designated threatened species. Both Meadow Creek and the EFSF Salmon River support perennial wetlands within 15 miles downstream of the site.

The EFSF Salmon River (source to mouth) has the following designated beneficial uses: domestic water supply, agricultural water supply, primary and secondary contact recreation, cold water biota, salmonid spawning, and special resource waters.

Mining activities conducted in 1996 and 1997 resulted in contaminated tailings material discharging to Meadow Creek via the existing diversion. Other issues include bank destabilization in the existing diversion and tailings material becoming exposed in the newly constructed diversion channel.

Any reclamation or stabilization activities associated with the Meadow Creek Valley tailings deposits have been incomplete and the potential remains for continued release of metals and sediment to Meadow Creek. Additionally, seeps and springs in contact with tailings both in the lower valley and the Bradley tailings/neutralized ore pile continue to drain to Meadow Creek.

Bradley tailings/neutralized ore pile contains approximately 3.7 million tons of tailings and approximately 3.9 million tons of neutralized ore, for an estimated total of 7.6 million tons of waste material in the pile. This source area also includes the tailings and waste rock piles in the lower Meadow Creek Valley along each side of the creek and at the confluence with EFSF Salmon River.

Potential eeleases via overland migration and/or flooding/washouts does not include an engineered containment system.Containment structures associated with either the lower Meadow Creek Valley tailings piles or the Bradley tailings/neutralized ore pile, such as a constructed engineered cover, a functioning run-on control system, a runoff collection and management system, and an operations and maintenance (O&M) program do not currently exist. In addition, there is evidence of hazardous substances migration from the source based on the observed releases by direct observation and/or chemical analyses.

Other possible sources include, but are not limited to, the following:

Contaminated Soil

Soil sample results from the former Bradley mill and Hecla heap leach pad indicate elevated concentrations of contaminants. These soil samples, when compared with concentrations in three reference soil samples collected in the upper Meadow Creek Valley, indicate that this area of contaminated soil contains elevated concentrations of metals, such as arsenic and mercury.

Soil samples from an area including remnants of the dismantled smelter stack located behind the former Bradley smelter indicate elevated concentrations of contaminants. The area is characterized by the presence of an ashy residue. When compared with concentrations detected in reference soil samples, the analytical results indicate that this area of contaminated soil contains elevated concentrations of metals, such as antimony, arsenic, and mercury.

Former SMI Leach Pads and Processing Ponds

Testing and visual inspections conducted in 1993 indicated that the ponds were leaking. In addition, analytical results of samples collected from groundwater monitoring wells in 1993 indicated a release of cyanide to groundwater. Waste streams associated with the leach pads and process ponds included cyanide leaching solutions and mined ore containing metals.

Former Hecla Heap Leach Pile
The heap leach pile covers approximately 12 acres and contains approximately 1.3 million tons of spent ore. Waste streams associated with the heap leach pile include cyanide leaching solutions and mined ore containing metals.

Hazardous Substances associated with releases

Based on the above documentation and sampling results, hazardous substances as a result of observed releases to the environment include antimony, arsenic, cadmium, copper, lead, mercury, and cyanide.

Potential human food chain contamination exists due to the presence of hazardous substances with a bioaccumulation factor value of 500 or greater in observed releases to Meadow Creek and the presence of a fishery within 15 miles downstream. Although the annual production of the fishery is not known, it can be assumed to be greater than zero.

Migratory pathways at the Stibnite Mine Site include groundwater and surface water, soil exposure/contact, and air. The overland/flood component of the surface water migration pathway was sufficient to warrant listing on the National Priorities List (NPL).

Identification of the populations at risk, both human and non-human.

Potential human food chain contamination has been established due to the presence of hazardous substances with a bioaccumulation factor value of 500 or greater in an observed release and a fishery within the target distance limit.

Health/environmental effects of some major contaminants.

Exposure to elevated levels of arsenic, a known carcinogen, in surface water, groundwater, surface soil, tailings or waste rock is a concern for elevated risk of cancer in humans. Primary potential exposure pathways include inadvertent ingestion of soils, tailings, concentrates or waste rocks with arsenic concentrations elevated about natural background conditions. In addition to cancer risks, arsenic has potential for increasing the risk of diabetes, adverse effects on skin and the vascular system and is the subject of a comprehensive ongoing health studies by the EPA Office of Research and Development in coordination with the [HYPERLINK "https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?&substance_nmbr=278"]. Exposure to [HYPERLINK "https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?&substance_nmbr=31"] is concern for adverse health effects to male reproductive health.

Whether the Site is on the [proposed] National Priorities List. Sample language follows:

The Stibnite/Yellow Mine Mining Area, CERCLIS ID 9122307607, was proposed for inclusion on the NPL by EPA pursuant to CERCLA § 105, 42 U.S.C. § 9605, on [**insert month, day, year**], [**insert Federal Register citation**], based on the HRS scoring package dated August 31, 2001.

Identification of Respondents, i.e., name/business; legal status (i.e., corporation, partnership, sole proprietor, trust, individual, federal, state or local government, etc.), general categories of Respondents' liability under CERCLA § 107(a) and connection with the Site, e.g., owner or operator of hazardous waste

site, including years of ownership or operation, or person who arranged for disposal or treatment of, or transporter of hazardous substances found at the Site.]

For Elizabeth

Identification of prior response and enforcement actions, including investigations and assessments, if any, taken at the Site, by EPA or the State.

Stibnite Mine Inspection – EPA 1992
PA/SI Stibnite Mining Area – USFS 1993
Stibnite Mine Stibnite Chemical Removal Trip Report – E&E 1999
Stibnite Area Site Characterization Report – URS 2000
Site and Waste Characterization Report, Stibnite Mine Inc., Abandoned Mine Building – URS 2002
EE/CA Stibnite Mine Area – MSE 2003
Smelter Stack and Pond Tailing Removal and South Tailing Pile Contouring Report – MSE 2003
Public Health Assessment for Stibnite Mining Area – ATSDR 2003
Baseline Sampling Report, Stibnite, ID – MSE 2010