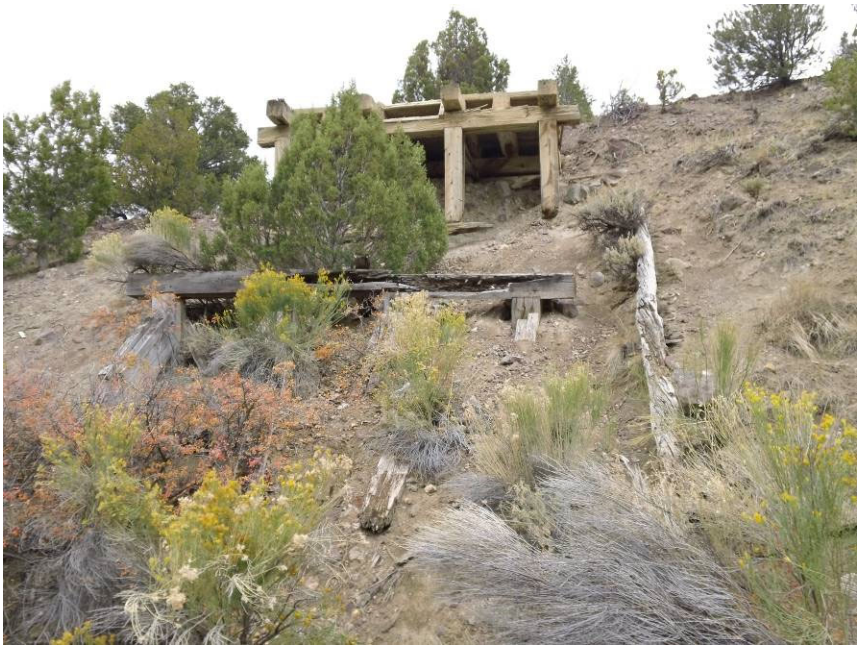
REMEDIAL ACTION PLAN
VOLUNTARY CLEANUP PROGRAM

SITE: Former Antimony Mill

LOCATION: Antimony Canyon, Utah



Prepared for:

The Richard William Davis Trust
1483 Springdell Drive
Provo, Utah 84604

and

Utah Department of Environmental Quality
195 North 1950 West (Street)
Salt Lake City, Utah 84116

Prepared by:

EarthTouch, Inc.
3135 North Fairfield Road, Suite D
Layton, Utah 84041

REMEDIAL ACTION PLAN
FORMER ANTIMONY MILL SITE
ANTIMONY CANYON ABOUT 5.5 MILES TO THE EAST ANTIMONY IN UNINCORPORATED GARFIELD COUNTY, UTAH

VOLUNTARY CLEANUP PROGRAM (No.: C106)

20-Jul-2023

Prepared for:

The Richard William Davis Trust
1483 Springdell Drive
Provo, Utah 84604

and

Utah Department of Environmental Quality
195 North 1950 West (Street)
Salt Lake City, Utah 84116

Prepared by:

EarthTouch, Inc.
3135 North Fairfield Road
Layton, Utah 84041

CONTENTS **The Richard William Davis Trust / DVTR-0001-21-03-UT**

FIGURES

APPENDICES

REMEDIAL ACTION PLAN
FORMER ANTIMONY MILL SITE IN ANTIMONY CANYON ABOUT 5.5 MILES TO THE EAST OF THE TOWN OF ANTIMONY IN UNINCORPORATED GARFIELD COUNTY, UTAH

VOLUNTARY CLEANUP PROGRAM (Site No.: C106)

1.0 INTRODUCTION

This Remedial Action Plan was prepared to describe the activities and procedures to be used to excavate, transport, and dispose of ore piles, mill tailings, and near surface soil impacted with antimony, arsenic, cadmium, lead, and thallium at the former Antimony Mill located in Antimony Canyon roughly 5.5 miles to the east of the town of Antimony in unincorporated Garfield County, Utah ("subject property" or "site"). Excavation is proposed to remove the ore piles, mill tailings, and shallow soils at the site with concentrations of antimony, arsenic, and thallium above the site-specific cleanup levels developed by the US Forest Service through a Risk Assessment for Exposure to Metal-Contaminated Soil applying a Recreational Scenario.

1.1 Project Objectives

The objective of the activities described in this Remedial Action Plan (RAP) include:

- Excavating two ore piles, mill tailings adjacent to the former mill, and shallow soils in downslope areas of the former mill; and transporting and disposing at an appropriately permitted facility;
- Taking active steps to monitor the excavating, handling, and transporting activities for compliance with relevant regulatory requirements; and
- Implementing measures to be protective of human health and the environment through applying mitigation measures for airborne dust and fugitive emissions associated with excavating, loading, and transporting activities.

2.0 BACKGROUND

This section includes information about the operational history of the site, previous environmental investigations, and regulatory status of the subject property obtained through public sources and data acquired through previous investigations of the site.

2.1 Site Location

The Antimony Mill was constructed along the southern edge of a roughly 5-acre patented mine claim (Claim 38B) in an area roughly 100 feet to the south of Antimony Creek and immediately to the south of Forest Road 138 approximately 5.5 miles to the east of the town of Antimony in the Northeast Quarter (NE¼), Section 21, Township 31 South, Range 1 West, Salt Lake Base & Meridian (SLB&M). The site and Claim 38B are generally surrounded by land administered by the Dixie National Forest along the eastern edge of the Escalante Ranger District at roughly Latitude: 38º05'55.2" / Longitude: 111º53'57.4". The location of the site is depicted in Figure 1.

2.2 Site Description

The former mill is constructed on a river terrace about 100 feet to the south of Antimony Creek adjacent to the south side of Forest Road 138. Residual structural elements include three geometric-shaped, rock-and-masonry foundations extending about 4o to 45 feet above the grade of the road to the top of the adjacent terrace along with some rock and concrete foundations, dimensional lumber/wood beams, and dilapidated roofing. Some wood beams and dimensional lumber remain atop the upper foundational elements with some wood beams strewn across the adjacent hillside. The uppermost wood beams and roofing are generally at-grade with the top of the terrace. Some perimeter-spread concrete foundations abut the northeastern corner of the lower rock-and-masonry foundation next to Forest Road 138 that includes embedded metal attachment bolts, presumably to attached skid-mount equipment in the past. Surrounding the foundation are mill tailings with some visual evidence of mill tailings extending across the surface in areas to the north of Forest Road 138 toward Antimony Creek.

An ore pile is located immediately south of the upper wood-beam elements of the former mill and roughly 75 feet to the south of the mill in an area adjacent to an off-road vehicle trail. Some mill tailings are also located on the upper wood-beam roof elements of the former mill. Remaining areas of the 5-acre claim consist of undeveloped bottomlands along Antimony Creek with cottonwoods, birch, and other broad-leaved deciduous trees and riparian undergrowth and pinyon-juniper wooded shrubland with sagebrush, rabbitbrush, mountain mahogany, prickly pear, and clump grasses along terraces and alluvial areas at the bases of mesas and buttes, piedmonts, rock lands, and cliffs areas of Antimony Canyon with higher density pinyon stands at higher elevations.

2.3 Site History

Historical information indicated the antimony ore processing mill was constructed in 1905 and operated at irregular intervals until 1918. Personal diaries and historical accounts noted that mining activities were carried out in nearby areas of Antimony Canyon with high-grade ore removed and sorted by hand, and then transported to and processed at the former mill, which was described as a 3-story wood-frame constructed facility situated on cut-slopes of the river terrace. Reportedly, mined ore entered the former mill via mine-carts along an inclined ramp on the upper (southern) part of the facility with the ore descending through gravity-feed chutes into crushers, sorters, and screens with the processed ore directed to 2- or 4-ton bins in the lower (northern) portion of the facility. The crushed, pulverized, and milled ore directed to the 2- or 4-ton bins was described as a fine grayish powder, which was transported directly to a railroad load-out in Marysvale, Utah. The antimony ore was shipped primarily to munitions manufacturers in various parts of the United States as an additive in the production of bullets. Aerial photographs and topographic maps depict the presence of a ‘mill ruin’ on a subject property from 1941 to the present with very few changes over time. In addition, an unimproved dirt road and ‘Jeep trails’ and/or off-road trails cross the site and site vicinity over the same timeframe.

2.4 Summary of Previous Investigations

The former mill has been the focus of previous environmental investigations performed through programs administered by US EPA and Utah DEQ/DERR. The site is listed on environmental regulatory agency databases as the “Antimony Mill Superfund Site” and former the “Antimony Mill.”

A Preliminary Assessment (PA) of the former Antimony Mill was completed on 17-Jan-2003, which identified mine wastes consisting of two ore piles and some mill tailings. Due to the possible migration of metal contaminants to soil, groundwater, and surface water in Antimony Creek; additional investigation and characterization of the former mill was recommended.

A Site Inspection Work Plan for additional investigation/characterization was prepared in 2006; and outlined, reviewed, and summarized contaminant pathways; and included a sampling approach to identify the volume of residual mine- and mill-related waste and evaluate contaminant conditions and potential impact to human health and environmental through soil, river sediments, surface water, and groundwater. A discussion of field procedures and sample methodologies was included as well as sample locations and types of analyses and data quality objectives, validation, and report outline.

On 29-Sep-2009, an Administrative Order Directing Compliance with a Request for Access was issued in favor of the US EPA directing access to the former mill for personnel with the US EPA, or its assigns, to collect samples in order to evaluate the potential threat to human health and/or the environment from residual mine- and mill-related waste(s) to support decisions regarding further investigation pursuant to CERCLA.

On 5-Oct-2009, a Field Sampling Plan was prepared and included:

- Identify potential on-site contaminants and characterize potential areas of contamination;
- Determine potential impacts to Antimony Creek and downstream users of surface water;
- Ascertain potential impacts to Antimony Spring (a municipal drinking water source);
- Identify other possible undocumented sources of contamination in the vicinity of Antimony Creek;
- Evaluate the potential impacts to human health and environment for the Surface Water Pathway, Groundwater Pathway, and Soil Exposure; and
- Review historical information regarding potential past releases from source areas at the site.

A Site Investigation (SI) of the former mill included collecting and analyzing soil, sediment, and surface water samples. In-field sampling involved using a hand-held X-ray Fluorescence (XRF) unit(s) to determine locations of 'grab' samples. A total of 75 samples at the former mill and areas adjacent to Antimony Creek were analyzed using XRF. Thirteen (13) soil samples, six (6) sediment samples, and six (6) surface water samples were collected for laboratory analyses. Review of analytical results identified roughly 1,000 cubic yards (yds^3) of stockpiled ore, mill tailings, and surface soil at the former mill impacted by antimony, arsenic, aluminum, cadmium, lead, and thallium. Elevated concentrations (more than 3x measured background concentrations) of antimony, arsenic, and thallium were reported in 11 soil samples; cadmium in five (5) soil samples; and aluminum and lead in one (1) soil sample.

On 10-Mar-2010, the US EPA issued a Remedial Site Assessment Decision for Antimony Mill that noted roughly 27,022 square feet of mined ore, mill tailings, and surface soil impacted with antimony and arsenic at concentrations more than three times the background level. However, sediment and surface water samples collected from Antimony Creek failed to identify concentrations of contaminants above regulatory screening levels suggesting a lack of migration of contaminants to surface water or groundwater. Based on a lack of significant population and other sensitive receptors in the general area of the former mill; a lack of threatened, endangered, and candidate species observed in the general area; and lack of an 'observed release(s)' and recreational use in areas proximal to the former mill; the US EPA categorized the Antimony Mill as 'No Further Remedial Action Planned' (NFRAP) with respect to CERCLA status.

As part of a potential acquisition by the US Forest Service, a Phase I Environmental Site Assessment (ESA) of the former mill was completed in 2020, which identified *recognized environmental conditions* related to the presence of ore piles and mill tailings with elevated concentrations of antimony, arsenic, aluminum, lead, and thallium identified through previous investigations. Subsequently, an application for entry into the Voluntary Cleanup Program (VCP) was prepared and submitted to the Utah DEQ/DERR by The Richard William Davis Trust. On 19-Jan-2021, a Voluntary Cleanup Agreement (VCA) was executed by

and between The Richard William Davis Family Trust and the Utah DEQ/DERR, which identified the subject property as Voluntary Cleanup Site No.: C106.

After reviewing environmental reports and documents supporting the VCP Application; on 25-Mar-2021, the Utah DEQ/DERR provided The Richard William Davis Trust with technical comments requesting additional investigation/characterization in support of evaluating and developing remedial actions for the former mill. Following approval by the Utah DEQ/DERR, an investigation of the former mill was carried out in accordance with the *Site Characterization Work Plan, Voluntary Cleanup Program, Former Antimony Mill, Antimony Canyon, Utah* (11-Nov-2021). The investigation included collecting and analyzing ten (10) mill tailings and shallow soil samples; three (3) surface water samples and three (3) sediment samples from Antimony Creek; and a 'groundwater' sample immediately adjacent to Antimony Creek. Background samples ('reference samples') were also collected from nearby areas of Antimony Canyon. The mill tailings, shallow soil, surface water, sediment, groundwater, and background samples were analyzed for aluminum and Priority Pollutant Metals, including; antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, thallium, and zinc. In addition, two (2) composite samples were collected from two (2) ore piles and from two (2) areas of mill tailings adjacent to the former mill; and analyzed to develop waste profiles.

Review of geographical and analytical information from the investigation noted the following:

- With the exception of arsenic at a detected concentration of 0.00435 mg/L (milligrams per liter) in one unfiltered surface water sample collected about 500 feet downstream of the former mill, the reported concentrations of contaminants were below the Method Detection Limits (MDLs) and also below the Water Quality Standards of the Utah DEQ (Utah Annotated Code: R317-2) for domestic and agricultural use of surface waters;

- The reported concentrations of antimony and thallium in a streambed sample collected about 200 feet to the west of the former mill were more than three times the detected concentration in the sample collected up-stream of the former mill and notably higher than the reported concentrations of these contaminants in the sample collected further downstream. The concentrations of arsenic detected in streambed sediment samples appeared to increase downstream. Reported concentrations of aluminum, cadmium, and lead were generally similar in all streambed sediment samples;

- Although antimony, arsenic, cadmium, lead, and thallium were detected at concentrations above the MDLs in the composite samples of the ore piles and mill tailings; the reported concentrations suggest that the ore piles and mine tailings would not be considered a hazardous waste for these contaminants;

- Reported concentrations of antimony, arsenic, and thallium in four (4) soil samples were well in excess of the reported concentrations of 'reference samples' including two (2) soil samples located between Forest Road 138 and Antimony Creek located roughly 80 feet to the northwest of the former mill and two (2) mill tailings/soil samples collected from areas adjacent to residual structural elements of the former mill; and

- Review of analytical information suggest the contaminants of concern at the former mill include antimony, arsenic, and thallium; and impact an area of about 21,630 square feet in areas adjacent to the former mill and extending north-northwesterly from the former mill across Forest Road 138 to within roughly 20 feet of Antimony Creek.

Based on the geographical and analytical results of ore piles, mill tailings, near surface soil, surface water, river sediment, and groundwater, it appears that impact related to the former mill is generally limited to the surface and near surface in areas adjacent to the former mill, locations of ore piles, and near surface soil in down-slope areas extending about 80 to 90 feet to the north and northwest of the former mill proximal to

Antimony Creek. The reported concentrations of antimony, arsenic, and thallium in these areas exceed the Regional Screening Levels (RSLs) for both residential and commercial/industrial use.

Toxicity Characteristic Leaching Procedure (TCLP) results of ore piles and mill tailings samples analyzed for antimony, arsenic, cadmium, lead, and thallium were below the respective TCLP limit values. These analytical results suggest the ore piles and mill tailings are not representative of a hazardous waste under the Resource Conservation & Recovery Act (RCRA).

3.0 ENVIRONMENTAL SETTING

Descriptions of the environmental characteristics and physical setting of the subject property are based upon a reconnaissance of the site and a review of readily available information.

3.1 Topography

Antimony Canyon is in the High Plateaus Section of the Colorado Plateau physiographic province and characterized by steep-sided plateaus separated by north-south faults, some of which are capped with volcanic rocks. The former mill is situated along the southern edge of Awapa Plateau and western edge of the Aquarius Plateau in a semi-arid erosional area consisting of relatively flat and narrow bottomlands along Antimony Creek bordered by cliffs and steep-sided mountains, plateaus, and mesas with some localized spires, hoodoos, and steep-sloping alluvial fans and tallis. Elevations in the general area range from roughly 6,780 feet above mean sea level (amsl) at Antimony Creek, near the eastern edge of Antimony Bench, to more than 9,500 feet amsl atop a rolling plateau about a mile to the east of the former mill, which is located on bottomland and river-terrace terrain on the south side of Antimony Canyon at an average elevation of 6,990 feet amsl. Elevations across the former mill are about 40 to 50 feet with an overall slope to the north toward Antimony Creek, which flows in a general westerly direction through Antimony Canyon.

3.2 Geology

Antimony Canyon area is situated in the northwest part of the Colorado Plateau physiographic province, which generally consists of thick sequence of uplifted and relatively flat-lying sedimentary rocks and laterally extensive monoclines eroded into mesas, buttes, and deep narrow canyons forming scattered laccolithic mountains that characterize the plateaus in parts of Utah, Colorado, Arizona, and New Mexico. The subject property is situated along the eastern edge of the Aquarius Plateau to the east of a hogsback composed of Navajo sandstone above a relatively small outcrop of the Chinle formation to the north of Antimony Creek just east of Antimony Bench near the entrance to Antimony Canyon and to the east of the Paunsagunt fault along the eastern edge of the Antimony Valley. The Navajo sandstone is overlain by Carmel formation and capped by Tertiary-age volcanics with Quaternary-age landslide, mudslide, alluvial fan, fluvial, and floodplain deposits. The former mill resides in the bottomlands of Antimony Canyon composed of alluvial, landslide, fluvial, and floodplain deposits.

3.3 Soil

Soil information on file with the Natural Resources Conservation Service does not extend eastward of Antimony Bench, where soils are identified as Bruman gravelly loam and Bruman loam in the *Soil Survey of the Panguitch Area, Parts of Garfield, Iron, Kane, and Piute Counties, Utah.* The Bruman series consists of very deep, well drained, moderately rapidly permeable soils that formed in alluvium derived mainly from basic and intermediate igneous rocks. Bruman soils are found on fan terraces, mountainsides and hillsides with slopes ranging from 2 to 70 percent at elevations from 6,500 to 7,500 feet amsl. These soils have medium to rapid runoff and moderately rapid permeability. Soils in the bottomlands of Antimony Canyon are likely similar to the Bruman series and formed in alluvium derived from igneous and sedimentary rocks and include fine-grained and well-sorted light-colored loam and wind-blown deposits. Canyon walls and

adjacent slopes generally consists of badlands-type soils that are generally clay-rich and extensively eroded by wind and water with minimal vegetation and high drainage.

3.4 Surface Water

The former mill is in the Antimony Creek and East Fork Sevier River tributaries of the Sevier River drainage. The Sevier River rises on the Markagunt Plateau to the south of the city of Panguitch and flows about 225 miles generally northward to Juab County, then northwesterly and then southwesterly through Leamington Canyon, and then south-southwesterly emptying to Sevier Lake, a dry lake. The Sevier River drainage is a closed basin encompassing roughly 10,575 square miles of southern Utah. Primary tributaries of the Sevier River include the San Pitch River, East Fork Sevier River, and Otter Creek. The East Fork Sevier River rises near the southern end of Long Valley to the southwest of Bryce Canyon National Park and flows northerly past the town of Antimony to Otter Creek Reservoir, and the northwesterly emptying to the Sevier River near the town of Junction. Antimony Creek rises in plateau areas to the east of the town of Antimony and flows westerly down Antimony Canyon emptying to the East Fork Sevier River about two miles to the south Antimony draining about 50 square miles.

3.5 Groundwater

The Antimony Valley is within the Antimony subbasin of the larger East Fork Valley Groundwater Basin, which consists primarily of unconsolidated valley fill composed of moderately permeable clays, sands, and gravels with a confining layer in the northern part of the Antimony Valley. Groundwater within the area of the subject property is generally within alluvial, fluvial, and floodplain deposits adjacent to Antimony Creek. Recharge is from precipitation, surface water infiltration, losses from streams, and inflows from consolidated rocks. Groundwater gradient is from the higher mountain areas toward Antimony Creek and then westerly following the trend of Antimony Creek toward the Antimony Valley. Depth to groundwater near the former mill ranges from a few feet below ground surface (bgs) in the bottomland areas to hundreds of feet in the adjacent uplands with some perched groundwater and seeps and springs in upland and cliff areas.

4.0 NATURE AND EXTENT OF CONTAMINATION

Previous investigations of the Antimony Mill by the US EPA and EarthTouch, Inc. identified antimony, arsenic, and thallium in ore piles, mill tailings, and near surface soils at concentrations exceeding the respective RSLs and background concentrations. Based on analytical results, contaminant impact is limited to the surface and uppermost 3 to 9 inches of soil in areas to the north of the former mill, within and beneath ore piles, and within the uppermost 0.5 to 1.5 feet adjacent to the former mill. Given the proximity of the ore piles and former mill, mill tailings, and impacted surface soil to Forest Road 138 and Antimony Creek, the possibility of overland migration of contaminants toward and into Antimony Creek through natural events and mechanical agitation from vehicles would likely increase with time.

4.1 Ore Piles

There are two (2) ore piles located on the southernmost and uppermost part of the former mill and roughly 75 feet to the south of the former mill in an area adjacent to an off-road vehicle trail. The ore pile adjacent to the off-road vehicle trail is mounded along a central axis and roughly 15- by 40- by 3-feet. The ore pile on the southernmost part of the former mill is approximately 10- by 20- by 1.5-feet. Although only analyzed by TCLP, the reported concentrations of antimony, arsenic, and thallium in the ore piles likely exceed the RSLs but are not representative of a hazardous waste pursuant to RCRA. The estimated volume of material in the ore piles is 75 cubic yards.

4.2 Mill Tailings / Shallow Soil

Tailings in and around the former mill generally consist of fine dust deposited on the surface and mixed with near surface soil. Detected concentrations of antimony, arsenic, and thallium exceeded the RSLs and ranged up to 79,300 mg/kg (milligrams per kilogram), 596 mg/kg, and 50 mg/kg, respectively. The majority of mill tailings/shallow soil samples were collected at depths from 0 to 3 inches bgs. The estimated area of impact based on previous investigations ranges from 21,630 to 27,022 square feet. With contamination generally confined to the uppermost 0.5 to 1.5 feet adjacent to the former mill, and within the uppermost 6 to 9 inches of soil in areas to the north and northwest of the former mill, the estimated volume of impact is roughly 660 cubic yards.

4.3 Range of Contaminant Concentrations

Investigation by the US EPA in 2009 and 2010 applied the Superfund Chemical Data Matrix (SCDM) as screening concentrations as part of the evaluation of the Antimony Mill for potential inclusion on National Priorities List (NPL). In addition, two (2) samples were collected from the bottomlands and south wall of Antimony Canyon to identify background concentrations of contaminants of concern. The SCDMs, average background concentrations, and measured range of concentrations of antimony, arsenic, and thallium in shallow soil samples from these investigations are shown below:

Contaminant of Concern	SCDM*	Background**	Range of Concentrations
Antimony	31 mg/kg	2.8 mg/kg	740 – 18,500 mg/kg
Arsenic	23 mg/kg	28.6 mg/kg	74.2 – 488 mg/kg
Thallium	2.5 mg/kg	No Measurement	5.9 – 61.8 mg/kg

*Superfund Chemical Data Matrix (SCDM) value
**Highest measured concentration of two 'background' samples

The investigations of the Antimony Mill by EarthTouch, Inc. in 2021 and 2022 included collecting and analyzing soil samples from areas to the east of the former mill to validate the background concentrations identified by the US EPA. However, the soil samples were collected in an area of recent mass wasting or flash flooding event; and analytical results deviated significantly from previously reported background concentrations. These 'reference values' and ranges of concentrations for antimony, arsenic, and thallium in the soil samples collected in the bottomlands to the east of the former mill are shown below:

Contaminant of Concern	Reference Values	Range of Concentrations
Antimony	20.1 mg/kg	8.2 – 79,300 mg/kg
Arsenic	110 mg/kg	8.2 – 596 mg/kg
Thallium	2.61 mg/kg	0.7 – 49.8 mg/kg

Although investigations of Antimony Mill by the US EPA in 2009 and 2010 failed to identify contaminants of concern in surface water or sediment samples collected from Antimony Creek, the EarthTouch, Inc. investigations in 2021 and 2022 detected arsenic in sediment samples collected from Antimony Creek in an area upstream of the former mill and in both downstream sediment samples from Antimony Creek at concentrations ranging from 26.5 to 69.8 mg/kg.

As noted, during the EarthTouch, Inc. investigations areas roughly 500 feet to the east and up-canyon of the former mill were covered by an estimated 1 to 3 feet of recently deposited material likely associated with a flash-flooding event from a slot-canyon along the south side of Antimony Canyon or a mass wasting event in the lower parts of Antimony Canyon. The recently deposited material extended from areas to the south of Forest Road 138 to the southern embankment of Antimony Creek. Given the reported

concentrations of 'reference values' in the soil samples collected to the east of the former mill, it is likely that the elevated concentrations of contaminants of concern in sediment samples from Antimony Creek are related to the concentrations of contaminants of concern in the material deposited by recent flash flooding or mass wasting ('reference values').

4.4 Site Conceptual Model

The data obtained from previous investigations of Antimony Mill identify surface/near surface contaminants that include soil impacted by mill tailings generated through crushing, grinding, and pulverizing high-grade ore with notable concentrations of antimony, arsenic, and thallium. Other sources of contaminants of concern include residual ore piles and accumulated mill tailings on ground surfaces near the former mill. Given proximity of the former mill, mill tailings, impacted soil, and ore piles to Forest Road 138 and Antimony Creek, there is a possibility of overland migration of contaminants to Antimony Creek through natural events and mechanical agitation that would likely increase with time.

SITE CONCEPTUAL MODEL

Contaminant Source	Potential Release Mechanism	Pathway(s) / Secondary Pathway(s)	Exposure Route	Recreational Receptor			
				Human		Biota	
				On-site	Off-site	Terrestrial	Aquatic
Surface Soil and Shallow Soil	Air Dispersion	Air Emission / Groundwater Surface Water	Inhalation	o	o	o	o
			Ingestion	o	o	o	o
			Dermal	o	o	o	o
	Direct Contact	Soil Contact / Air Emission	Inhalation	o	o	o	o
			Ingestion	o	o	o	o
			Dermal	o	o	o	o
	Plant Uptake	Plant Growth in Impacted Soil	Inhalation	n	n	n	n
			Ingestion	pp	n	pp	n
			Dermal	n	n	n	n
	Runoff / Leaching	Surface Water	-	Refer to surface water contaminant source			
	Leaching	Groundwater	-	Refer to groundwater contaminant source			
Surface Soil to Groundwater	Groundwater	Contact with Groundwater	Inhalation	n	n	n	n
			Ingestion	p (1) (2)	p (1) (2)	p (2)	p (2)
			Dermal	p (1) (2)	p (1) (2)	p (2)	p (2)
	Plant Uptake	Plants in Groundwater	Inhalation	n	n	n	n
			Ingestion	pp	n	pp	n
			Dermal	n	n	n	n
	Discharge to Stream	Surface Water	Ingestion	Refer to surface water contaminant source			
Surface Soil or Groundwater to Surface Water and / or River Sediment	Direct Contact with Surface Water	Contact with Surface Water / Agricultural Use	Inhalation	n	n	n	n
			Ingestion	p (2)	p (2)	p (2)	p (2)
			Dermal	p (2)	p (2)	p (2)	p (2)
	Streambed Sediment	Fish or other Aquatic Biota	Inhalation	n	n	n	n
			Ingestion	pp	pp	pp	pp
			Dermal	o	o	o	o

o - complete pathway
n - indeterminant pathway (due to lack of complete data at this time)
pp- possible pathway (but lack of complete data at this time)
p(1)- groundwater at site not likely reflective of in-situ conditions / no potable water wells within one mile of the subject property
p(2)- indeterminant pathway based on groundwater, surface water, and/or streambed sediment sample information

4.5 Human Health Risk Evaluation

Site Conceptual Models from previous investigations of Antimony Mill identified potential migration and exposure pathways affecting human health that included erosion; transport by meteoric and surface water; dust caused by wind, high-clearance trucks, and off-road vehicles; and infiltration to groundwater. The former mill is located within an unrestricted area adjacent to Forest Road 138 with nearby areas for fishing, camping, and other recreational uses. Recreational users could be easily exposed to elevated concentrations

of antimony, arsenic, and thallium through inhalation, inadvertent ingestion, and direct skin contact with ore piles, mill tailings, and impacted shallow soil at, and next to, the former mill, along Forest Road 138, and adjacent to Antimony Creek. However, given the analytical results associated with surface water and sediment in Antimony Creek, it is unlikely that residents living near the mouth of Antimony Canyon or within the town of Antimony have been or would be exposed to contaminants in and around the former mill.

As part of the potential acquisition of Claim 38B, the US Forest Service evaluated the analytical data from previous investigation of the Antimony Mill by the US EPA in 2009 and 2010. Consistent with the findings of the EarthTouch, Inc. investigation in 2021 and 2022, the US EPA identified three (3) contaminants of concern, including; antimony, arsenic, and thallium.

The US Forest Service processed the analytical data using ProUCL Software available from the US EPA for the three (3) contaminants of concern to obtain an exposure point concentration for risk assessment purposes. The primary function of the ProUCL Software is calculating the 95% Upper Confidence Limit (UCL) of the mean for each contaminant of concern. The US Forest Service noted that use of the sampling approach of the US EPA, which includes selected locations with the highest contaminant concentrations, and application of the ProUCL Software 'typically' yields in results that 'bias high' and provides a conservative characterization of contamination and calculated exposure point concentrations. The US Forest Service analyses of contaminant of concern at the former mill using ProUCL Software generated the following 95% UCLs for antimony, arsenic, and thallium:

Contaminant of Concern	Exposure Point Concentration
Antimony	5,598 mg/kg
Arsenic	266 mg/kg
Thallium	30.5 mg/kg

The base and lower parts of the former mill abut Forest Road 138 and the upper portions of the former mill and ore piles are adjacent to an off-road trail. As such, the US Forest Service prepared a human health risk assessment using a recreational scenario.

To assessment the risk to a recreational visitor to the Antimony Mill, the US Forest Service used assumptions provided by the US Bureau of Land Management (BLM) in the *Screening Assessment Approaches for Metals in Soil at BLM Hazmat/AML [Abandoned Mine Lands] Sites Technical Memorandum* (Sep-2017). Specifically, the following assumptions were used:

- Exposure Frequency: 14 days/year
- Exposure Duration (child): 2 years
- Exposure Duration (adult): 24 years

Target Levels were set at:

- Excess Lifetime Cancer Risk (ELCR): 1E-05
- Hazard Quotient (HQ / 'non-cancer' effects) 1.0

The calculated ELCRs associated with the contaminants of concern for the adult recreational scenario were less than 1E-05; and the calculated HQs were less than 1.0. Although the calculated ELCRs for the child recreational scenario were less than 1E-05, the calculated HQs for antimony and thallium were greater than 1.0 for the Exposure Point Concentrations generated by the ProUCL Software. As such, the US Forest Service suggested remedial actions at the former mill to reduce the health risk associated with antimony and thallium based on the child recreational use scenario.

To identify 'minimum cleanup concentrations' consistent with the Target Levels of the US Forest Service for the adult and child recreational use scenarios, EarthTouch, Inc. 'inverted' the risk assessment model (i.e., assumed the ELCRs would be less than 1E-05 and HQs would be equal to or less than 1.0), which yielded the following concentrations:

Contaminant of Concern	Minimum Cleanup Concentration
Antimony	786 mg/kg
Arsenic	266 mg/kg*
Thallium	19.6 mg/kg

*Based on the risk assessment model and recreational use scenario, the Exposure Point Concentration of arsenic (266 mg/kg) generated an ELCR less than 1E-05 for both the adult and child recreational scenario with HQs less than 1.0.

The 'minimum cleanup concentrations' were used to estimate the volume of material at the former mill that would be involved in remedial actions. Proposed site-specific cleanup levels are discussed in Section 5.

4.6 Ecological Risk Evaluation

The Utah Department of Water Quality (DWQ) identifies Antimony Creek as a Class 3A stream and a cold-water fishery. Antimony Creek is described by the National Wetlands Inventory (NWI) as a perennial stream with unconsolidated bottom and surface water persisting throughout most of the year with groundwater near the surface during periods in which surface water flow may become stagnant or absent. Antimony Creek and East Fork Sevier River are populated with brown trout and rainbow trout with on-line reports of anglers catching 10- to 12-inch fish with dry-flies before releasing. However, it is possible that brown trout or rainbow trout from Antimony Creek may have been consumed by humans.

Discussions with personnel with the US Forest Service indicated a lack of threatened, endangered, or candidate species in the area near Antimony Mill. There are no reports of Bonytail Chub, Razorback Sucker, or Humpback Chub in Antimony Creek. Although the bottomlands along Antimony Creek may provide secondary habitat for Southwestern Willow Flycatcher, this species has not been identified within Antimony Canyon.

Measured concentrations of contaminants of concern in surface water samples from Antimony Creek are below the standards of the Clean Water Act (CWA). The reported concentrations of contaminants of concern in surface water samples collected as part of investigations by US EPA and EarthTouch, Inc. are not significantly different. However, given the proximity of the former mill, ore piles, mill tailings, and impacted soil to Antimony Creek, a possibility of overland migration of contaminants to Antimony Creek through meteoric events, snowmelt, and mechanical agitation by vehicles exists with the likelihood of discharge of contaminants of concern to Antimony Creek increasing with time.

Comparison of sediment samples from Antimony Creek collected and analyzed by the US EPA in 2009 and 2010 and by EarthTouch, Inc. in 2021 and 2022 suggests an increase in concentrations of contaminants of concern. A screening level evaluation of contaminants of concern in sediments samples collected from Antimony Creek was performed by comparing the analytical results to levels of specific contaminants with high probability of causing adverse effects to aquatic biota generally referred to as Sediment Quality Guidelines, which include a Threshold Effects Concentration (TEC) and Probable Effects Concentration (PEC). The TEC is a concentration below which adverse effects are unlikely to occur. The PEC is a concentration above which adverse effects are likely to be observed.

The reported concentrations of cadmium and lead in sediment samples from Antimony Creek were less than the TECs and PECs for the *Protection of Aquatic Biota in Freshwater Ecosystems*. There are no

published TECs of PECs for antimony or thallium. The detected concentrations of arsenic in three sediment samples collected by EarthTouch, Inc. exceeded the TEC of 9.79 mg/kg. The detected concentrations in two of three sediment samples also exceeded the PEC of 33.0 mg/kg. The reported concentrations of arsenic in six sediment samples collected by US EPA ranged from 18.2 to 36 mg/kg with arsenic concentrations in all sediment samples exceeding the TEC and arsenic levels in one sediment sample exceeding the PEC. The reported concentrations of arsenic in sediment samples collected by EarthTouch, Inc. ranged from 26.5 to 69.8 mg/kg. With the exception of a sediment sample collected immediately downstream of the area of recent deposition and former mill, the detected concentrations of antimony in sediment samples collected by the US EPA and EarthTouch, Inc. were generally similar. Antimony was detected at a concentration of 456 mg/kg in the sediment sample collected from the embankment downstream of the former mill and area of recent deposition.

The Sediment Quality Guidelines are primarily for protection of benthic organisms; and other approaches are more appropriate to calculate sediment concentrations protective of fish, wildlife, and human health. However, the chemical characteristics of material deposited to the east of the former mill by recent flash flooding or mass wasting likely contributed to an increase in concentrations of contaminants of concern in the stream sediment in Antimony Creek. Reported concentrations of contaminants of concern in soil samples collected from areas of recent deposition by EarthTouch, Inc. ('reference values') exceeded the background concentrations reported by the US EPA in 2010; and the deposited material was observed to extend to Antimony Creek. The detected concentration of antimony in a sample of the recently deposited material was nearly 10 times the background concentration reported by US EPA.

The geography of Antimony Canyon, presence of antimony ore within nearby strata, and physical and chemical parameters associated with recent flash flooding or mass wasting deposition suggest multiple sources of potential contaminant impact to Antimony Creek, including naturally occurring high-grade ore in geological formations. Past mining, crushing, and processing activities concentrated contaminants of concern in areas adjacent to Antimony Mill. The remedial action would involve excavating and disposing of the contaminant sources associated with the former mill; and planting and supporting vegetative cover to reduce erosion and transport of residual material to Antimony Creek. However, no mitigative actions related to stabilizing high-grade ore bodies outside of the boundaries of Claim 38B are anticipated.

Vegetation near the former mill ranges from sparse, desert-type plants such as sage and grasses to stands of low growing pinyon pine and juniper with some aspen and conifer species such as pine, spruce, and fir. No threatened or endangered plant species are known from the area near Antimony Mill. Plants in areas adjacent to the former mill are not unduly stressed from contaminants of concern. However, there is the possibility of uptake of contaminants of concern by plant species and subsequent consumption by wildlife and/or livestock that may be present on the Dixie National Forest through grazing permits.

4.7 Remedial Action Objectives

Given the nature and extent of contamination and future recreational use of areas adjacent to the former mill, the remedial action objectives include:

- Remediate the oil piles, mill tailings, and impacted soils with concentrations of contaminants of concern above site-specific cleanup levels to reduce the potential health risks associated with inhalation, ingestion, and direct contact to levels acceptable for recreational use;
- Reduce the potential for migration and deposition of contaminants of concern at concentrations above site-specific cleanup levels into Antimony Creek; and
- Eliminate the need for constructing a repository on land to be administered by the US Forest Service to remove extraordinary requirements that may be associated with long-term operating and monitoring.

5.0 REMEDIAL ACTION

The remedial action alternatives considered included:

- No Action Alternative;
- Excavation, Stabilization, On-Site Consolidation, and Land Use Covenant(s); and
- Excavation with Off-Site Disposal.

No Action Alternative

The No Action Alternative was dismissed given the lack of containment of contaminants of concern or other mitigation measure to reduce the potential risk to human health or the environment, including potential exposure to antimony, arsenic, and thallium related to recreational uses and possible inhalation and inadvertent ingestion, and dermal contact and potential migration of contaminants to Antimony Creek.

Excavation, Stabilization, On-Site Consolidation, and Land Use Covenant(s)

Excavation, stabilization, and consolidation of soils containing antimony, arsenic, and thallium at concentrations warranting remedial action was dismissed by the US Forest Service due to policies related to the acquisition of land impacted by contaminants, operational costs associated with long-term monitoring of a constructed waste stabilization unit, and likelihood of executing a Land Use Covenant (LUC) that may conflict with various Forest Management Plans of the Dixie National Forest. This Alternative would involve identifying and characterizing land within the Dixie National Forest physically suitable for construction of a waste stabilization unit and constructing the waste stabilization unit; excavating, transporting, and accumulating impacted materials within a waste stabilization unit; and routine inspections of the waste stabilization unit over an extended period of time. Given the projected costs and timeframe of implementation, this alternative was dismissed.

Excavation with Off-Site Disposal

Excavating of ore piles, mill tailings, and impacted soil with antimony, arsenic, and/or thallium above a site-specific cleanup level and disposing of these materials at an off-site facility is the recommended alternative as this approach is protective of public health, safety, and welfare by preventing human exposures to concentrations of antimony, arsenic, and thallium exceeding site-specific clean-up levels; cost-effective to implement; prevents the potential migration of contaminants to Antimony Creek. The site-specific cleanup levels would be consistent with US Forest Service requirements related to adult and child recreational use scenarios. The ore piles, mill tailings, and impacted shallow soil would be excavated, transported to a permitted facility, and disposed in accordance with applicable regulations.

5.1 Cleanup Levels

As noted in Section 4.6, the US Forest Service completed a health risk assessment for Antimony Mill with respect to contaminants of concern using Exposure Point Concentrations obtained from investigations by the US EPA in 2009 and 2010 and applying the assumptions included in the US BLM in the *Screening Assessment Approaches for Metals in Soil at BLM Hazmat/AML [Abandoned Mine Lands] Sites Technical Memorandum*, which indicated unacceptable health risks under the child recreational use scenario. In order to identify a 'minimum cleanup concentration' for contaminants of concern, EarthTouch, Inc. performed an 'inversion analysis' using the same health risk model that assumed the ELCR of each contaminant would be less than 1E-05, and HQ of each contaminant would be equal to or less than 1.0. The 'inversion analysis' yielded 'minimum cleanup concentrations' for antimony, arsenic, and thallium of 786 mg/kg, 266 mg/kg, and 19.6 mg/kg, respectively. But applying the 'minimum cleanup concentrations' to the health risk

assessment produced a cumulative HQ for the child recreational use scenario of 2.1. As such, site-specific cleanup levels were developed to achieve the Target Levels of the US Forest Service (ELCR = 1E-05 / HQ = 1.0) for the adult and child recreational use scenarios.

The proposed site-specific cleanup levels are based on relevant regulatory screening levels; cleanup levels used at other mine-related properties in Utah with similar contaminants of concern; and application of the health risk assessment model and exposure scenarios used by the US Forest Service.

With the location of the former mill in an area with naturally occurring elevated concentrations of antimony associated with deposits of stibnite, valentinite, realgar, and orpiment; the proposed site-specific cleanup level for antimony is the RSL for commercial/industrial use of 470 mg/kg. Using this RSL in the health risk assessment model results in a risk for antimony that is less than 1E-05 and HQ of 0.6.

Cleanup levels of 100 mg/kg for arsenic have been accepted by the Utah DEQ/DERR and US EPA for residential use scenarios at many locations across Utah with mine-related contaminants of concern. As part of a previous investigation of the former mill, ore pile samples and mill tailings samples were collected and analyzed to simulate the leaching in landfill or other disposal scenarios. Although the reported concentrations of arsenic in mill tailing samples ranged up to 596 mg/kg, the reported concentrations of arsenic in leachate of the mill tailings samples were less than 0.038 milligrams per liter (mg/L) and less than 1.47 mg/L in the leachate of ore piles samples. These analytical results suggest relatively low mobility of arsenic in mill tailings and ore piles and support a site-specific cleanup level of 100 mg/kg for arsenic. Applying a site-specific cleanup level of 100 mg/kg for arsenic into the health assessment model for a child recreational scenario also yields a risk for arsenic that is less than 1E-05 and HQ of 0.1.

Measured background concentrations of thallium near the former mill during previous investigations are roughly 2.5 to 2.6 mg/kg. Therefore, the RSL for thallium related to residential use (1.6 mg/kg) is not achievable. When applied in conjunction with the proposed site-specific cleanup levels for antimony and arsenic in the health risk assessment model for a child recreational use scenario, the RSL of thallium for commercial/industrial use (23 mg/kg) yields an HQ greater than 1.0 and a cumulative HQ of 1.9.

Geographical and analytical data from previous investigations suggest elevated concentrations of thallium are generally associated with elevated concentrations of antimony and arsenic; however, the relative percent increase in thallium concentrations in ore piles, mill tailings, and impacted soil exceeds arsenic but is less than antimony. Investigations of Antimony Mill by the US EPA identified ‘elevated concentrations’ as three times the highest background concentration (2.6 mg/kg) or three times the SCDM (2.5 mg/kg). However, using site-specific cleanup levels of 7.5 mg/kg or 7.8 mg/kg along with the proposed site-specific cleanup levels of antimony and arsenic in the health risk assessment model for the child recreation use scenario results in a cumulative HQ of 1.1. To attain the Target Levels of the US Forest Service (ELCR = 1E-05 / HQ = 1.0), a site-specific cleanup level of 6.5 mg/kg for thallium is proposed

The proposed site-specific cleanup levels are summarized below:

Contaminant of Concern	Site-Specific Cleanup Level
Antimony	470 mg/kg
Arsenic	100 mg/kg
Thallium	6.5 mg/kg

6.0 IMPACTED MATERIAL REMOVAL AND DISPOSAL

The remedial actions at Antimony Mill will involve the excavation of ore piles, mill tailings, and metal-impacted soil; which will be disposed at an off-site facility in Garfield County, Utah.

Given the remoteness of the former mill and the variation and distribution of contaminants of concern, a hand-held X-ray fluorescence (XRF) unit will be used to provide real-time screening data to guide the removal of ore piles, mill tailings, and other sources of metal-impacted soil. At the conclusion of excavation activities, soil samples will be collected for laboratory analyses. Residual materials impacted by past operations at the former mill at concentrations above site-specific cleanup levels will be removed until the site-specific cleanup levels are met.

The metal-impacted materials will be either loaded directly into trucks and covered before leaving the area of the former mill or directed to transport bins, covered, and then loaded onto flatbed trucks for transit. Given the access restrictions associated with Forest Road 138, it is likely that smaller trucks and transport bins would be employed to move metal-impacted materials from the former mill to larger transport vehicles deployed near the mouth of Antimony Canyon or directly to the permitted disposal facility. The smaller vehicles would be decontaminated prior to departure to prevent 'track-out' of metal-impacted materials along Forest Road 138. Each transport load from the site to the disposal facility will be accompanied by a Non-Hazardous Waste Manifest.

6.1 Site Preparation Activities

The former mill is on a patented mine claim surrounded by land administered by the US Forest Service. Any permits that may be required by Garfield County or the US Forest Service will be obtained prior to initiating field work.

Prior to the start of excavation and removal actions, roughly 100 to 200 feet of stacked straw-wattles will be installed along the southern embankment of Antimony Creek adjacent to areas of metal-impacted shallow soil identified through past investigations.

The ore piles, mill tailings, and other areas of impacted soil excavation will be located using global position satellite (GPS) coordinates from previous investigations and identified by pin-flags, colored stakes, or similar. If warranted, an XRF will also be utilized to confirm the location and the presence of previously identified soil impacts.

Two bolt-down screw-mounts, with rough dimensions of 2-foot length and 1-inch diameter, on the lower foundation elements of the former mill would be flush-cut with a portable mini-cutter or rotary tool to reduce the potential for injury.

The former mill is situated immediately to the south of Forest Road 138 and areas of excavation are located immediately to the north and south Forest Road 138. During remedial actions Forest Road 138 would be closed to traffic about 500 feet to the west (down-canyon) of the former mill. A warning sign(s) would be erected, and measures implemented to prohibit unauthorized access to excavation areas about the former mill during remedial actions. Traffic cones, temporary barricades, or other obstacles would be used, as appropriate, to prevent unauthorized trucks, off-road vehicles, and other motorized equipment from work areas.

There are no utilities within the general area of Antimony Mill. Therefore, no utility location services will be engaged.

6.2 Excavation Activities by Impacted Area

Ore piles, mill tailings, and areas of metal-impacted soil will be excavated using a Bobcat mini-excavator, backhoe with front-loader, and/or mini-excavator. Hand tools will likely be used in areas adjacent to the remaining structural elements of the former mill. Once excavation activities have advanced to pre-determined depths, a hand-held XRF will be used to take in-situ readings of antimony or arsenic concentrations of exposed excavation floors to guide any additional excavating actions. When in-situ XRF readings indicate residual concentrations of antimony or arsenic are below site-specific cleanup levels, confirmation samples will be collected for laboratory analysis and to document remedial actions.

Ore Piles / Mill Tailings

One ore pile and the mill tailings pile are situated on the ground surface in areas to the south and southeast of the former mill. The ore pile and mill tailings pile along with roughly 6-inches of underlying native soil will be excavated. Additional soil will be excavated from beneath the ore pile and/or mill tailings pile based on in-situ XRF screening to confirm the remedial action objectives have been achieved.

The remaining ore pile is situated on the southernmost and uppermost part of the former mill and will be removed by hand tools and placed into a front-loader for transport to an onsite truck or transport bin.

The mill tailings and metal-impacted material adjacent to the former mill will be excavated using a mini-excavator and hand tools. The former mill is constructed within a river terrace with a slope near the angle of repose with mill tailings and metal-impacted material located adjacent to residential structure elements. Hand tools would be used to move and 'push' the mill tailings and metal-impacted material down-slope to areas accessible by a mini-digger and then placed within trucks or transport bins. Initially, the mill tailings and metal-impacted material adjacent to the former mill will be removed based on visual and physical indicators. Once visual or physical indicators suggest or underlying soil is encountered, additional excavation would be based on the results of in-situ XRF sample data.

Areas beneath ore piles, mill tailings, and within or adjacent to the former mill where the in-situ XRF readings that exceed 470 mg/kg of antimony and/or 100 mg/kg of arsenic will be marked with pin-flags, colored stakes, or marking paint and additional excavation performed. The in-situ XRF readings and additional excavation will continue until the in-situ XRF readings are below 470 mg/kg of antimony and 100 mg/kg of arsenic. Once the in-situ XRF readings are below these cleanup objectives, confirmation samples will be collected for laboratory analyses to verify the cleanup objectives have been achieved.

Shallow Metal-Impacted Soil

Based on previous investigations, the surface soil and shallow soil in areas to the north and northwest of the former mill extending across Forest Road 138 to within about 20 feet of Antimony Creek are impacted with mill tailings. A Bobcat or mini-excavator would be used to remove impacted material in roughly 6-inch lifts and place the impacted soil into a truck(s) or transport bin(s). After the material from the identified area of impact is removed to the target depth (6 inches), in-situ XRF readings will be collected from the bottom and edges of the excavated area and reported concentrations in excess of 470 mg/kg of antimony and/or 100 mg/kg of arsenic will be marked pin-flags, colored stakes, or marking paint and additional excavation performed. The in-situ XRF readings and additional excavation will continue until the in-situ XRF readings are below cleanup objectives and confirmation samples will be collected for laboratory analyses to verify the cleanup objectives have been achieved.

6.3 In-situ XRF Reading Methods

The horizontal and vertical extents of excavations related to ore piles, mill tailings, and metal-impacted soil will be determined in the field through real-time in-situ screening of the soil underlying and adjacent to excavated areas using a portable XRF unit. As excavations are performed, an XRF multi-element analyzer will be used in general accordance with US EPA Method 6200 and manufacturer operations manual for antimony and arsenic. The XRF unit will be calibrated each day in accordance with the procedures of the manufacturer.

6.4 Excavated Material Transport and Disposal

The ore piles, mill tailings, and excavated soil from the former mill will be placed into haul trucks, covered, and then transported to the John's Valley Landfill for disposal. John's Valley Landfill is located roughly three miles to the east of Panguitch, Utah. The proposed truck transport route would be south from Antimony Canyon Road along John's Valley Road to State Route 12; and then west along State Route 12 to US Highway 89; and then north on US Highway 89 to Peterson Wash Road; and then easterly to the John's Valley Landfill. Analytical information related to the ore piles, mill tailings, and impacted soil were provided to the Garfield County Public Works Department, the operator of John's Valley Landfill; which acknowledged the excavated materials could be accepted as solid waste under existing permits. A non-hazardous waste manifest will be issued and accompany each truck transporting a load of metal-impacted materials from the Antimony Mill to John's Valley Landfill.

6.5 Confirmation Sampling

Confirmation samples will be collected following excavation activities and consist of composite samples representing discrete areas of the site. One (1) duplicate sample will be collected for every ten (10) confirmation samples (of fraction thereof) for laboratory analyses. Additional sample volumes in each excavated area will also be collected for laboratory use for matrix spike (MS) and matrix spike duplicate (MSD) samples. In addition, personnel with the Utah DEQ/DERR that are on-site during field activities will be provided with the means, materials, and opportunities to collect spilt samples.

Composite confirmation samples will be collected using stainless-steel hand-trowels. Prior to sample collection, the hand-trowels will be washed in an Alconox/water mixture, rinsed with distilled water, and then advanced into the shallow surface to collect a sample. A new pair of disposable nitrile sampling gloves will be worn for each sample collected to prevent cross-contamination. Samples will be placed in clean jars provided by the laboratory, labeled, and transported to the laboratory under Chain-of-Custody procedures. A summary of sampling methodologies is included in Appendix A.

The location, methodology, and sample frequency for the collection of confirmation samples from various areas of soil impacts at the site are detailed in the following sections:

Ore Piles / Mill Tailings

The ore pile adjacent to the off-road vehicle trail is roughly 15- by 40- by 3-feet; the ore pile on the southernmost part of the former mill is approximately 10- by 20- by 1.5-feet; and the mill tailings pile to the southeast of the former mill is roughly 10- by 20- by 1-foot. Following excavation activities, composite confirmation samples would be collected from the bases of each excavation area based on the geometry; and from the sidewalls of excavation areas with depths exceeding 1-foot bgs. Roughly 200-square-foot areas would be subdivided into four (4) equal quadrants. Equal volumes of underlying soil would be collected at roughly 0- to 2-inch depths from within each quadrant and combined, mixed, and homogenized in 1-gallon plastic bags to produce composite confirmation samples for laboratory analyses. A composite

sample from each sidewall generally aligned to a cardinal compass direction would also be collected in areas were the excavation depths exceed one foot.

Shallow Metal-Impacted Soil

Previous investigations identify mill tailings and metal-impacted soil extending to the north and northwest of former mill and across Forest Road 138 within an approximately 6,000-square-foot area. After excavation of the area is complete, composite confirmation samples would be collected at 0- to 2-inch depths in the underlying soil. Approximately 400-square-foot areas would be subdivided into four (4) equal area quadrants and equal volumes of soil would be collected from within each quadrant and combined, mixed, and homogenized in 1-gallon plastic bags to produce a composite confirmation sample for laboratory analyses.

Areas Adjacent to the Former Mill

Mill tailings and metal-impacted soil were identified in areas adjacent to the residual structural elements of the former mill by previous investigations. Following excavation actions, composite confirmation samples would be collected along the western and eastern edges of the former mill at 0- to 2-inch depths in the underlying soil. Each side of the roughly 80-foot length of the former mill would be subdivided into roughly equal 20- by 20-foot areas and equal volumes of soil would be collected from within each quadrant and combined, mixed, and homogenized in 1-gallon plastic bags to produce a composite confirmation sample for laboratory analyses.

6.6 Laboratory Analyses

Composite confirmation samples would be shipped to Pace Laboratories in Mount Juliet, Tennessee. All samples would be analyzed for the presence of antimony, arsenic, and thallium by EPA Method 6020B. Pace Laboratories will be required to provide 'QC Level 3' data packages to support validation of reported samples concentrations. This includes internal laboratory QC samples; method blanks, laboratory duplicates, laboratory control samples, surrogate spikes, MS and MSD samples, standard reference material samples, and analytical summaries with surrogate recoveries on organic analyses, statistical recovery reports, chromatograms, and narrative. The need for formal data validation will be discussed with the Project Manager with the Utah DEQ/DERR following receipt of laboratory reports and data packages.

6.7 Site Restoration

Structural elements of Antimony Mill will remain following remedial actions. Any historical structure or cultural resource evaluation of the former mill would likely be addressed by the US Forest Service following acquisition.

The remedial actions related to removing ore piles and mill tailings would likely involve excavating from 2 to 6 inches beneath the areas of surface accumulation in areas to the east and south of the former mill in areas of limited vegetation. At the completion of remedial actions, these areas would be contoured to mimic surrounding areas incorporating surface soil from adjacent areas.

Removal of impacted soil in areas to the north and northwest of the former mill near Antimony Creek would likely involve excavation to depths ranging from 4 to 8 inches bgs. Once remedial actions are completed, the excavation area would be backfilled with clean topsoil from a commercial source(s) in Grand County, smoothed using hand tools or hand-held equipment, slightly compacted, and then seeded with a mixture prescribed by the US Forest Service and covered with mulch to reduce erosion and discourage growth of opportunistic weeds.

The seed mixture recommended by the US Forest Service includes:

Seed / Common Name	Seed / Scientific Name	Variety	Pounds / Acre	Viable Seeds / Square Foot
Needle & Thread	*Hesperotipa comata*		1	2.15
Squirreltail, Bottlebrush	*Elymus elymoides*	any	2	6.86
Brome, Mountain	*Bromus marginatus*	Bromar	2	4.04
Bluegrass, Canby	*Poa canbyi*	Canbar	1	17.17
Wheatgrass, Thickspike	*Elymus lanceolatus*		2	6.09
Dropseed, Sand	*Sporobolus cryptandrus*		0.05	5.60
Sweetvetch, Utah	*Hedysarum utahensis*		1	0.63
Yarrow, Western	*Achillea millefolium*		0.1	6.79
Beeplant, Rocky Mountain	*Cleome serrulata*		0.5	0.74
Balsamroot, Arrowleaf	*Balsamorhiza sagittata*		0.5	0.54
Buckwheat, Sulfur-flower	*Eriogonum umbellatum*		0.1	0.11
Goldeneye, Showy	*Heliomeris multiflora*		0.1	2.10
Flax, Lewis	*Linum lewisii*		0.5	1.85

Remedial actions are anticipated to be completed in the autumn months when deciduous plants are entering dormancy. Water from Antimony Creek would be used to ensure soils are moist when seeded, initiate some compaction of soil, and improve soil conditions for root penetration. Some seeded areas would be delineated by habitat fencing. Obstacles or semi-permanent fencing would be installed adjacent to seeded areas between Forest Road 138 and Antimony Creek to minimize potential disturbance by high-clearance trucks and off-road vehicles. The stacked straw-wattles installed along Antimony Creek prior to remedial actions would remain in place to reduce sedimentation to Antimony Creek during the period of plant establishment. Signage would also be posted.

Until Claim 38B is acquired by the US Forest Service or the seeded areas are covered by snow, maintenance inspections would be conducted every 2 to 3 weeks. During this timeframe, maintenance may include weeding/removing non-native invasive species, ensuring soils remain moist, addressing damage caused by human activities, evaluating and controlling erosion, performing additional seeding or planting, and making sure that conditions are optimal for establishment of selected plant species. These activities would be documented by a memorandum-to-file that includes evaluation of site-specific features and photographs. Inspection of the seeded areas would also be conducted after the snow melts in the spring, or through routine monitoring by personnel with the US Forest Service following acquisition.

6.8 Long-Term Management

Remedial actions are intended to address contaminants of concern in ore piles, mill tailings, and shallow soil at and adjacent to Antimony Mill identified through previous investigations. The remedial action objective is cleanup identified areas of concern at and adjacent to the former mill to site-specific risk-based levels based on future recreational use. However, at the conclusion of remedial actions some residual materials with contaminants of concern at concentrations above the Regional Screening Levels (RSLs) for unrestricted use would remain. As the site-specific risk-based levels exceed the RSLs, institutional controls are necessary to identify areas about the former mill with elevated concentrations of contaminants of concern, restrict activities to recreational uses only, prohibit excavating/removing soil or residual materials, constrain development of inhabitable structures or campsites near the former mill, and require managed uses and other activities generally consistent with the Forest Plan for the Antimony Canyon area. In support

of the risk-based remedial actions at the former mill; The Richard William Davis Trust in consultation with the Utah DEQ/DERR, will prepare an Environmental Covenant to address potential risks to human health and the environmental posed by residual contamination at Antimony Mill. The Environmental Covenant will be filed with Grand County upon completion of remedial actions.

Long-term management of the former mill after remedial actions and acquisition by the US Forest Service would be generally consistent with the *Land and Resource Management for the Dixie National Forest* (Forest Plan) that describes applicable activities and managed uses within the Antimony Canyon area (Appendix B). The most relevant parts of the Forest Plan include Riparian Management, Range Management, Timber Management, and Big Game Winter Range.

The Forest Plan summarizes objectives and standards related to natural resource management within the Dixie National Forest; includes overall directions and activities required to achieve desired environmental conditions; and lists management practices, standards, and guidelines for management of specific areas. Routine inspections and evaluations are ongoing throughout the Dixie National Forest in order to achieve desired future conditions. This includes routine inspections of Antimony Canyon to evaluate natural resource conditions and implement management controls, as necessary. The Forest Plan includes programs to monitor soil erosion and water quality, maintain and improve (if necessary) riparian areas, and control noxious weeks with focus on new and smaller populations. The institutional controls summarized in the Environmental Covenant would be absorbed into practices, standards, and guidelines for management of Antimony Canyon and specific areas around the former mill that would include routine inspection and documentation of plant growth and viability in seeded areas, encroachment of noxious weeds, soil erosion or significant surface disturbance, evidence of campsites or excessive recreational use, damage to structural elements of the former mill, and other natural resource management items necessary to achieve the objectives of the Forest Plan. The documentation would be maintained by the Dixie National Forest and used and modified in conjunction with amendments and updates to the Forest Plan.

6.9 Contingency

Should issues arise during remedial actions that are not specifically addressed by this work plan, the Project Manager with the Utah DEQ/DERR will be contacted by telephone to discuss alternatives with follow-up via email to document the conversation(s). As necessary, an addendum to address the issue(s) of concern would be prepared, submitted, and approved by the Utah DEQ/DERR prior to remobilization.

7.0 ENVIRONMENTAL CONTROLS

Remedial actions would include environmental controls consistent with regulatory requirements to address health and safety, site security, air emissions, and potential discharge of contaminants of concern to Antimony Creek. The field activities associated would take place following Utah DEQ/DERR approval of the work plan and public notification.

7.1 Permits

Any permits required by Garfield County or by the US Forest Service will be obtained prior to initiating field work.

The US Forest Service would be informed roughly 2 to 4 weeks prior to the initiation of field actions so that any notifications and/or restrictions related to travel on Forest Road 138 or use of nearby campgrounds may be issued or implemented.

7.2 Site Control

The Antimony Mill and areas of remedial action are adjacent to Forest Road 138 and ATV trail that are open to vehicular traffic. The areas around the former mill are not fenced or, and the property is securely fenced and locked. The selected construction contractor, in cooperation with the Site Safety Officer (SSO), will be responsible for implementing measures to prohibit access to remedial action areas from unauthorized personnel and securing the site during the remedial activities. Traffic cones and/or barricades would be used, as appropriate, to cordon off areas where equipment and personnel would be performing remedial actions to exclude unauthorized persons from the remedial action area.

7.3 Equipment Decontamination

Vehicles and equipment entering the project area would be decontaminated prior to leaving the site to prevent track-out of impacted material. It is anticipated that excavation equipment will remain within the areas of excavation once mobilized to the subject property. Decontamination areas would be located in areas removed from Antimony Creek and identified in consultation with the excavation contractor and personnel with the Utah DEQ/DERR. The method of decontamination would vary with site conditions at the time of remedial actions. In dry conditions, vehicles would travel across a decontamination pad to remove to the extent possible loose soil prior to leaving the project area. As necessary, vehicles and equipment would be swept or brushed to remove soil and dust. Given the condition of Forest Road 138, excavation work and transportation of impacted material would not take place during rain events or during periods of wet conditions.

7.4 Stormwater

A Storm Water Pollution Prevention Plan (SWPPP) would not be required because the disturbance will be less than one acre. However, Best Management Practices (BMPs) will be implemented. Roughly 100 to 200 feet of stacked wattles would be installed along the southern embankment of Antimony Creek adjacent to areas of metal-impacted shallow to prevent migration of contaminants.

7.5 Fugitive Dust Control

The areas of excavation associated with this remedial action are relatively small and quite isolated. In addition, the shallow depths of excavation are not anticipated to generate significant amount of dust. Given access issues, the use of smaller mechanical equipment and hand-tools is anticipated. Excavation work will be performed so that no visible fugitive dust would cross the boundaries of Claim 38B. Dust control would involve applying volumes of water to excavation, loading, tracking, and transit areas, as necessary; limiting the speed of equipment to less than 10 miles per hour and reducing the drop heights as part of loading activities. Work would be suspended during high wind periods.

7.6 Health and Safety Plan

Impacted material excavating and loading activities will follow a project-specific Health & Safety Plan, included as Appendix C.

8.0 PUBLIC PARTICIPATION

Following approval of the RAP by the Utah DEQ/ERR, a public notice will be published in The Insider newspaper in two consecutive editions. The notice will inform the public of a 30-day period to review the RAP and provide comment to the Utah DEQ/DERR. Comments submitted by the public in writing will be addressed at the conclusion of the 30-day period; and the RAP revised, as necessary, prior to the initiation

of remedial actions. The proposed public notice is included in Appendix D. The RAP would also be provided to the US Forest Service for review and comment; and separate notification of the public regarding public lands in Antimony Canyon near the former Antimony Mill. In addition, the public notice will be posted at the US Post Office in Antimony and the Antimony city offices.

9.0 PROJECT SCHEDULE

Based on approval of the RAP and 30-day period for public comment, we anticipate remedial actions to commence in early Sep-2023 with field activities expected to require roughly five (5) consecutive days. Given recreational use of Antimony Canyon, we anticipate field work to begin on a selected Monday morning with completion by the following Friday afternoon to avoid the anticipated increase associated with weekend recreational use.

10.0 REPORTING

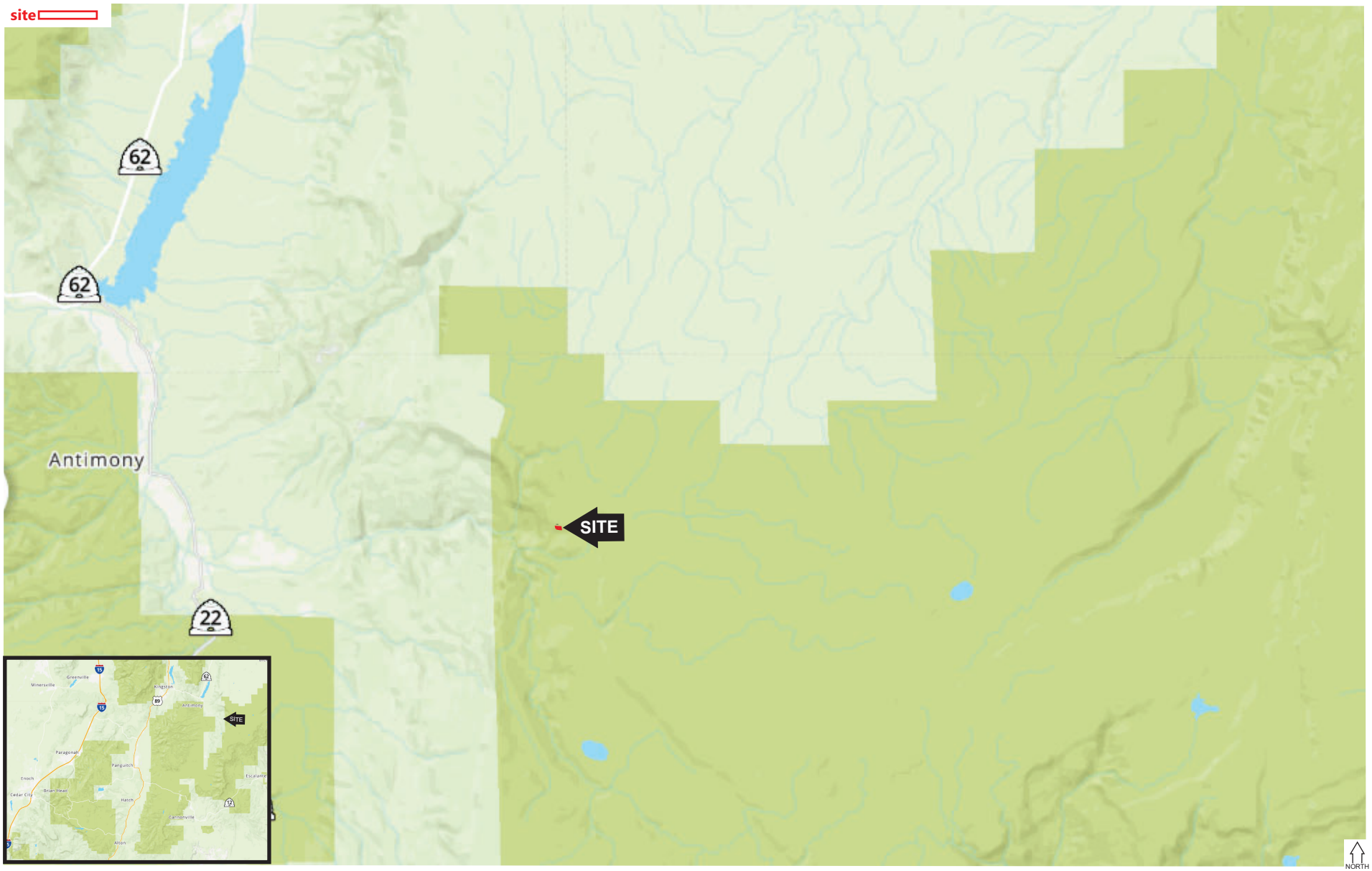
Once field work is completed and confirmation samples analyzed to confirm cleanup of the former mill to site-specific cleanup levels, a report will be prepared and submitted to the Utah DEQ/DERR that describes field activities, depicts areas of excavations, identifies volume/mass of impacted material removed and disposed, and the results of confirmation sampling.

The Remedial Action Report will include:

- Discussion and photographs of remedial actions;
- Review and evaluation of confirmation sampling results, including quality assurance/quality control related to analytical results and field activities; and
- Documentation of transport and disposal at Garfield County Landfill, including a letter of acceptance of the waste material under existing permit.

FIGURE 1

SITE LOCATION



earthTouch inc
www.earthtouchinc.com
EarthTouch, Inc.
3135 North Fairfield Road
Layton, Utah 84041

FIGURE 1

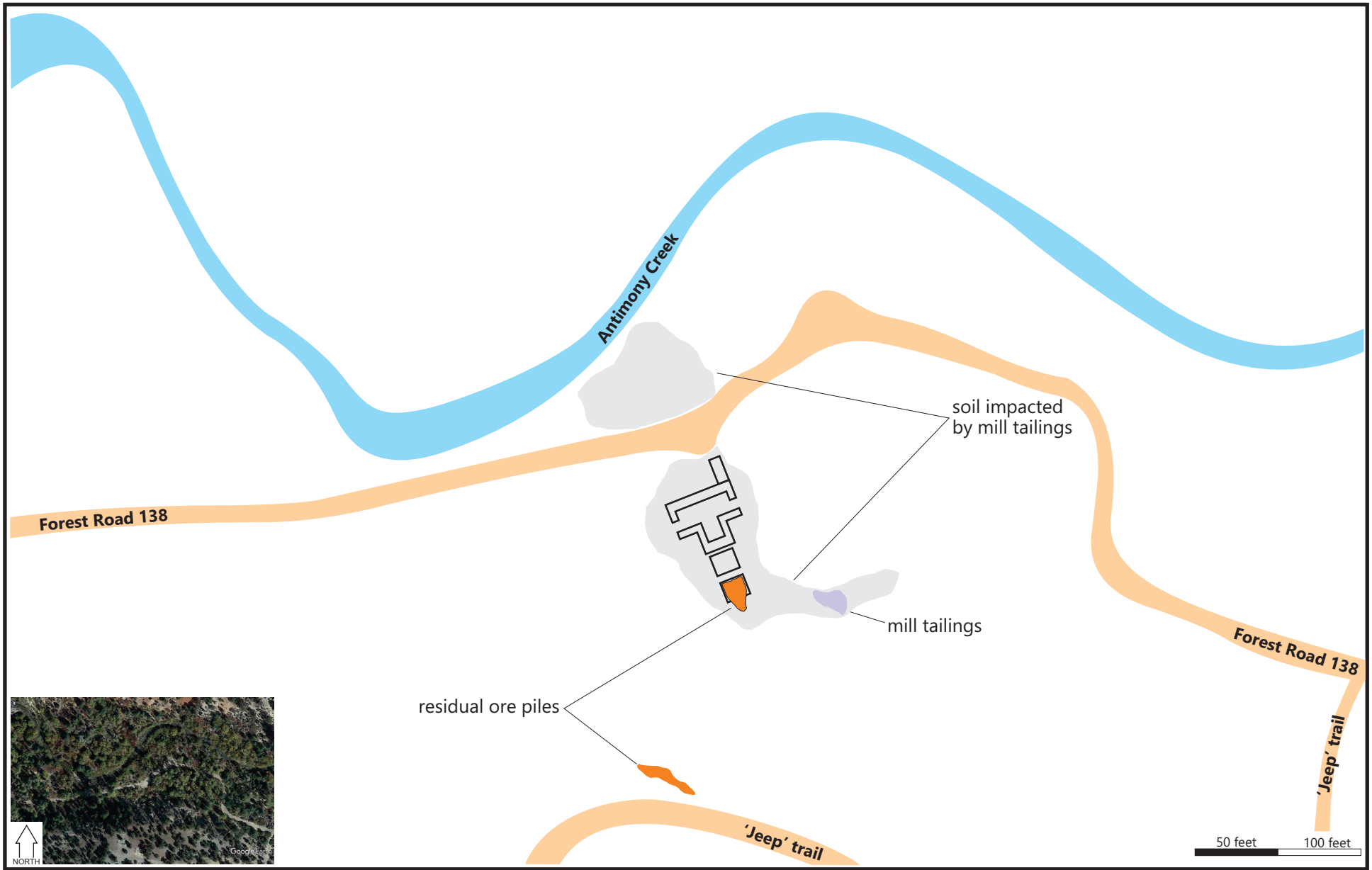
Site Location

Former Antimony Mill
Antimony Canyon 5.5 miles east of Antimony
(Antimony), Garfield County, Utah 84712

Figure:	1
Append:	Ramedial Action Plan
Project:	DVTR-23-0001-03-UT / The Richard William Davis Trust
Analyst:	Brett Cox / Eve Dunn
Source:	MapQuest Antimony / Garfield County, Utah

FIGURE 2

IDENTIFIED AREAS OF IMPACT



EarthTouch, Inc.
3135 North Fairfield Road
Layton, Utah 84041

FIGURE 2

Impact Areas

Former Antimony Mill (Claim 38B)
Antimony Canyon Area
(Antimony), Garfield County, Utah 84712

Figure:	2
Append:	Remedial Action Plan
Project:	DVTR-23-0001-03-UT / The Richard William Davis Trust
Analyst:	Brett Cox / Eve Dunn
Source:	Site Characterization Plan EarthTouch, Inc.

APPENDIX A

QUALITY ASSURANCE / QUALITY CONTROL SAMPLE COLLECTION AND ANALYSES

Quality Assurance / Quality Control Procedures

The quality assurance/quality control (QA/QC) procedures described provide a system of safeguards designed to reduce errors and assure that activities described in the Work Plan are of the highest reasonable quality. Although QA/QC is important to each project, it is fundamentally important in the collecting and analyzing soil and groundwater samples to provide the basis for mitigative actions upon which the future use of the subject property depends. The QA/QC procedures to be followed to ensure that field samples would be a valid representation of actual site conditions are summarized in this section. The possible health and safety hazards and the plan to address these concerns are outlined in the Site-specific Health & Safety Plan (SSHP) included in Appendix B.

A.1.0 Field Quality Control Procedures

The Project Manager and Project Geologist will ensure that the Work Plan is followed throughout the subsurface investigation. Boring installation and sample collection will be completed as described in the Work Plan and the Project Geologist will correct any deficiencies observed in the field and will complete tasks as appropriate. The Project Geologist will review the Work Plan, HASP, and related documentation prior to the initiation of field work. Any deficiencies observed in the field will be reported to the Project Manager to ensure that field and analytical data is valid and representative of sampling locations. The Project Geologist will document field activities in a project logbook and will complete field forms as needed while at the site.

A.2.0 Decontamination Procedures

Prior to initiating sample collection, new sampling equipment will be deployed; or existing sampling equipment will be thoroughly cleaned using an Alconox® solution and rinsed with deionized/distilled water or other approved method to ensure no contaminants are present. The following procedures would be followed during field activities to prevent the contamination of samples:

- Non-disposable sampling equipment would be washed in a non-phosphate detergent solution and rinsed with deionized or distilled water and then rinsed and re-rinsed with deionized or distilled water;
- All non-disposable sampling equipment would be moved to the sampling area by personnel wearing clean nitrile gloves and reassembled and immediately used; and
- Rinse water would be captured in 5-gallon containers and transported from the site.

A.3.0 Boring Advancement and Sample Collection

Soil boring and sampling procedures would involve the following.

Preliminary Activities

Proposed hand-auger boring locations are determined through the evaluation of prior assessments and investigations. Field activities will be conducted under a HASP, which addresses the potential health and safety hazards at the subject property. The HASP will also be available at the site during field activities.

Advancement of Borings and Collection of Soil Samples

EarthTouch, Inc. would collect surficial soil samples with stainless-steel trowels or shovels, gloved hands, or disposable plastic spoons; and deeper soil samples with a stainless-steel hand-auger.

The following general guidelines would be followed:

- The site would be inspected, and historical information reviewed to better understand the physical and environmental conditions and potentially impacted media;
- Identify proposed boring location and coordinate with on-site personnel before initiating sampling;
- Inspect each proposed sample location to assure the area is free of subsurface features/structures;
- Sample in areas of anticipated low contaminant concentrations and progress to areas of anticipated higher contamination;
- Complete decontamination of the hand-auger after sample collection prior to mobilizing to a new boring location;
- Restore the boring location to pre-hand-auger condition to the extent practical;
- Record all relevant information in field logbook(s).

Before collecting samples, all reusable, non-disposable sampling equipment would be decontaminated to minimize the potential for cross-contamination. All disposable sample equipment would be inspected before any use to confirm that it is clean and free of potential contaminants. Soil sampling procedures would include the following:

- Unless specifically identified in a proposal or Work Plan, samples for laboratory analysis should be discrete samples;
- Samples must be collected in accordance with the methods specific to the analytical parameters to be analyzed;
- Soil samples must be collected with disposable or decontaminated 'clean' tools;
- Disposable nitrile gloves must be worn during sampling and changed between each sample collection;
- All sample containers should be quickly and adequately sealed with the rims cleaned prior to tightening the lids/caps;
- Sample containers should be appropriately labeled as outlined in Chain-of-Custody procedures;
- Samples must be preserved in a manner consistent with the laboratory parameters to be analyzed and placed within rigid coolers and chilled to 4°C (Celsius) and maintained at this temperature through delivery to the laboratory;
- Sample holding times must conform to the analytical methods; and
- Alternative methods of sampling must be approved by the Project Manager and documented.

Each soil sample will be labeled so that the boring location and sample depth are identified. The boring number and sample depth will be marked on each sample and multiple samples from one boring depth will be labeled as appropriate. The information on the label will be duplicated on the Chain-of-Custody form. When a duplicate sample is collected, the sample will be labeled in the same manner as other samples collected in the field.

After sampling procedures are completed, sampling and boring equipment will be thoroughly cleaned as described above prior to use at other proposed boring locations. The sample locations and soil borings will be backfilled with the removed material.

The soil would be classified using the Unified Soil Classification System (USCS) and descriptions included in the final report. A Soil Boring Log datasheet would be completed in the field, by hand and include; (1) Project Name & Number; (2) Project Location; (3) depth below surface; (4) Sample Interval; (5) Sample Depth & Type; and (6) Soil Description.

Lithological changes would be documented along with the depth to groundwater. The soil descriptions should be precise and comprehensive and include, as relevant, an overall impression of the soil without excessive emphasis on insignificant details.

Excess Soils / Soil Cuttings

Hand-auger cuttings would be returned to boring or sample locations. Disposable field equipment or supplies will be placed in 6-mil trash bags and removed from the site at the conclusion of field activities.

A.4.0 Field Quality Control Samples

The following samples will be collected to evaluate quality assurance:

- A duplicate surface water sample and duplicate soil sample would be collected and submitted to the laboratory for analyses. In addition, samples would be collected for the preparation of Matrix Spike (MS) and Matrix Spike Duplicate (MSD).

A.5.0 Chain-of-Custody

A Chain-of-Custody form accompanies all samples collected by EarthTouch, Inc. that are submitted for laboratory analysis to ensure the integrity of samples and that the appropriate analyses are performed. A Chain-of-Custody form accompanies all samples collected in the field to the designated analytical laboratory; and establishes the documentation necessary to trace sample possession, as well as evidence of collection, shipment, and receipt and analysis by the laboratory.

When samples are collected, the following should be recorded on the Chain-of-Custody:

- Sample location;
- Sample date and time;
- Sample identification number;
- Sample type and media;
- Name of the individual collecting the sample;
- Sample analyses requested;
- Sample preservation type;
- Quality control sample numbers and types;
- Name of individual to whom the samples are relinquished;
- Laboratory service provider in which samples are to be relinquished;
- Shipping Service(s) or method(s) used for sample delivery;
- Date and time of shipment; and
- Shipping waybill or manifest number.

Until such time as samples are transported and ‘relinquished’ to the analytical laboratory, EarthTouch, Inc. personnel would control or otherwise be responsible for custody of the samples. Control (custody) of the samples would be considered as (1) physical possession, (2) in direct view of the individual(s) with physical possession, (3) within a locked/sealed unit controlled by the individual(s) with physical possession, and/or (4) within a secured/restricted area accessible by the individual(s) with physical possession. When

transferring possession of samples, the individual(s) relinquishing custody and receiving custody of the samples will sign and date the Chain-of-Custody form. Samples collected in the field would be hand-delivered by EarthTouch, Inc. personnel to the laboratory or sent to the laboratory via Federal Express with Chain-of-Custody through the transport company. At the time, the samples are 'relinquished' to the laboratory, a copy of the Chain-of-Custody form will be obtained and maintained by EarthTouch, Inc. as physical evidence of 'control' of the samples from the site and used to identify samples from the point of collection through data reporting.

A.6.0 Laboratory Quality Control Procedures

The Project Geologist will ensure that all samples are delivered to the analytical laboratory under chain-of-custody procedures. Soil samples will be delivered to the analytical laboratory the same day. Soil samples collected after normal business hours of the analytical laboratory will be secured at the EarthTouch, Inc. office until delivery can be arranged. However, Chain-of-Custody procedures will be maintained at all times during this process.

The sample analysis will be completed by American West Analytical Laboratories, Inc. (AWAL) and/or ALS Laboratories, which are certified by the Utah Department of Health Services (DHS) through the Environmental Laboratory Certification program. The laboratories will analyze all samples for 'heavy metals' by EPA Methods 6010B and 6020A; and soil samples for total petroleum hydrocarbons (TPH) as diesel range organics (DRO) by EPA Method 8015D, and total recoverable petroleum hydrocarbons (TRPH) by EPA Method 1664A modified.

The guidelines in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," US EPA publication SW-846, other standard US EPA methods, and/or other accepted methods and analytical procedures would be followed to analyze soil and well-point groundwater samples collected from the site. The laboratories for this investigation will have established protocols and quality assurance procedures that meet or exceed applicable EPA guidelines; and will include associated QA/QC procedures as recommended by each method. The analytical methods and quality assurance/quality control (QA/QC) criteria would incorporate the following:

- Internal QC Samples;
- Method Blanks;
- Laboratory Duplicates;
- Laboratory Control Samples;
- Surrogate Spikes;
- Matrix Spike and Matrix Spike Duplicate Samples; and
- Standards Reference Material Samples

Applicable holding times and EPA Methods of analysis will be followed. Calibration tests will be conducted as appropriate to ensure that the analytical results are accurate and valid. Data Quality Indicators are included in Table C. A quality control sample schedule is included as Table C-1. Laboratory established controls for recoveries on matrix spike, matrix spike duplicate, laboratory control samples and laboratory duplicate analyses would be applied. Data quality indicators for matrix spike and laboratory control sample recoveries are summarized in Table C-2. Quality control for the analysis of sample blanks would be for the reported results to be at concentrations less than the applicable Method Detection Limits (MDLs).

All analytical results will be signed and dated by the laboratory. The analytical results will be evaluated, and any anomalies will be identified and discussed with the Project Manager such that a thorough investigation of the validity of the analytical results can be conducted.

Table A
Data Quality Indicators (DQIs)

Parameter	Quality Control Program	Evaluation Criteria	Summary of the QA/QC Goals
Precision	Field Duplicates	Relative Percent Difference (RPD)	RPDs will be less than ±25% (aqueous samples) and a ±50% (solid samples) when detected constrictions are ≥5x the LRL. When detected concentrations are <5x the LRL and the difference between the reported concentrations is less than or equal to the LRL value (for aqueous samples) or less than twice the LRL (for soil/solid samples), the samples will be considered within control.
Bias	Laboratory Control Sample	Percent Recovery	LCS percent recoveries will vary by sample medium, analyte, and methods; and may be either method defaults or laboratory derived
	Matrix Spike (MS) / Matrix Spike Duplicate (MSD)	Percent Recovery RPD	MS/MSD percent recoveries and RPDs will vary by sample medium, analyte, and methods; and may be either method defaults or laboratory derived
Accuracy	Method Blanks	LRLs	Less than the Laboratory Reporting Limits (LRLs)
	Equipment Blanks		Less than the Laboratory Reporting Limits (LRLs)
Representativeness	Standard Operating Procedures (SOPs)	Qualitative determination of SOPs adherence	All samples collected following SOPs
	Holding Times	Holding Times	All samples analyzed within holding times
	Field Equipment Blanks	LRL	Less than LRL
Comparability	Units of Measure	Metric Units	100% of sample results reported in same units
	Analytical Methods	Approved Methods	100% of samples analyzed using approved methods
	Standardized Sampling	Qualitative determination of SOPs adherence	All samples collected following SOPs
	QC Samples		
	10% Field Duplicates	Verify	100% Compliance
	10% Field Blanks	Verify	100% Compliance
	Laboratory QA	Verify	100% Compliance
Completeness	Complete Sampling	Percent Valid Data	90% or more of the planned measurements are valid
Sensitivity	Sample Analyses	LRL	100% of the LRLs are less than Performance Standards

RPD = $\{(X_1 - X_2) / [(X_1 + X_2) / 2]\} \times 100$; where X_1 and X_2 are the reported concentrations of the samples being evaluated
Percent Recovery = $[(X_s - X_i) / sc] \times 100$; where X_s = concentration measured in the spiked samples; X_s =concentrations measured prior to spiking, and *sc* = spike concentration.
Instrument calibration, reference material, standards traceability, and data validation will follow AWALs standard operating procedures.
LRL – Laboratory Reporting Limit
RPD – Relative Percent Difference
SOPs – Standard Operating Procedures

Review of data quality and usability would generally include; review of field data and observations; review of laboratory reports and analytical data, including; results related to trip blanks, laboratory control samples, and laboratory manager comments; and an evaluation of the data in terms of accuracy, precision, and representativeness; and usability of the data. The analytical results from this investigation would also be reviewed with respect to correlation to sample data from previous investigations and evaluated in regard to potential changes in contaminant concentrations of sample media, variations in sample concentrations, and usability of data obtained during previous investigations.

Table A-1
Quality Control Sample Frequency

QA/QC Sample Type	Sample Frequency	Analytical Parameter(s)
Field Duplicates	1 for 10 soil samples collected at the site (or per batch) 1 for 10 surface water samples (or per batch)	Metals
Matrix Spike / Matrix Spike Duplicate	1 added for 10 soil samples collected at the site 1 added set 10 surface water samples collected at the site	Metals
Method Blanks	1 for every 20 samples	Metals
Laboratory Control Samples	1 for every 20 samples	Metals
Laboratory Duplicates	1 for every 20 samples	Metals

Table A-2
Summary of Data Quality Indicators for Matrix Spike and Laboratory Control Recoveries ('Heavy Metals')

Analyte / Parameter	Analytical Method	LCS Low % Rec.	LCS High % Rec.	MS / MSD Low % Rec.	MS / MSD High % Rec.	MS / MSD % RPD.
Antimony	6020B / 6010D	85 / 80	115 / 120	75 / 75	125 / 125	20
Arsenic	6020B / 6010D	85 / 80	115 / 120	75 / 75	125 / 125	20
Aluminum	6020B / 6010D	85 / 80	115 / 120	75 / 75	125 / 125	20
Cadmium	6020B / 6010D	85 / 80	115 / 120	75 / 75	125 / 125	20
Lead	6020B / 6010D	85 / 80	115 / 120	75 / 75	125 / 125	20
Thallium	6020B / 6010D	85 / 80	115 / 120	75 / 75	125 / 125	20

Control limits provided by Pace Laboratories as listed in the laboratory quality assurance manual, which is routinely and continually updated with all MDLs, and the LCS, MS/MSD and RPD control limits for 'heavy metals.' Therefore, the control limits listed above may be different when data are reported by Pace Laboratories.

APPENDIX B

LAND and RESOURCE MANAGEMENT PLAN
for the DIXIE NATIONAL FOREST

https://www.fs.usda.gov/detailfull/dixie/landmanagement/planning/?cid=stelprdb5163370&width=full

APPENDIX C

HEALTH & SAFETY PLAN

APPENDIX D

PROPOSED PUBLIC NOTICE

PUBLIC NOTICE
Utah Department of Environmental Quality
Voluntary Cleanup Program (VCP)

The public is invited to provide comment on a Remedial Action Plan that describes mitigation activities related to residual ore and tailings from historical operations at the former Antimony Mill located in Antimony Canyon about 5.5 miles to the east of the town of Antimony in unincorporated Garfield County, Utah (Site). The Site has been impacted by past uses and mitigation actions to minimize potential human and environmental exposures to potential contaminants include excavating residual ore piles, mill tailings, and impacted soil; and transporting and disposing of these materials at a permitted facility. Mitigation actions will be carried out by The Richard William Davis Trust, the applicant of record to the VCP. Copies of the Remedial Action Plan are available for review at the Utah Department of Environmental Quality, Division of Environmental Response & Remediation, 195 North 1950 West, Salt Lake City, Utah 84116. For information, contact Chris Howell at (801) 536-4100 (chowell@utah.gov). The public is encouraged to comment on the RAP through (*date*).