New Idria Mercury Mine Superfund Site
Idria, San Benito County, California
Removal Action
Final Report

USDA Forest Service Contract Number: AG-91S8-11-0003
Document Control Number: 12238.050.001.0001

April 2012

Prepared for:
U.S. Environmental Protection Agency
Region 9

Prepared by:
Weston Solutions, Inc.

TABLE OF CONTENTS

1.0 Introduction 1

2.0 Background 1
2.1 Location and Description 1
2.2 Site History 2
2.3 Previous Investigations and Regulatory Involvement 3

3.0 Removal Action Activities 3
3.1 Mobilization/Site Preparation 3
3.2 Site Security 4
3.3 AMD Conveyance Construction 4
3.4 Lower Pond Refurbishing 5
3.5 Intermittent Stream and Surface Water Diversion Channel Construction 6
3.6 Road Maintenance 6
3.7 Demobilization 7

4.0 Deviations From Work Plan 7
4.1 AMD Conveyance Realignment 7
4.2 Surface Water Diversion Channel Modification 7
4.3 Water Line Location and Stabilization 8

5.0 Reference List 8

LIST OF FIGURES

Figure 1: Site Location Map 9
Figure 2: Site Layout Map 10

LIST OF APPENDICES

APPENDIX A: Photographic Documentation
APPENDIX B: Removal Action Work Plan

LIST OF ACRONYMS

AMD	acid mine drainage
bgs	below ground surface
BMP	Best Management Practice
CAT	Caterpillar
ESI	Expanded Site Inspection
GPM	gallons per minute
HASP	Health and Safety Plan
HDPE	high density polyethylene
NIMM	New Idria Mercury Mine
NPL	National Priorities List
PA	Preliminary Assessment
RAWP	Removal Action Work Plan
RV	Recreational Vehicle
SI	Site Inspection
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
WESTON	WESTON Solutions, Inc.

1.0 INTRODUCTION

The United States Environmental Protection Agency (EPA) tasked Weston Solutions, Inc. (WESTON) to conduct a removal action at the New Idria Mercury Mine (NIMM) Superfund Site located in Idria, San Benito County, California in an effort to minimize ongoing contamination of San Carlos Creek by acid mine drainage (AMD) discharged from the mine. This work was performed under the United States Department of Agriculture (USDA) Forest Service Regional Environmental Response Action Contract Number AG-91S8-C-11-0003

The objectives of the removal action at the NIMM site were to improve site security, reduce contact of AMD with calcines (to reduce leaching of mercury), and minimize stormwater erosion and transport of calcines from the Level 10 Adit dump. The scope of work included installation of additional fencing and gates to provide increased site security; construction of a conveyance line to capture the AMD and route it to the Lower Pond; excavation of the Lower Pond to provide increased storage capacity for the AMD; construction of plastic and earthen-lined surface water diversions to redirect the intermittent stream and the stormwater flow from the hillsides near the Level 10 Adit; and repair of the upper road by installing a culvert where a stream crossing had previously caused erosion.

This final report summarizes the field activities conducted by WESTON from October 24, 2011 through November 19, 2011.

2.0 BACKGROUND

2.1 Location and Description

The NIMM site is located at the abandoned town of Idria in San Benito County, California. The geographic coordinates for the Site are 36° 24' 53" North latitude and 120° 40' 28" West longitude (NationalMap, 2010). The location of the Site is shown in Figure 1.

The area of focus for the removal action at the NIMM site was located near the Level 10 Adit, shown in Figure 2. Immediately north of the adit is the Level 10 Adit dump, a graded pile of waste rock removed from the underground workings. The furnace area is located below the adit dump. The old furnace building and milling complex is surrounded by an extensive pile of roasted cinnabar ore known as calcines. A number of old mine buildings and structures are located on the benched surfaces of both the adit dump and the calcines pile.

San Carlos Creek flows to the north along the east edge of the base of the calcines pile. San Carlos Creek then joins Silver Creek approximately 3 miles downstream (north) of the site. A small reservoir located above and south of the town was constructed by building a dam across San Carlos Creek and was used as the local drinking water source. Although no longer used for drinking, this water source is still utilized by several local residents that are connected to the reservoir by a series of above ground and underground water lines. One of the active

underground water lines crosses the upper bench of the Level 10 Adit dump. The water line intersects at a junction near the top of the waste rock pile, and then it becomes an above ground line for several hundred feet to the northwest of the junction.

Prior to the removal action, AMD from the Level 10 Adit flowed across the upper bench of the Level 10 Adit dump through a shallow ponded depression. The AMD then flowed down the steep face of the dump into a channel incised in the waste rock, forming a small waterfall, and into a shallow holding pond, the Lower Pond. The Lower Pond was filled with sediment and contained a small pool of AMD. In the past, the Lower Pond was utilized to contain milling water discharges and to settle floc from the Level 10 Adit drainage until it discharged into San Carlos Creek. AMD continues to discharge from the Lower Pond into the creek.

2.2 Site History

The New Idria mining claim was located in 1854 by prospectors and investors. In 1857, the first brick furnace to roast cinnabar ore was built at the Site. The mine operations expanded to include San Carlos, Aurora, and Molina mines, and miles of tunnels, shafts and drifts were used to access the cinnabar. In the 1920s, the overburden was stripped down to form pits in order to access cinnabar. The mining continued nearly continuously with a few idle and low productivity periods due to economic lows in mercury values and land owner disputes. The mine operated until the early 1970s. Several furnaces were built over the years with four large furnaces still located at the site adjacent to the Level 10 Adit. Mercury was extracted from the cinnabar ore by crushing the ore and roasting it to release elemental mercury vapor which is cooled and condensed for bottling. The process is called calcination, and the roasted ore is known as calcines which still contain some soluble mercury. Some of the older tailing piles themselves were mined and reprocessed as mercury extraction methods improved. The furnaces at the Site were also used to process mercury ore from the San Carlos and Aurora Mines, which was transported by a 2-mile aerial tram or through the Level 10 Adit. The New Idria Mine was reported to be the second largest mercury mine in the country and produced over 500,000 flasks (38,250,000 pounds) of mercury.

Over the years, the extensive mine tunnels have flooded with groundwater which reacts with the high iron and sulfur content of the bedrock to form an acidic solution. The groundwater drains from the Level 10 Adit as AMD. The AMD presently is not treated and flows through the Lower Pond into San Carlos Creek. San Carlos Creek flows along the base of massive calcine tailings piles for length of approximately 2,500 feet.

2.3 Previous Investigations and Regulatory Involvement

In 1997, the EPA conducted a Preliminary Assessment (PA) and Site Inspection (SI) that entailed the collection of soil, tailings, water, and sediment samples from the Site and surface water locations located upstream and downstream of the Site. The 1997 investigation focused on human health impacts due to a small population of people living at the Site at that time. In 2010, the EPA conducted an Expanded Site Inspection (ESI) of the NIMM site and streams draining the Site. Samples were collected from the source areas including the calcine tailings, AMD from the Level 10 Adit, and the surface water pathway along San Carlos, Silver and Panoche creeks. The EPA also conducted an assessment of wetlands located along the surface water pathway and documented their presence from the Site to Panoche Creek. Sampling results found that mercury concentrations significantly exceed background concentrations in the surface water pathway leading to Panoche Creek. Based on the findings of the inspections and the impact to sensitive environments, the EPA designated the NIMM site for listing on the National Priorities List (NLP).

The 2010 investigation demonstrated that the calcine tailings contained mercury and that mercury concentrations increased in surface water samples collected from the AMD as it flowed from the Level 10 Adit over the tailings towards San Carlos Creek. Based on the investigations, the EPA determined that a removal action was necessary to address the AMD and mercury at the Site.

3.0 REMOVAL ACTION ACTIVITIES

The objectives and scope of work for this project were outlined in the Removal Action Work Plan (RAWP), New Idria Mercury Mine Superfund Site, dated October 2011 and were summarized above in Section 1. Removal action activities at the Site occurred from October 24 to November 19, 2011. WESTON crews worked a general schedule of Monday through Saturday, from 0700 hours to 1730 hours, during this time period.

3.1 Mobilization/Site Preparation

The WESTON crew began mobilization to the NIMM site on October 24, 2011. Initial activities consisted of preparation work to establish a command post and base camp located in the area of a former corral. After vegetation was cleared, a total of four recreational vehicles (RVs), three for WESTON staff and one for EPA staff, were delivered to the Site and staged. One 20-foot office trailer container and one 20-foot storage container were staged at the base camp area as well. Communications at the base camp were provided by two satellite phones and one satellite dish with Wi-Fi for internet access. Power was supplied to the base camp by two 55-kilowatt diesel generators.

In addition to setting up the base camp area, several pieces of heavy equipment were mobilized to the site. A 2,000-gallon diesel tank was delivered and staged near the Lower Pond to provide fuel

for the heavy equipment. The following is a list of the heavy equipment utilized during the removal action:

- 1 Caterpillar (CAT) D6 dozer with six-way blade
- 1 CAT 330 excavator with 36-inch and 48-inch buckets
- 1 CAT 950 4-yard loader
- 1 JLG G6-42a telehandler forklift
- 1 2,000-gallon water truck

Along with the heavy equipment, WESTON coordinated delivery of the materials required to execute the scope of work. Over the course of approximately two weeks, a total of 207 tons of gabion rip-rap, 265 tons of bedding sand, and 50 tons of limestone were delivered to the site in 20-ton end dump trucks. Additionally, 850 feet of 18-inch high density polyethylene (HDPE) pipe in 50-foot lengths was transported to the site for the AMD Conveyance construction as described in Section 3.3 below. A total of 920 feet of 12-mil scrim reinforced polyethylene liner in varying widths was delivered for the Intermittent Stream and Surface Water Diversion Channel construction. Lastly, for the road maintenance work, four 20-foot long, 14-gauge, 18-inch metal culvert pipes were delivered.

3.2 Site Security

One of the primary goals of the removal action was to increase security at the NIMM site by constructing chain link fences and gates at key locations to minimize vehicular activity. WESTON subcontracted Affordable Fencing and General Contractors, Inc. for the fence installation. A six person crew mobilized to the Site on November 1, 2011 and began work on drilling the fence post holes. The fence posts consisted of Schedule 40 galvanized pipes set in Portland cement. Upon completion of the fence post installation, 9-gauge, 2-inch mesh galvanized chain link fabric was stretched on the posts to complete the fence. Fence installation activities were completed on November 5, 2011.

As shown in Figure 2, two separate sections of fence were installed. The first section of fence is 6 feet high with two 14-foot wide double swing gates installed at the access road that passes the Lower Pond. A second 14-foot wide single swing gate was installed across the western section of the upper access road. The alignment of the 6-foot fence starts immediately east of San Carlos creek and travels approximately 1,300 feet, where it terminates after crossing the western section of the upper access road. A separate 4-foot high fence was installed at the northwest end of the upper access road. The fence is approximately 300 feet long with two 15-foot wide double swing gates installed at the center of the access road.

3.3 AMD Conveyance Construction

The WESTON crew began grading and excavation of the AMD Conveyance alignment on October 26, 2011. Before beginning the excavation work, WESTON diverted the existing AMD flow away from the alignment of the AMD Conveyance. A berm was installed at the entrance of the Level 10

Adit, and the AMD was directed into the path of the planned Intermittent Stream Diversion Channel. Shortly after starting excavation work near the Level 10 Adit, it was determined that the soils beneath the original alignment for the pipe were unstable and would not be able to support the pipeline. AMD flow from the Level 10 Adit had created soft, muddy soils to a depth of 6-8 feet in the area northeast of the adit. This area extended approximately 250 feet to the first structure located northeast of the adit. As described in Section 4 below, WESTON consulted with the EPA, and it was determined that the upper section of the AMD Conveyance pipe could be moved to more stable soils immediately west of the original planned alignment with a few modifications.

Grading and excavation work continued along the upper bench of the Level 10 Adit dump to an area where the AMD created an incised channel down the steep face of the waste rock pile. The AMD Conveyance alignment was graded from the Level 10 Adit to the incised channel. Upon completion of grading, a 3-foot wide trench was excavated for the HDPE pipe. A one percent slope was maintained in the trench bottom using a laser level device. The CAT D6 dozer was used to create the alignment path in the area of the incised channel. The path extended down a steep slope from the upper bench of the Level 10 Adit to the Lower Pond.

After grading and excavation work was completed, 850 feet of HDPE pipe was transported to the upper bench of the Level 10 Adit dump where it was joined into a single pipeline with a hydraulic fusion welding machine. As the pipe sections were welded, the pipeline was lowered down the steep face of the waste rock pile to Lower Pond area. During the welding process, two separate Y-shaped clean outs were installed in the pipeline to allow for future maintenance. Once the pipe welding was completed, the pipeline was lowered onto bedding sand in the trench, and the trench was backfilled. As shown in Appendix A, the HDPE pipe was connected to the Level 10 Adit using a cement containment berm that was installed in the adit entrance. In order to create the berm, a small sand bag dam was installed inside the adit, and the AMD was pumped out for approximately 24-hours using a 2-inch trash pump. After the HDPE pipe was connected to the adit entrance, the sand bag dam was removed, and the AMD began flowing through the pipeline on November 11, 2011. An HDPE plate was fitted over the Level 10 Adit entrance, and the area was backfilled with waste rock from the excavation.

3.4 Lower Pond Refurbishing

Prior to completing the AMD Conveyance pipe, WESTON removed the existing AMD from the shallow Lower Pond with by pumping it out with a 6-inch trash pump. As mentioned above, the pond had become filled with sediment, and was no longer functioning as an effective retention pond for the AMD. After the Lower Pond was pumped dry, the sediments in the bottom of the pond were dredged with the CAT 330 excavator. The sediments were transferred via the loader to a repository that was constructed east of the Lower Pond. Sediments were removed to an approximate depth of 4 feet at the deepest point, and the new dimensions of the pond measure approximately 150 feet long by 60 feet wide. The pond was constructed to provide a minimum of 15 hours residence time for the maximum expected AMD flow of 120 gallons per minute (gpm).

In addition to removing sediments from the Lower Pond, two spillways were constructed. On the south end of the pond, a 50-foot long by 15-foot wide limestone spillway was installed to connect the outfall of the AMD Conveyance pipe to the Lower Pond. The spillway was lined with 12-mil scrim reinforced polyethylene liner. Fifty tons of limestone rock were placed on top of the liner to create an armored spillway. On the north end of the pond, a 20-foot long by 15-foot wide spillway was notched one foot deep into the north side of the berm. The spillway was lined with the same 12-mil liner and armored with gabion rip-rap to direct the effluent into a small channel leading into San Carlos Creek. Each of the spillways and the channel leading to San Carlos Creek were lined with straw waddles as an additional erosion control Best Management Practice (BMP)

3.5 Intermittent Stream and Surface Water Diversion Channel Construction

After the AMD Conveyance pipe was installed and the Lower Pond was refurbished, the WESTON crew began construction of the Intermittent Steam and Surface Water Diversion Channels in accordance with the Draft Preliminary Investigation on Mine and Surface Water Diversions (Braun, 2011). As shown in Figure 2, the Intermittent Stream Diversion Channel was constructed along the upper bench of the Level 10 Adit dump with a southwest to northeast orientation. The subgrade materials were scraped from the alignment using the CAT D6 dozer equipped with a six-in-one blade. The diversion channel was installed approximately 3 feet below ground surface (bgs) with a bottom width of 5 feet and a 3H:1V side slope. The channel was lined with a 12-mil scrim reinforced polyethylene liner. The liner was covered with a minimum of 6 inches of earthen materials to prevent ultraviolet degradation of the liner material. A depression at the entrance of the Intermittent Stream Diversion Channel was constructed to create a stilling basin for the water. The area was armored with gabion rip-rap to reduce flow velocity where the water enters the stilling basin adjacent to the Level 10 Adit. At the outlet of the channel, a 30-foot long by 15-foot wide gabion rip-rap spillway was installed to reduce erosion where the water flows over a steep slope from the upper bench of the Level 10 Adit dump toward the Lower Pond.

A second diversion channel was installed along the southern edge of the Level 10 Adit dump to capture surface water runoff from the adjacent hillside. The Surface Water Diversion Channel was constructed in a similar fashion to the Intermittent Stream Diversion Channel, but with different dimensions. The channel was excavated to a depth of approximately 3 feet bgs with a bottom width of 2 feet and a 3H:1V side slope. The Surface Water Diversion channel was lined with the 12-mil liner and covered with a minimum of 6 inches of earthen materials. A 20-foot long by 10-foot wide gabion rip-rap channel installed at the base of lined diversion channel to reduce the flow velocity water prior to entering a culvert.

3.6 Road Maintenance

Prior to the removal action, the road that leads from the NIMM site to the reservoir had become badly eroded in an area approximately half a mile from the furnace building. At this location, the

WESTON crew installed a 20-foot long, 14-gauge, 18-inch metal culvert pipe to redirect surface water runoff underneath the road. In addition, several large ruts in the road were filled with native rock to provide a more stable road surface. Along with this culvert, a second culvert with the same specifications was installed at the outfall of the Lower Pond where the drainage crosses the road. This culvert replaced an existing older culvert and wooden bridge in order to provide a more structurally sound access road for the heavy equipment. This section of the access road, leading from the culvert to the private residence south of the Level 10 Adit dump, was repaired with native rock to firm up the road surface after ruts were created by the heavy equipment.

3.7 Demobilization

All removal action activities at the NIMM site were completed on November 18, 2011. Remaining on-site materials, such as excess bedding sand, gabion rip-rap, and polyethylene liner were staged near the western most structure on the Level 10 Adit upper bench. The 2,000-gallon diesel tank was removed from the site; however, the containment tub was left in place for future use. On November 19, 2011, the command post and base camp area was dismantled, and the RVs and office/storage containers were demobilized. The heavy equipment was staged on the main access road for vendor pickup during the following week, and the WESTON crew departed the Site. WESTON returned to the Site on February 22, 2012 to install six warning signs on the security fence and conduct a final inspection.

4.0 DEVIATIONS FROM WORK PLAN

Site conditions warranted three primary deviations from the October 2011 RAWP. These deviations are outlined below.

4.1 AMD Conveyance Realignment

As stated in Section 3.3, WESTON encountered unstable soils near the Level 10 Adit upon the start of excavation for the AMD Conveyance alignment. Soft, muddy soils ranging in depth from approximately 6 to 8 feet were found in the area of the planned pipeline alignment. After consulting with EPA, WESTON determined that the alignment needed to be moved approximately 50 feet to the northwest. The new alignment required the installation of two 45-degree, 18-inch HDPE elbows so that the pipe could be installed in between two of the on-site structures.

4.2 Surface Water Diversion Channel Modification

Due to the unstable soils near the Level 10 Adit, the alignment of Surface Water Diversion Channel required modification. The planned alignment of the lined channel started at the base of the Level 10Adit and traveled along the hillside to a termination point near San Carlos Creek. The modification required the channel to be shortened by approximately 250 feet in the area from the Level 10 Adit to the first structure northwest of the adit. In addition to this modification, a 40-foot section of culvert was added to the termination point of the channel to ensure that surface water

drainage does not cause erosion to the access road that services the private residences located to the south. With this modification, surface water will drain directly into the San Carlos creek. Gabion rip-rap was placed below the outfall of the culvert to minimize erosion to the creek bank.

4.3 Water Line Location and Stabilization

Immediately prior to construction activities at the NIMM site, WESTON was notified that an active underground water line existed in an unknown location along the upper bench of the Level 10 Adit dump. It was suspected that the water line crossed the path of the planned AMD Conveyance alignment; therefore, it needed to be located prior to excavation of the alignment to ensure that it was not damaged. WESTON rented and underground utility locator and was able to identify the water line location by excavating test pits with a shovel along its path. The AMD Conveyance alignment was successfully excavated with no damage to the aging water line. The location of the water line required the HDPE pipe to be installed underneath line, and WESTON was required to purchase an electro-fusion coupler to join two sections of the HDPE pipe together.

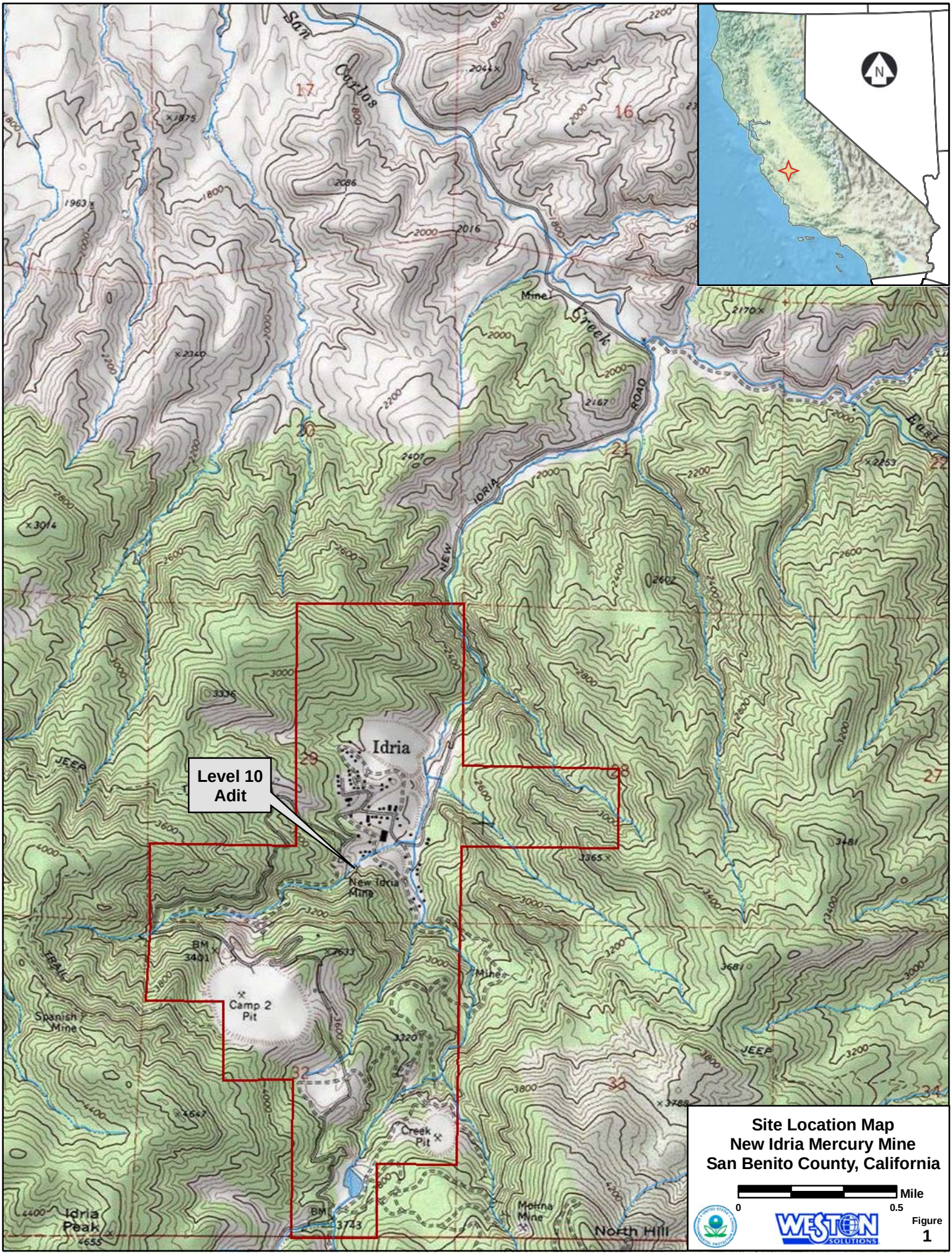
The active water line was also identified above ground at location that crossed the termination point of the Intermittent Stream Diversion Channel. Due to the excavation activities required for the channel installation, it was determined that the water line needed to be secured to prevent damage to the line. WESTON had a steal beam horse fabricated and delivered to the Site. The water line was secured to the steal horse with chains.

5.0 REFERENCE LIST

Braun Environmental, Inc. 2011. *Draft Preliminary Investigation on Mine and Surface Water Diversions, New Idria Superfund Site, Idria, San Benito County, California.* August.

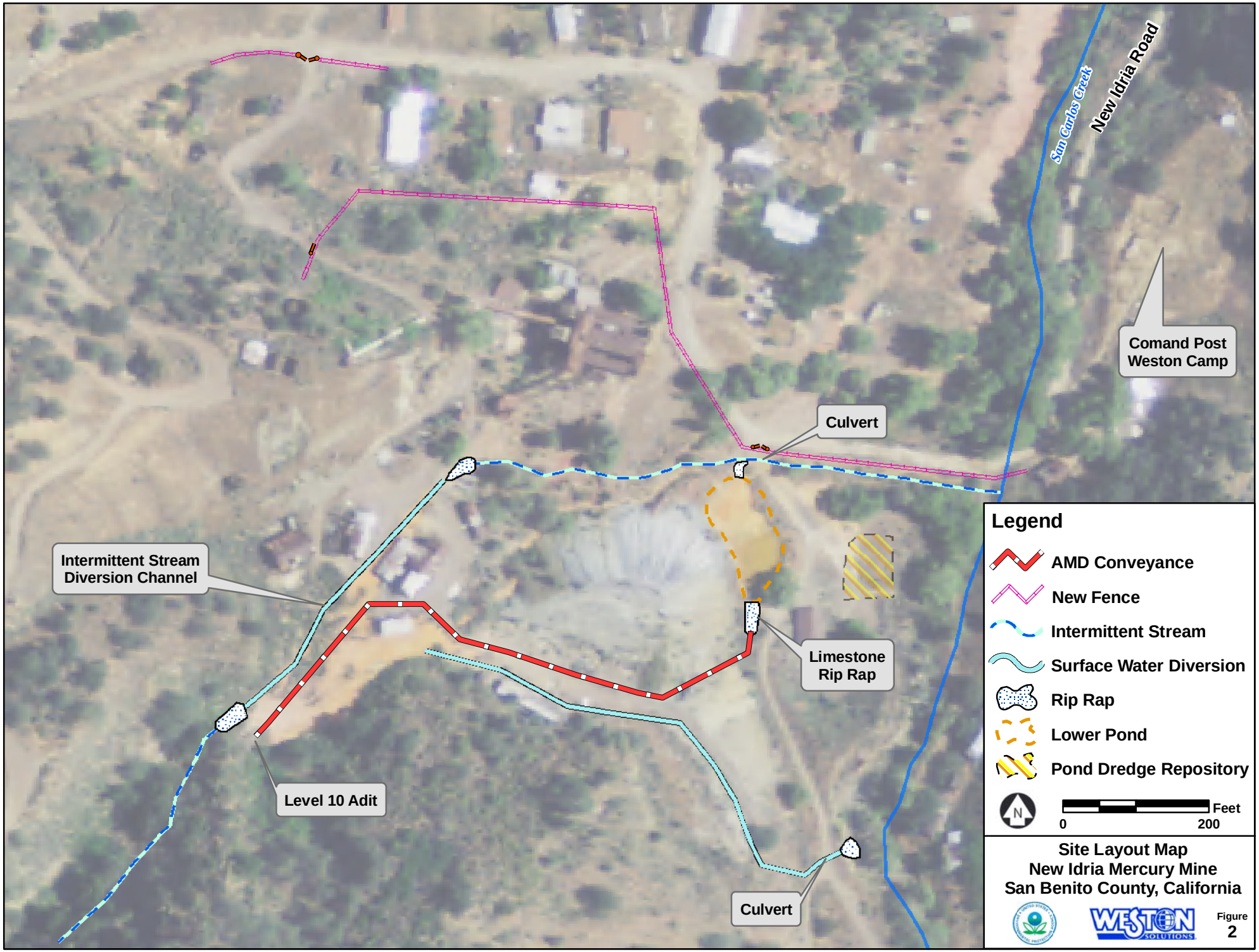
Weston Solutions, Inc. 2010. *Expanded Site Inspection Report, New Idria Mercury Mine, San Benito County, California.* October.

Weston Solutions, Inc. 2011. *Removal Action Work Plan, New Idria Mercury Mine Superfund Site, Idria, San Benito County, California.* October.



Site Location Map
New Idria Mercury Mine
San Benito County, California

Figure
1



Site Layout Map
New Idria Mercury Mine
San Benito County, California

Figure
2

APPENDIX A: Photographic Documentation

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 1	Date: Sept. 9, 2011

Direction Photo Taken:

Northeast

Description:

Acid mine drainage from the Level 10 Adit prior to construction of the conveyance.

Photo No. 2	Date: Sept. 9, 2011

Direction Photo Taken:

West

Description:

Acid mine drainage from the Level 10 Adit flowing over upper bench prior to conveyance construction.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
3	Sept. 9, 2011

Direction Photo Taken:

West

Description:

Historic buildings surrounded by acid mine drainage prior to removal action.

Photo No.	Date:
4	Sept. 9, 2011

Direction Photo Taken:

South

Description:

Acid mine drainage formed an incised channel in the waste rock creating a “waterfall” from the Level 10 Adit upper bench to Lower Pond prior to the removal action.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
5	Sept. 9, 2011

Direction Photo Taken:

North

Description:

View of Lower Pond from the Level 10 Adit upper bench prior to removal action.

Photo No.	Date:
6	Oct. 26, 2011

Direction Photo Taken:

South

Description:

Before the removal action, the Lower Pond was filled with sediment and not functioning as an effective retention pond for the acid mine drainage.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 7	Date: Oct. 26, 2011

Direction Photo Taken:

East

Description:

RVs were staged in the former corral area.

Photo No. 8	Date: Oct. 26, 2011

Direction Photo Taken:

North

Description:

The former corral served as a base camp area and command post for the removal action.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
9	Oct. 26, 2011

Direction Photo Taken:

South

Description:

AMD from the Level 10 Adit was diverted in order to allow construction of the conveyance pipe to begin.

Photo No.	Date:
10	Oct. 26, 2011

Direction Photo Taken:

North

Description:

AMD was diverted into the alignment of the intermittent stream diversion channel prior to conveyance excavation.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
11	Oct. 29, 2011

Direction Photo Taken:

Northwest

Description:

Shallow water from the Lower Pond was pumped out prior to refurbishing.

Photo No.	Date:
12	Oct. 29, 2011

Direction Photo Taken:

Southeast

Description:

A repository was created to store the sediments that were dredged from the Lower Pond.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
13	Oct. 29, 2011

Direction Photo Taken:

West

Description:

A path was created on the steep slope in the area of the "waterfall" for the AMD Conveyance pipe.

Photo No.	Date:
14	Oct. 29, 2011

Direction Photo Taken:

South

Description:

Material was pushed down the hill with the dozer and repositioned with the excavator.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
15	Oct. 28, 2011

Direction Photo Taken:

North

Description:

850 feet of 18-inch HDPE pipe was delivered to the site for the AMD Conveyance.

Photo No.	Date:
16	Oct. 28, 2011

Direction Photo Taken:

Southeast

Description:

The HDPE pipe was transported to the Level 10 Adit upper bench via the forklift.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
17	Nov. 1, 2011

Direction Photo Taken:

Northeast

Description:

Upon completion of the AMD Conveyance path, as smaller channel was excavated for the HDPE pipe.

Photo No.	Date:
18	Nov. 1, 2011

Direction Photo Taken:

Southwest

Description:

The HDPE pipe was positioned down the steep slope to where it terminated at the level of the Lower Pond.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 19	Date: Nov. 4, 2011

Direction Photo Taken:

West

Description:

Two Y-shaped clean outs were installed to allow proper maintenance of the AMD Conveyance pipe.

Photo No. 20	Date: Nov. 7, 2011

Direction Photo Taken:

West

Description:

View of the HDPE pipe and clean out installed in the trench with bedding sand.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
21	Nov. 3, 2011

Direction Photo Taken:

Southeast

Description:

A hydraulic fusion welding machine is used to join two lengths of the HDPE pipes together. Prior to welding, the face of the pipes are shaved with the circular cutter to ensure a proper weld.

Photo No.	Date:
22	Nov. 5, 2011

Direction Photo Taken:

South

Description:

View of the HDPE pipes being welded near the junction of the second clean out location.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 23	Date: Nov. 10, 2011

Direction Photo Taken:

North

Description:

Due to unstable soils near the Level 10 Adit, the alignment of the AMD Conveyance pipe was moved.

Photo No. 24	Date: Nov. 10, 2011

Direction Photo Taken:

South

Description:

Prior to connecting the HDPE pipe to the entrance of the Level 10 Adit, a sand bag dam was installed and the AMD was pumped out.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
25	Nov. 11, 2011

Direction Photo Taken:

South

Description:

View of the HDPE pipe installed in a cement containment berm prior to sealing the adit.

Photo No.	Date:
26	Feb. 22, 2012

Direction Photo Taken:

Southeast

Description:

The Level 10 Adit was sealed with an HDPE plate and backfilled with waste rock.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 27	Date: Nov. 17, 2011

Direction Photo Taken:

Northwest

Description:

WESTON crew members installing the 12-mil liner in the Surface Water Diversion Channel.

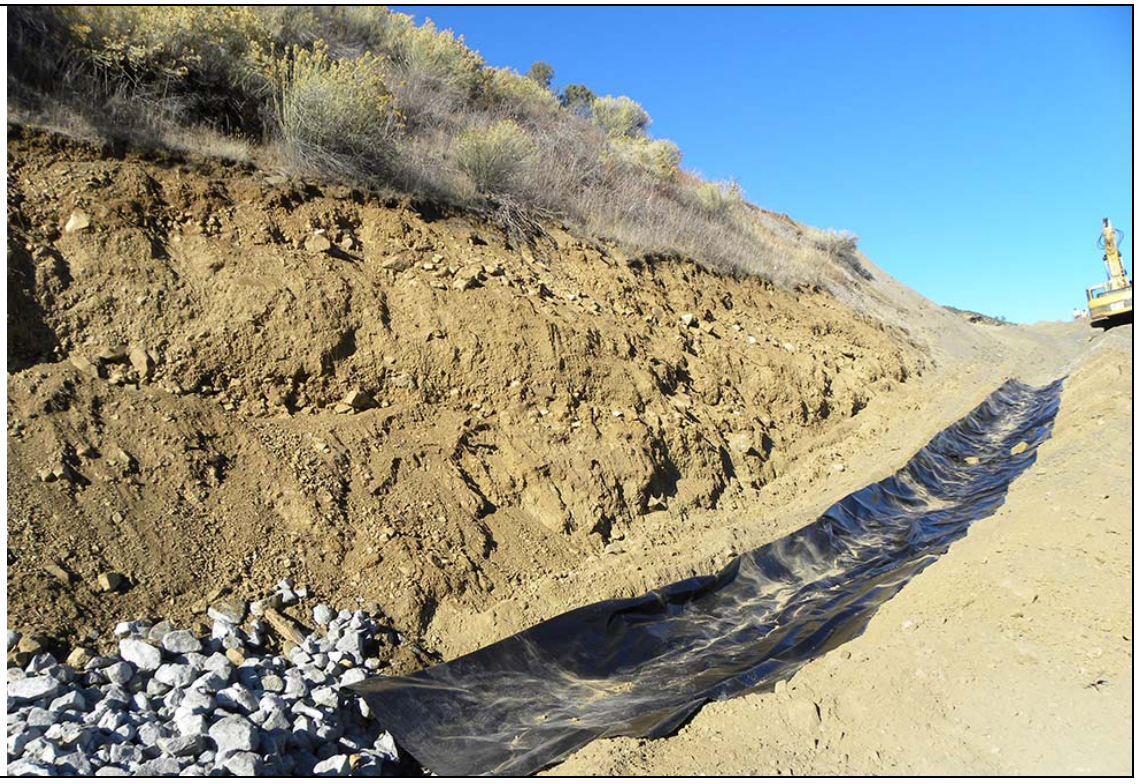
Photo No. 28	Date: Nov. 17, 2011

Direction Photo Taken:

Northwest

Description:

The lined Surface Water Diversion Channel is connected to a rip rap stilling basin. Water flowing through the channel will be slowed down by the rip rap prior to entering a 40-foot culvert pipe that empties to San Carlos Creek.



PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 29	Date: Nov. 17, 2011

Direction Photo Taken:

Southeast

Description:

After the 12-mil liner was installed, it was backfilled with earthen material.

Photo No. 30	Date: Nov. 17, 2011

Direction Photo Taken:

West

Description:

Due to unstable soils near the Level 10 Adit, the Surface Water Diversion Channel was shortened by approximately 250 feet. The lined portion of the channel terminates near the white structure in the distance.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 31	Date: Nov. 16, 2011

Direction Photo Taken:

South

Description:

View of WESTON crew members installing the 12-mil liner for the Intermittent Stream Diversion Channel.

Photo No. 32	Date: Nov. 16, 2011

Direction Photo Taken:

North

Description:

The Intermittent Stream Diversion Channel was backfilled with earthen material after liner installation.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
33	Oct. 26, 2011

Direction Photo Taken:

South

Description:

WESTON crew members excavated soil by hand in an effort to identify the active underground water line alone the Level 10 Adit upper bench.

Photo No.	Date:
34	Nov. 9, 2011

Direction Photo Taken:

West

Description:

View of the exposed active water line crossing the AMD Conveyance pipe alignment. Additional efforts were required to install the HDPE pipe beneath the water line.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 35	Date: Nov. 10, 2011

Direction Photo Taken:

East

Description:

In an effort to stabilize the above ground section of the active water line where it crosses the Intermittent Stream Diversion Channel, WESTON had a steal beam horse fabricated and delivered to the site. The water line is chained to the steal horse.

Photo No. 36	Date: Nov. 10, 2011

Direction Photo Taken:

North

Description:

View of the water line stabilization above the rip rap portion of the Intermittent Stream Diversion Channel.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 37	Date: Nov. 1, 2011

Direction Photo Taken:

Northwest

Description:

A 20-foot culvert pipe was installed in a washed section of the road that leads to the reservoir.

Photo No. 38	Date: Nov. 16, 2011

Direction Photo Taken:

West

Description:

A 20-foot culvert pipe was installed to connect the outflow from the Lower Pond to the drainage channel along the main access road that enters San Carlos Creek.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
39	Nov. 4, 2011

Direction Photo Taken:

West

Description:

View of the western half of the 4-foot high chain link fence during installation.

Photo No.	Date:
40	Nov. 5, 2011

Direction Photo Taken:

Northeast

Description:

View of the 6-foot high chain link fence being installed near the 14-foot wide single swing gate along the upper access road.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
41	Nov. 4, 2011

Direction Photo Taken:

East

Description:

Fence post installation for the 6-foot high chain link fence along the south side of the main access road.

Photo No.	Date:
42	Nov. 11, 2011

Direction Photo Taken:

East

Description:

View of the completed 6-foot high chain link fence between San Carlos Creek and the two 14-foot wide double swing gates.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 43	Date: Nov. 5, 2011

Direction Photo Taken:

South

Description:

Installation of the limestone channel connecting the AMD Conveyance pipe and the Lower Pond.

Photo No. 44	Date: Nov. 11, 2011

Direction Photo Taken:

South

Description:

View of the first water flow after the AMD Conveyance pipe was connected to the Level 10 Adit.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No. 45	Date: Nov. 10, 2011

Direction Photo Taken:

North

Description:

View of the refurbished Lower Pond with the limestone channel on the south end and the rip rap armored spillway on the north end.

Photo No. 46	Date: Nov. 16, 2011

Direction Photo Taken:

East

Description:

Sediments dredged from the lower pond were staged in a bermed containment area east of the Lower Pond.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
47	Feb. 22, 2012

Direction Photo Taken:

South

Description:

After several months of flow, AMD floc is being deposited along the limestone channel.

Photo No.	Date:
48	Feb. 22, 2012

Direction Photo Taken:

North

Description:

View of the filled Lower Pond several months after project completion.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
49	Feb. 22, 2012

Direction Photo Taken:

West

Description:

View of the graded upper bench of the Level 10 Adit after project completion. One of the AMD Conveyance pipe clean outs can be seen in the distance.

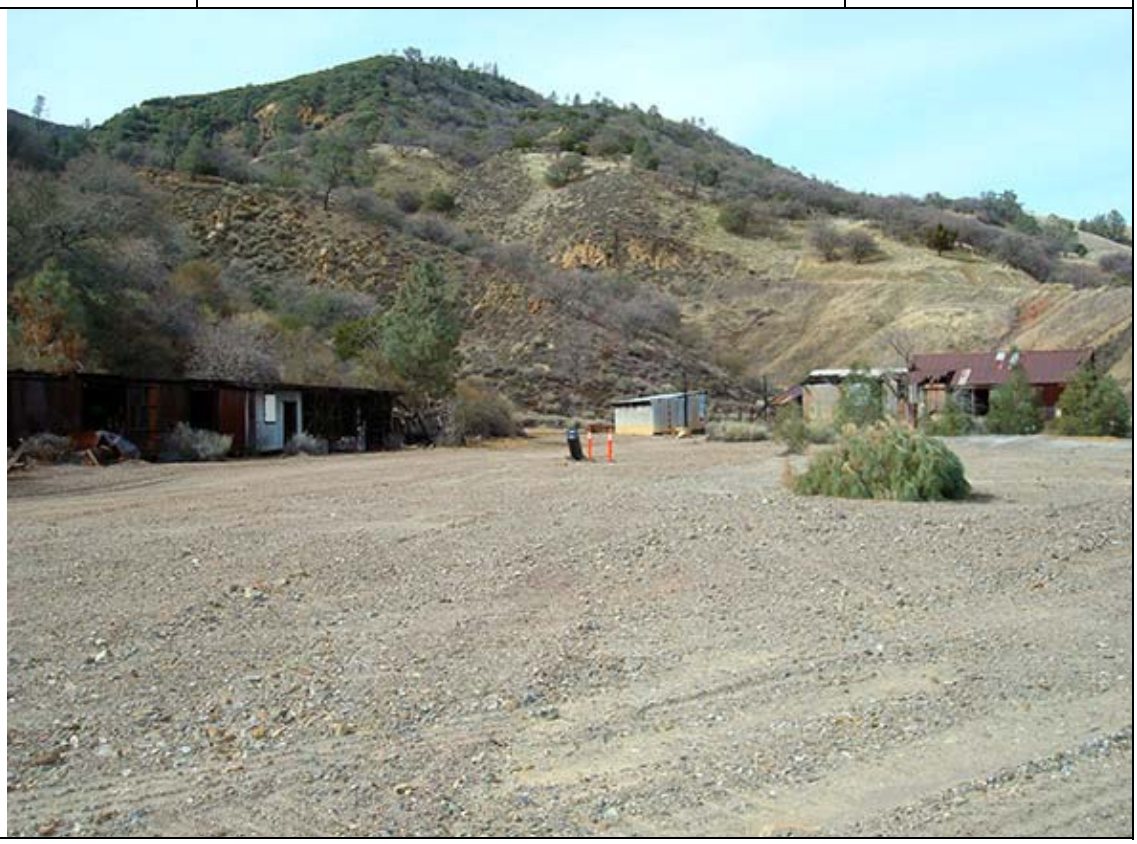


Photo No.	Date:
50	Feb. 22, 2012

Direction Photo Taken:

Southeast

Description:

View of the completed Surface Water Diversion Channel.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
51	Feb. 22, 2012

Direction Photo Taken:

North

Description:

A few months after project completion, natural erosion channels are forming in the earthen lining of Intermittent Stream Diversion Channel.

Photo No.	Date:
52	Feb. 22, 2012

Direction Photo Taken:

South

Description:

View of the Intermittent Stream Diversion Channel stilling basin with rip rap armoring to minimize flow velocities.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
53	Feb. 22, 2012

Direction Photo Taken:

South

Description:

Warning signs were posted in six high visibility areas along the fence.

Photo No.	Date:
54	Feb. 22, 2012

Direction Photo Taken:

Southwest

Description:

View of posted warning sign at the lower access gates of the 6-foot high chain link fence.

PHOTOGRAPH LOG

Project Name:	Site Location:	Project No.
New Idria Mercury Mine	Idria, CA	12238.050.001.0001

Photo No.	Date:
55	Feb. 22, 2012

Direction Photo Taken:

South

Description:

View of posted warning signs at access gates of the 4-foot high fence.

Photo No.	Date:
56	Feb. 22, 2012

Direction Photo Taken:

South

Description:

Close up of the warning sign posted on the fence near San Carlos Creek.

APPENDIX B: Removal Action Work Plan