Expanded Site Inspection Report
New Idria Mercury Mine
San Benito County, California

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ACL	Administrative Civil Liabilities
AMD	Acid Mine Drainage
APN	Assessor Parcel Number
BLM	United States Bureau of Land Management
ºC	degrees centigrade
$CaCO_3$	calcium carbonate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CLP	Contract Laboratory Program
CLPAS	Contract Laboratory Program Analytical Services
CRMP	Coordinated Resource Management Planning
CRQL	CLP Contract Required Quantitation Limits
DTSC	California Department of Toxic Substances Control
EPA	United States Environmental Protection Agency
ESI	Expanded Site Assessment
gpm	gallons per minute
HRS	Hazard Ranking System
IWMB	California Integrated Waste Management Board
LEA	Local Enforcement Agency
MCL	Maximum Contaminant Level
NIMM	New Idria Mercury Mine
NPDES	National Pollution Discharge Elimination System
ppb	micrograms per liter
µS	micro Siemens
NPL	National Priority List
PA/SI	Preliminary Assessment/Site Inspection
pH	potential of hydrogen
ppb	parts per billion
ppm	parts per million
ppt	parts per trillion
RCRIS	Resource Conservation and Recovery Information System
RSL	Regional Screening Level
RWQCB	Regional Water Quality Control Board
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act of 1986
USACE	United States Army Corps of Engineers
SQuiRT	Screening Quick-Reference Tables
USGS	United States Geological Survey
WESTON	Weston Solutions, Inc.
XRF	X-ray florescence

1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), Weston Solutions, Inc. (WESTON®) has been tasked to conduct a Hazard Ranking System (HRS) Expanded Site Inspection (ESI) of the New Idria Mercury Mine (NIMM) Site ("the Site") located in the town of Idria, California (Figure 1). The HRS assesses the relative threat associated with actual or potential releases of hazardous substances to the environment, and has been adopted by the U. S. Environmental Protection Agency (EPA) to assist in setting priorities for further site evaluation and potential remedial action. The HRS is the primary method for determining a site's eligibility for placement on the National Priorities List (NPL). The NPL identifies sites where the EPA may conduct remedial actions.

The Site was identified as a potential hazardous waste site and entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) in 1996 (CA0001900463) in response to a petition by the Coastal Advocates asking the EPA to conduct a Preliminary Assessment/Site Inspection (PA/SI) due to concerns of mercury downstream of the Site potentially impacting the Mendota Pool, San Joaquin River, and San Francisco Bay. The EPA's Water Division had involvement with the Coordinated Resource Management Planning (CRMP) effort for water quality in the Panoche/Silver Creek Watershed with respect to selenium, boron, salts and mercury. The EPA conducted a PA/SI at the site in 1997. The assessment identified elevated levels of mercury and other metals in source materials onsite and in sediment and surface water samples downgradient of the Site. The EPA recommended further assessment under CERCLA because approximately 25 people were living at the Site. In 2002, a Site Reassessment was conducted and determined that the site was still a candidate for further assessment under CERCLA. A significant factor to the decision was the mercury exposure to persons inhabiting the Site from contaminated soil and impacts to surface water (WESTON, 2002).

The EPA decided that an Expanded Site Inspection of the Site would be necessary to follow up previous results and impacts to creeks downstream of the mine and more completely evaluate environmental impacts along the surface water pathway using the EPA HRS criteria. This report summarizes the results of the ESI for the Site.

More information about the Superfund program is available on the EPA web site at http://www.epa.gov/superfund. The attached fact sheet describes EPA's site assessment process (Appendix F).

1.1 Apparent Problem

The apparent problems at the site, which contributed to the EPA's determination that an ESI was necessary, are as follows:

- The Site operated as a mercury mine from approximately 1854 to 1972 and was the second most productive mercury mine in North America. Estimates ranging from 0.5 to 2 million cubic yards of waste rock and calcines (processed mercury ore) cover over 40 acres throughout the site and along San Carlos Creek (EPA, 2003; USBM, 1965; E&E 1998; Appendix C).

- Surface water from the Site drains to San Carlos Creek, which flows northward to Silver Creek and continues north to Panoche Creek. Panoche Creek flows to the Mendota Pool and San Joaquin River during periods of heavy precipitation and flood events. The Mendota Pool and San Joaquin River are recreational fisheries and are located approximately 45 river miles downstream from the Site. The San Joaquin River flows to the San Francisco Bay which is a commercial fishery. The San Joaquin River Restoration Project is a state and federal funded effort to restore and maintain fish populations in "good condition" including naturally reproducing and self-sustaining populations of salmon and other fish. Sensitive habitats and wetlands are found along the surface water pathway between the Site and San Joaquin River (USFWS, 2010; SJRP, 2009; Appendix C).

- Acid mine drainage (AMD) from the Site discharges into San Carlos Creek. Uncontrolled overland flow of water from the calcine piles enters San Carlos Creek. The roasting process of the cinnabar ore makes residual mercury in the calcines more accessible to the environment. The AMD contains high concentrations of sulfate and iron resulting in a favorable environment for the methylation of the mercury by sulfate reducing bacteria. The high iron content of the mine drainage precipitates iron oxyhydroxide when mixed with the high oxygen content in San Carlos Creek which accumulates on the stream bed creating an orange appearance. Mercury and methyl mercury are adsorbed to the iron precipitate in the surface water and are seasonally flushed from the creek bed to impact downstream receptors (Rytuba, 2000; Appendix C).

- San Carlos Creek downstream of the Site is listed on the Federal Clean Water Act 303(d) list of impaired water bodies for mercury impacts from the mine. Previous investigations have indicated the presence of mercury in surface water, stream sediments, and wetlands downstream of the mine. Surface water and sediment samples from the downgradient and background areas of the surface water drainage pathway are necessary to characterize the threat to human health and the environment (RWQCB, 2006; RWQCB 2003).

- Ongoing public concerns about mercury mine contamination to surface waters in California (CBS, 2009).

- The NIMM is a California registered historic landmark that is visited by off-road enthusiast and tourists. Although the county of San Benito has posted warnings of hazardous materials at the site, trespassing is commonplace (COHP, 2010; Appendix C).

2.0 BACKGROUND

2.1 Location

The Site is located at the abandoned town of Idria in San Benito County, California. The Site is located approximately 135 miles southeast of San Francisco within the New Idria Mining District. The Aurora, Molino, and San Carlos mercury mines are located south of the Site and the Elkafajo, Larious Canyon, North Star, Spanish and Wonder mercury mines located west of the Site. Several chromium, magnesite, and asbestos mines are located in the area. The geographic coordinates for the Site are 36° 24' 46" North latitude and 120° 40' 28" West longitude. The location of the Site is shown in Figure 1. The location of the Site in relation to other mines of the New Idria Mining District is shown in Figure 13 (USGS, 2005; Appendix E).

2.2 Site Description

The Site is located on 8,000 acres of private land, assessor parcel numbers (APNs) 0293100030, 0293100170 and one smaller parcel APN 0293100160, in a rural area on the eastern slopes of San Benito Mountain in the Diablo Range. The abandoned town of Idria is comprised of dozens of dilapidated buildings. A small reservoir located south of the town, constructed by damming San Carlos Creek, was used as the local drinking water source. Extensive waste rock and calcine tailings piles are exposed and cover a large portion of the Site. A large furnace and process area and other mine working features remain at the Site. AMD from the Level 10 adit runs between a waste rock pile and calcine tailings pile and discharges into San Carlos Creek. The AMD channel bypasses the former settling basin (AMD pond), located near the discharge point. On July 28, 2010, a fire started by suspected vandals or metal scavenger destroyed 13 buildings burned 24 acres on the north side of town (SBC, 2010; HFL, 2010a; HFL, 2010b; Appendix C). Important Site features are shown in Figures 2 and 4.

2.3 Operational History

The New Idria mining claim was declared 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 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 uninterrupted with a few idle and low productivity periods due to low mercury values and land owner disputes. The mine operated until the early 1970s. Several furnaces were built over the years including 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 was cooled and condensed for bottling. The roasting process is called calcination and the roasted ore is known as calcines. Typically, calcines still contain some soluble mercury. Some of the older tailings piles were 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 were transported by a 2-mile aerial tram and through the Level 10 adit. Ore was also transported from the Alpine, Anita, North Star, and other mines to be processed at the New Idria furnace. The New Idria Mine was reported to be the second most productive mercury mine in North America and produced over 500,000 flasks (38,250,000 pounds) of mercury. One flask contains 76.5 pounds of mercury (USBM, 1965; EPA, 2003; TechLaw, 2006; BLM, 2009).

Over 30 miles of tunnels and 20 levels (levels are inversely synonymous to floors of building) were constructed at the Site. The Level 10 adit was used as the main haulage level and is connected to other levels by shafts and raises. The extensive mine levels have flooded with groundwater, or possibly surface water, 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 is presently not treated and flows through tailings piles and discharges to San Carlos Creek. San Carlos Creek flows along the base of massive calcine tailing piles for length of approximately 2,500 feet (USBM, 1965; Appendix B).

2.4 Regulatory Involvement

2.4.1 Federal Regulatory Involvement

United States Environmental Protection Agency

The 1996 EPA Site discovery resulted from a petition by the Coastal Advocates asking the EPA to conduct a PA/SI due to concerns of mercury downstream of the Site potentially impacting the Mendota Pool, San Joaquin River, and San Francisco Bay. The EPA's Water Division had involvement with the CRMP effort for water quality in the Panoche/Silver Creek Watershed with respect to selenium, boron, salts and mercury. The EPA conducted a PA/SI at the site in 1997. Fieldwork required the use of a search warrant and armed federal marshals due to the property owner's refusal to grant access. The assessment identified elevated levels of mercury in source*** materials onsite and in sediment and surface water samples downgradient of the Site and documented a significant release* (three times background** levels) attributable to the site to at least 5.7 miles downstream. The EPA recommended further assessment under CERCLA because approximately 25 people were living at the Site (E&E, 1998).

In 2002, a Site Reassessment was conducted and determined that the site was still a candidate for further assessment under CERCLA. A significant factor to the decision was the mercury exposure to persons inhabiting the Site from contaminated soil and impacts to surface water (WESTON, 2002).

In 2004, the EPA issued a Brownfield Grant to the County of San Benito to develop a remediation plan and risk assessment for the Site, to develop site use alternatives, and conduct community involvement. The project was expected to enhance the waterways to benefit small businesses downstream from the Site and draw visitors to the 380 acre area as a historic landmark generating revenue and jobs in the community. The County used the grant to conduct a responsible party search (EPA, 2004; SBC, 2003a; TechLaw 2006).

In 2006, an EPA Triage Recommendation referred the Site to the Regional Water Quality Control Board (EPA, 2006).

The Site is not listed in the Resource Conservation and Recovery Information System (RCRIS) database as of January 30, 2010. The site is listed in CERCLIS as CA0001900463 (EPA, 2010a; EPA, 2010b).

* Significant Release: The release sample is at least three times greater than the background level.

** Background: The concentration of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred.

*** Source: any area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated through migration.

United Sates Department of the Interior Bureau of Land Management

The Bureau of Land Management (BLM) has expressed concern in the Site's impact to San Carlos Creek and has had involvement with neighboring mercury mines in the New Idria District on BLM lands. The BLM has reviewed the Site and land downstream for potential acquisition adjacent to public lands currently owned by the BLM and has conducted regional studies of surface water and mine impacts. Some reclamation work has been conducted at the neighboring Aurora Mine and Larious Canyon Mill Site by the BLM (RWQCB, 1990; BLM, 2010).

United Sates Department of the Interior United States Geological Survey

The United States Geological Survey (USGS) has researched the New Idria District mines and their impacts to nearby creeks including the San Carlos Creek and was a member of the CRMP. The USGS collected surface water samples and sediment samples from San Carlos Creek at locations upstream and downstream of the Site and from the Level 10 adit AMD in 1997 and 1999 (USGS, 2000).

2.4.2 State Regulatory Involvement

Central Coast -Regional Water Quality Control Board

The Central Coast Regional Water Quality Control Board (RWQCB) has had intermittent involvement with the Site. The RWQCB has developed water quality standards and beneficial uses under the Tulare Lake Basin Plan for West Side Streams which includes the San Carlos, Silver, and Panoche Creeks. The RWQCB collected samples from the Site and San Carlos Creek in 1975, 1988, and 2003 (RWQCB, 2003).

In 1969, New Idria Mining and Chemical Company filed a Report of Waste Discharge with the RWQCB. The discharge was described as mill wastewater discharges of approximately 65 gallons per minute (gpm) to a settling pond, mine water discharges of approximately 40 gpm to San Carlos Creek, and one gpm of sewage to various closed cesspools (TechLaw, 2006).

In 1970, the RWQCB issued waste discharge requirements under Resolution No. 70-205, which prescribed requirements for the New Idria Mine for the discharge of mill waste, mine water, and sewage effluent to San Carlos Creek (RWQCB, 1970).

In 1975, the RWQCB responded to a complaint from a rancher that runoff from the Site was degrading the San Carlos Creek 1.5 miles downstream where cattle were drinking the surface water. Surface water was collected from six locations from the Level 10 adit to 1.75 miles downstream in San Carlos Creek. The RWQCB determined that water quality at the sampling locations were below the levels recommended for livestock use and that the New Idria Mining and Chemical company had violated Resolutions No. 70-205 where waste discharge shall not cause a pollution of ground or surface waters (RWQCB, 1975).

In 1982, Idria Land and Development Company was issued a waste discharge permit (Facility ID 50353001001) for metals recovery at the site (TechLaw, 2006).

In 1988, the RWQCB responded to a complaint from a property owner adjacent to the Site concerning the AMD discharge from the Site to San Carlos Creek. Surface water samples were collected from the AMD, San Carlos Creek, and San Carlos Creek reservoir. The RWQCB stated that the discharge of mine drainage to San Carlos Creek should be regulated by a National Pollution Discharge Elimination System (NPDES) permit, which is required for such discharges to surface water. The NIMM did into have a NPDES permit. It was determined that the discharge to the creek was in violation of Resolution 70-205 where waste discharge shall not cause a pollution of ground or surface waters and neither the treatment facility nor the discharge shall cause any nuisance. The RWQCB requested the Site owners submit a report containing a work plan and time schedule for eliminating the existing pollution and nuisance conditions caused by the mine drainage to San Carlos Creek. The RWQCB also requested the Site owners to submit a report of waste discharge and filing fee to update the waste discharge requirements to reflect the current operations at the site and any discharges to San Carlos Creek (RWQCB, 1988).

In 1989, Dames & Moore, on behalf of New Idria Associates, submitted a report of waste discharge and a work plan to the RWQCB. The work plan objective was to develop an understanding of the hydrology and geochemistry of the mine drainage and identify appropriate remedial strategies for mitigating the AMD and adverse effects on San Carlos Creek (D&M, 1989).

In 1991, the RWQCB conducted an inspection of the Site and collected four surface water samples. The inspection determined that Resolution No. 70-205 continued to be violated (RWQCB, 1991).

In 1992, the RWQCB imposed an Administrative Civil Liabilities (ACL) to Futures Foundations for violations under the California Water Code Section 13323 and non-payment of annual fees (RWQCB, 2003).

In 2003, the RWQCB conducted an inspection of the Site and collected and analyzed eight water samples. The inspection report also compiled and evaluated historical data and available information. Surface water samples were collected from upstream and downstream locations of San Carlos Creek, the San Carlos Creek reservoir, Panoche Creek, and from the mine effluent and AMD pond. The RWQCB determined that “further action at the New Idria Mine at this time is severely hampered by its relatively low priority as compared to other known pollutant sources, the difficulties encountered in identifying responsible and financially solvent parties, and the costs involved in a satisfactory remedial action. We will, however, evaluate the contributions of mercury from the watershed in the context of the mercury TMDL for the Delta. If the New Idria Mine appears to be a significant source of mercury to the San Joaquin River and Delta, more work may be needed at the mine site” (RWQCB, 2003).

The County of San Benito submitted a proposal to the RWQCB seeking actions necessary to clean up and abate discharge of pollutants from the NIMM into San Carlos Creek pursuant to section 13225(a) of the Porter-Cologne Water Quality Act (SBC, 2003b)

A 2006 Clean Water Act Section 303(d) list of water quality limited segments identifies a 5.1 mile segment of San Carlos Creek downstream of New Idria Mine as polluted by mercury with a potential source identified as AMD and resource extraction. Panoche Creek, from Silver Creek to Belmont Avenue, is also listed on the Section 303(d) list with a potential source identified as Mercury from resource extraction and abandoned mines. The proposed Total Maximum Daily Load for mercury in San Carlos and Panoche Creeks is targeted by the year 2020 (RWQCB, 2003; RWQCB, 2006).

In 2007, the ACL was rescinded by the RWQCB (RWQCB, 2009).

The Site is listed in the State water Resources Control Board GeoTracker database under Futures Foundation (L10006522358) as a land disposal site, Case # 5D352001H01 (RWQCB, 2010).

Integrated Waste Management Board

In the mid 1980s, Futures Foundation, a San Jose based drug rehabilitation program, purchased the property and began dumping waste on the surface of the northern calcine tailings piles. Discarded materials included trash/garbage, appliances, abandoned vehicles, tires, scrap metals, wood waste, and inert debris. The California Integrated Waste Management Board (IWMB) and Department of Toxic Substances Control (DTSC) working in conjunction the San Benito County Health and Human Services Agency, which acts as the Local Enforcement Agency (LEA), was able to have hazardous materials removed from the site in February 2003 (IWMB, 2004).

Department of Toxic Substances Control

The Site is listed in the DTSC's Envirostor database as New Idria Mine (35100001) as an evaluation site and was referred to RWQCB as of 2007. The DTSC assisted the IWMB in the cleanup of the illegal landfill. (DTSC, 2010).

2.4.3 Local Regulatory Involvement

San Benito County Health and Human Services Agency

San Benito County Health and Human Services Agency LEA, in conjunction with the IWMB and DTSC was able to have hazardous waste removed from the site in February 2003. The LEA conducts annual inspections of the former illegal landfill site for the IWMB (IWMB, 2010; SBC, 2006).

2.4.4 Academic Institutions

University of California - Santa Cruz

In 2000, the University of California, Santa Cruz, investigated the Site and determined that the mercury in San Carlos Creek downstream from the Site is being leached from the mine waste piles. Surface water samples were collected from San Carlos Creek at locations upstream and downstream of the Site and from the Level 10 adit AMD in 1997, 1998 and 1999. Mercury concentrations in unfiltered surface water samples ranged from 4.2 to 13 nanograms per liter, equivalent to parts per trillion (ppt), upstream from the Site and 2,900 to 12,400 ppt downstream of the Site (UCSC, 2000).

Chapman University/Stanford University

Studies were conducted at various mercury mine sites, including NIMM, where mine wastes were sampled for mercury speciation. The study determined that the calcification process of mercury ore typically transforms cinnabar to metacinnabar. The higher metacinnabar content in calcines increases the mercury solubility. The speciation study also determined the mineral content of mine waste from the Site as 56% cinnabar, 22% montroydite, 22% eglestonite which is unique as compared to the speciation of mine waste from other mine sites (CU/SU, 2005).

3.0 INVESTIGATIVE EFFORTS

3.1 Previous Sampling

United States Environmental Protection Agency

The 1997 PA/SI included the collection of background** surface water samples SW-1, SW-2 and SW-3, from the upper portion of San Carlos Creek upgradient of the New Idria Mine process area. These samples contained detectable concentrations of mercury of 0.1 micrograms per liter, equivalent to parts per billion (ppb). Background stream sediment samples were collected from locations SW-1, SW-2, and SW-3 and contained mercury concentrations of 1.5, 1.6, and 2.6 milligrams per kilogram, equivalent to parts per million (ppm), respectively. Surface water sample SW-4, erroneously identified as a background sample from San Carlos Creek located downstream of several adits and the Creek Pit surface mine workings, contained 0.54 ppb mercury; the corresponding sediment sample contained 19.7 ppm. Background soil samples NIM-18 and NIM-19 were collected from above and south of the San Carlos Creek reservoir and contained mercury concentrations of 1.4 and 3.9 ppm, respectively (E&E, 1998).

The 1997 PA/SI included the collection of source*** surface water and sediment samples from the Level 10 adit AMD. Six water samples were collected from the Level 10 adit and San Carlos Creek and contained mercury concentrations ranging from 0.2 to 16.5 ppb. Six sediment samples containing mercury concentrations ranging from 0.22 to 25.7 ppm were collected from the AMD between the Level 10 adit and San Carlos Creek. Five source tailing samples were collected from the waste rock pile and calcine pile adjacent to the furnace and AMD and contained mercury concentrations ranging from 27.1 to 74.6 ppm (E&E, 1998).

The 1997 PA/SI included the collection of surface water samples and sediment samples downgradient of the Site from San Carlos and Silver Creeks to the confluence of Panoche Creek. Seven surface water sample locations contained mercury concentrations ranging from 0.2 to 9.6 ppb and documented a significant release* (three times background** levels) attributable to the site to at least 5.7 miles downstream of the AMD discharge to San Carlos Creek. The next sampling point downstream was located at 17.2 miles downstream of the AMD discharge and contained 1.5 ppm of mercury in sediment. A total of 14 sediment sample locations were collected downstream of the AMD discharge and contained mercury concentrations ranging from 0.13 to 22.5 ppm, therfore documenting a significant release attributable to the site to at least 5.7 miles (E&E, 1998). The 1997 PA/SI sample locations are shown on Figures 3, 5, 7, 10, and 12.

United Sates Department of the Interior, United States Geological Survey

The USGS collected surface water samples and sediment samples from San Carlos Creek at locations upstream and downstream of the Site and from the Level 10 adit AMD in 1997 and 1999. Mercury concentrations in unfiltered San Carlos Creek surface water samples ranged from 8.26 ppt upstream from the Site and Aurora Mine to 19,610 ppt downstream of the Site (USGS, 2000). The USGS sampling location are shown on Figures 3, 5, and 7.

* Significant Release: The release sample is at least three times greater than the background level.
** Background: The concentration of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred.
*** Source: any area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated through migration.

Central Coast - Regional Water Quality Control Board

In 1975, the RWQCB collected surface water samples from six locations from the Site and downgradient locations along San Carlos Creek. Mercury was detected in Sample #1 collected from a small unnamed stream located just north of the Level 10 adit at concentrations of 0.002 milligrams per liter, equivalent to parts per million (ppm). Mercury was detected in two surface water samples (Sample #2 and Sample #3) collected from AMD at the Level 10 adit and near the discharge to San Carlos Creek at concentrations of 0.0023 ppm and 0.004 ppm, respectively. Sample #4 was collected from San Carlos Creek upstream of the AMD discharge contained mercury concentrations of 0.0027 ppm. Sample #5 was collected from San Carlos Creek at a location approximately 1.75 miles downstream of the AMD discharge contained mercury concentrations of 0.0078 ppm. Sample #6, collected from East Fork San Carlos Creek near the Sample #5, was reported to contain no detectable concentrations of mercury (RWQCB, 1975).

In 1988, the RWQCB collected seven surface water samples and one sludge sample from the Site and down gradient locations along San Carlos Creek. Mercury concentrations were below the detection limit of 0.0003 ppm for AMD surface water samples (NIM #1, NIM #2, and NIM #5) collected from the Level 10 adit, before the tailings, and near the discharge to San Carlos Creek, respectively. Mercury was detected in surface water samples collected upstream (NIM #3) and downstream (NIM #4) from the AMD discharge at concentrations of 0.008 ppm and 0.005 ppm, respectively. Mercury concentrations were below the detection limit of 0.0003 ppm for surface water samples collected from the San Carlos Reservoir (NIM #6) and from San Carlos Creek approximately two miles downstream from the AMD discharge (NIM #7). Mercury was detected in the sludge sample (NIM #8), described as orange sandy soil collected at the same location as NIM #7, at a concentration of 1.25 ppm. Dissolved mercury was not detected in any of the surface water samples with the exception of the sludge sample (NIM #8) which contained 0.002 ppm (RWQCB, 1988).

In 1991, the RWQCB collected four surface water samples labeled NIM #1 through NIM #4; however, the inspection report did not identify the sampling locations. Samples NIM #2 and NIM #3 contained mercury at concentrations of 0.53 ppb and 5.5 ppb, respectively. The other two samples did not contain mercury above the 0.5 ppb detection limit (RWQCB, 1991).

In 2003, the RWQCB collected surface water samples from upstream and downstream locations of San Carlos Creek, the San Carlos Creek reservoir, Panoche Creek, and from the mine effluent and AMD pond. Two samples collected from the San Carlos Creek downstream of the AMD discharge contained mercury concentrations of 0.28 and 0.41 ppb. The remaining samples did not contain mercury concentrations above the 0.2 ppb detection limit (RWQCB, 2003).

The RWQCB sampling locations are shown on Figures 3, 5, and 7.

University of California - Santa Cruz

In 2000, the University of California, Santa Cruz, collected surface water samples from the Level 10 adit AMD and upstream and downstream locations from the AMD discharge to San Carlos Creek in 1997, 1998 and 1999. Mercury concentrations in unfiltered surface water samples ranged from 4.2 to 13 ppt upstream from the Site and 2,900 to 12,400 ppt downstream of the Site (UCSC, 2000).

3.2 Wetland Evaluation

In 2010, the EPA conducted a wetland survey of San Carlos Creek at the Site and downstream of the Site, the entire length of Silver Creek, and a portion of Panoche Creek at the confluence of Silver Creek. The San Carlos Creek Reservoir was also surveyed. The identification of jurisdictional waters of the United States, including wetlands, within the survey area was based on the following:

- Field identification of wetlands and other waters of the United States were conducted in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual, National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary; Arid West Regional Supplement to the Wetlands Delineation Manual; and the Corps Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region. The Corps' 1987 Wetlands Delineation manual identifies key diagnostic criteria for determining the presence of wetlands. These include (1) wetland hydrology, (2) hydric soils, and (3) a predominance of wetland vegetation. Wetland sampling sites and boundaries were mapped using GPS. Wetland SAMPLE data sheets were filled out for representative wetland types and sites. The wetland delineation is consistent with guidance contained within The Hazard Ranking System Guidance manual (EPA, 2010c).

- Verification through field and aerial photographic evidence of a continuous, longitudinal connection of wetlands adjacent to San Carlos and Silver creeks from the town of New Idria downstream to the confluence of Silver Creek with Panoche Creek (EPA, 2010c).

The inspection confirmed the presence of jurisdictional wetlands in the following areas: (1) the entire perimeter of the Reservoir Site; (2) a relatively small patch at the Level 10 adit; (3) adjacent to both banks of San Carlos Creek from the town of New Idria downstream to its confluence with Larious Creek; and (4) adjacent to both banks of Silver Creek from the confluences of San Carlos and Larious creeks downstream to its confluence with Panoche Creek (EPA, 2010c).

The remote Panoche-Silver-San Carlos Creek watershed is one of only a few large watersheds characterized by intermittent to perennial flow conditions flowing east to the San Joaquin Valley from the 200 mile long Diablo Range. San Carlos and Silver Creeks are characterized by extensive wetlands in a predominantly arid, upland environment. These wetlands are continuous, running the entire length of both streams. These wetlands function as important habitat for native aquatic vertebrates, some of which are regionally rare. As such, the aquatic and wetland habitats are associated with San Carlos and Silver Creeks, and their dependent animal species, are of regional ecological significance. The wetlands also are part of a food chain that supports aquatic and terrestrial invertebrates that are important prey for other native vertebrates (EPA, 2010c).

3.3 Expanded Site Inspection Sampling

WESTON was tasked to conduct an ESI of the Site, including the collection of environmental samples. The specific sampling objectives were to collect data that could be used to document whether a release of mercury or other toxic metals had occurred to San Carlos and Silver Creeks which could be attributed to the Site. For HRS purposes, a release is documented when a hazardous substance is detected at a concentration equal to or greater than three times the background concentration. If the background concentration is not detected, then a release is documented when the sample measurement equals or exceeds the sample quantitation limit. Additional objectives included determining whether methylation of mercury was occurring at the Site. Methyl mercury is easily absorbed into living tissue of aquatic organisms and is highly toxic to mammals. Surface waters adjacent to the remediated Aurora Mercury Mine on BLM property were also assessed to evaluate potential impacts from the mine located upstream from the Site. The field work was conducted in accordance with WESTON's Sampling and Analysis Plan (SAP), approved by the EPA in April 2010 (Appendix H).

WESTON implemented the SAP during July 19-23, 2010. WESTON collected samples from the onsite calcine tailings piles and AMD. Additionally, surface water and sediment samples were collected from San Carlos, Silver, and Panoche Creeks. Background soil and stream samples were collected from locations south of the Site at areas upgradient from mercury mining activities. Samples were collected from the following locations to support the ESI: 10 soil/tailing locations, 34 sediment locations, and 15 surface water locations. Sample locations are presented in Figure 2, 4, 6, 8, 9, 11, and 12.

Samples were submitted to Liberty Analytical under the EPA Contract Laboratory Program (CLP) for metal analysis by EPA CLPAS ILM05.4. The analytical data were validated by EPA. Additionally, surface water samples collected from six locations were submitted to Brooks Rand Labs contracted by WESTON for methyl mercury analysis. The EPA validated laboratory data packages and methyl mercury analytical reports are included in Appendix I.

Table 1 presents benchmarks developed by several different sources. These benchmarks, while not directly applicable to the HRS evaluation of the Site, are being presented for comparison purposes. The EPA's Regional Screening Levels (RSLs) for industrial soil are included for comparison with the data generated from the soil and tailing analyses. The EPA RSLs combine current EPA toxicity values with standard exposure factors to estimate contaminant concentrations in environmental media (soil, air, and water) that are considered protective of humans, including sensitive groups, over a lifetime. Chemical concentrations above these levels would not automatically designate a site as "contaminated" or trigger a response action. However, exceeding a RSL suggests that further evaluation of the potential risks that may be posed by site contaminants is appropriate. Further evaluation may include additional sampling, consideration of ambient levels in the environment, or a reassessment of the assumptions contained in these screening-level estimates. Note that RSLs are only applicable for surface soils. For deeper soils, RSLs should be used for first-order comparison purposes only.

Surface water analyses are being compared to EPA's Ambient Water Quality Criteria (AWQCs) for the protection of freshwater aquatic organisms. Because any potential release from the site is expected to be continuous and long-term, concentrations are compared with chronic AWQCs. Hardness was calculated from analytical data and was used to determine AWQCs for metals that are hardness dependent. Hardness was calculated as calcium carbonate for each surface water sampling location using dissolved calcium and magnesium analytical results. Hardness in surface water samples collected from the Site was calculated to range from 436 ppm to 1,906 ppm.

Sediment analyses were compared to Threshold Effects Levels (TELs) published by the National Oceans and Atmospheric Administration Screening Quick-Reference Tables (SQuiRTs). Screening with conservative, lower-threshold TELs ensures, with a high degree of confidence, that any contaminant sources eliminated from future consideration pose no potential threat.

Conversely, exceeding the TELs does not necessarily predict toxicity. Freshwater TELs are based on benthic community metrics and toxicity results.

In addition to the secondary benchmarks, BLM Human Risk Management Criteria for Abandoned Mine Sites and drinking water Maximum Contaminant Levels are presented for reference. Several mercury mines on BLM property are located in the New Idria Mining District and the San Carlos Creek reservoir has historically been used as a drinking water source. Total Threshold Limit Concentrations (TTLCs) criteria are also presented to compare analytical results for the tailings to TTLC values for hazardous waste characterization under California State regulations as outlined in Title 22 of the California Code of Regulations.

Table 1
Benchmark Levels
New Idria Mercury Mine
San Benito County, California

Analyte	Secondary Benchmarks			Other Relevant Benchmarks					
	RSLs Industrial	AWQC Chronic Fresh Water	TEL Fresh Water Sediments	RSLs Residential	TTLC	BLM	BLM	BLM	MCL (Fed/State)
	Soil/Tailings	Water	Sediment	Soil/Tailings	Soil	Soil	Sed	Water	Water
	mg/kg	ug/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/L	ug/L
Aluminum	990,000	87	--	77,000	15				-- /1,000
Antimony	410	30 [a]	--	31	15	50	62	124	6/6
Arsenic	1.6	150 [d]	5.9	0.39	500	20	46	93	10/10
Barium	190,000	3.9	--	15,000	10,000	-	-	-	2,000/1,000
Beryllium	2,000	0.66	--	160	75	-	-	-	4/4
Cadmium	800	1.27 [b,d]	0.596	70	100	70	155	155	5/5
Chromium	5.6	10.6 [b,d,e]	37.3	0.29	2,500	-	-	-	100/50
Cobalt	300	3.0	--	23	8,000	-	-	-	-
Copper	41,000	37.1 [b,d]	35.7	3,100	2,500	5,000	5,745	11,490	1,300/1,300
Iron	720,000	1,000	--	55,000					300/300 [g]
Lead	800	10.9 [b,d]	35	400	1,000	1,000	1,000	50	15
Manganese	23,000	--	--	1,800		19,000	21,679	1,548	50/50 [g]
Mercury	34	0.77 [d]	0.174	5.6	20	40	46	93	2
Nickel	20,000	168 [b,d]	18	1,500	2,000	2,700	3,094	6,194	-- /100
Selenium	5,100	5	--	390	100	700	774	1,548	50/50
Silver	5,100	37.4 [b,c,d]	--	390	500	700	774	1,548	-- /100
Thallium	--	--	--	--	700	-	-	-	2/2
Vanadium	72	--	--	5.5	2,400	-	-	-	-
Zinc	310,000	382 [b,d]	123	23,000	5,000	40,000	46,455	92,909	5,000/5,000 [g]
Methyl Mercury	100	0.0028 [f]	-	7.8	-	-	-	-	-

Notes:
RSL = Regional Screening Levels (EPA Region 9, 2009)
AWQC = EPA Ambient Water Quality Criteria. CCC (criterion continuous concentration) chronic values presented unless otherwise noted.
TEL = Threshold Effects Level NOAA Screening Quick Reference Tables - guidance thresholds for the protection of freshwater aquatic life.
BLM - Human Risk Management Criteria for Campers "Risk Management Criteria for Metals at BLM Mining Sites", BLM Technical Note 390, 2004.
MCLs - Primary Maximum Contaminant Levels for dinking water levels pursuant to the Safe Drinking Water Act.
mg/kg = milligrams per kilogram (equivalent to parts per million).
ug/L = milligrams per liter (equivalent to parts per billion).
TTLC = Total Threshold Limit Concentration
a = proposed value.
b = values have been adjusted using the maximum hardness of 400 milligrams per liter.
c = values presented are CMC (criterion maximum concentration) acute values.
d = values applicable to dissolved metals
e = chromium (VI) value presented
f = Ecotox Threshold value
g = Secondary MCL value

3.3.1 Source Sampling

3.3.1.1 Calcine Tailings

Calcine tailings samples were collected to document the presence of a hazardous substance source*** to surface water. WESTON collected 10 soil samples to establish a source of metals at the Site. Soil samples NIMM-TL-3 through NIMM-TL-5 were collected from the southern calcine tailings piles, sample NIMM-TL-6 was collected from between northern and southern tailings piles, and soil sample NIMM-TL-7 through NIMM-TL-10 were collected from the northern calcine tailings piles. Soil samples NIMM-SS-1 and NIMM-SS-2 were collected from background locations. Sample locations are shown on Figures 2 and 4; analytical results are summarized in Table 2.

Three samples were collected at each sampling location and sifted using a disposable sieve to obtain a grain size of less than 1.3 millimeters. The sieved samples were field screened for mercury concentrations using an Innov-X Systems x-ray florescence (XRF) metal analyzer. The sieved sample exhibiting the highest mercury concentration was selected for laboratory analyses. The coarse fraction of the sample and the sieved portion of the sample were weighed to determine the percentage of fines in the matrix of each sample submitted to the laboratory. The XRF mercury measurements ranged from 35 to 785 parts per million (ppm) for the calcine tailings samples. Samples for laboratory analysis were contained in 4-ounce glass containers and placed on ice for preservation (Weston, 2010).

Laboratory results from the tailings analysis indicate that aluminum, antinomy, arsenic, barium, copper, and mercury are significantly elevated above background concentrations. Significantly* elevated is defined under the HRS as contaminant concentrations greater than three-times background**, or detected in sample above the CRQL when not detected in background. The highest mercury concentration found in a background soil sample location (NIMM-SS-1) was 0.19 ppm. All eight of the source samples exceeded three times background concentrations for mercury. Mercury was detected in samples collected from the southern calcine tailings at concentrations ranging from 38.7 to 446 ppm and from the northern calcine tailings at concentrations ranging from 3.8 ppm to 91.6 ppm.

* Significant Release: The release sample is at least three times greater than the background level.

** Background: The concentration of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred.

*** Source: any area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated through migration.

Table 2
Summary of 2010 ESI Results for Source Samples - Tailings
New Idria Mercury Mine
San Benito County, California
Reported in milligrams per kilogram (equivalent to parts per million)

Sample Number/ Location	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Vanadium	Zinc
Benchmark RSLs for Industrial Soil	990,000	410	1.6	190,000	2,000	800	5.6	300	41,000	720,000	800	23,000	34	20,000	5,100	5,100	72	310,000
NIMM-SS-1 (background)	3,630	<6.2 J	0.63 J	29.8	<0.52	2.1 J	*911*	126	12	61,700	7.7	1,010	0.19	2,370	<3.6 J	0.084 J	18.5	49.5
NIMM-SS-2 (background)	3,990	<6.2 J	<1.0	20.8	<0.51	1.7 J	*988*	106	11.2	53,100	22.8	844	<0.10	2,210	<3.6 J	<1.0	20.3	28.7
NIMM-TL-3 (southern calcine tailings pile)	11,700	5.2 J	***22.7***	**173**	0.31 J	1.2 J	*45.0*	10	**59.9**	46,600	18.1	138	***191***	31.3	1.3 J	0.17 J	***70.2***	56.2
NIMM-TL-4 (southern calcine tailings pile)	7,080	**7.9 J**	***17.7***	**119**	0.23 J	0.51 J	*23.5*	5.6	**39.2**	23,800	9.0	60.3	***134***	20.4	0.78 J	<1.0	59.0	39.3
NIMM-TL-5 (southern calcine tailings pile)	8,440	3.9 J	***16.2***	**263**	0.34 J	1.3 J	*40.4*	10.1	**48.5**	36,000	49.5	237	***446***	67.7	0.94 J	0.18 J	50.5	**396**
NIMM-TL-6 (southern calcine tailings pile)	**14,000**	5.4 J	***17.2***	**242**	0.42 J	0.99 J	*74.8*	21.1	**47.1**	38,100	61.5	314	***38.7***	159	0.70 J	0.082 J	54.0	104
NIMM-TL-7 (northern calcine tailings pile)	11,300	**7.0 J**	***23.3***	**146**	0.26 J	1.5 J	*65.6*	7.6	**69.0**	57,700	23.5	110	**3.8**	66.1	1.2 J	0.075 J	55.9	50.8
NIMM-TL-8 (northern calcine tailings pile)	**13,900**	5.4 J	***18.8***	**144**	0.42 J	1.3 J	*59.2*	22.7	**60.3**	48,200	18.2	301	***91.6***	99.8	1.3 J	0.24 J	55.0	98.7
NIMM-TL-9 (northern calcine tailings pile)	**12,400**	5.7 J	***27.7***	**163**	0.34 J	1.6 J	*130*	16.3	**79.8**	65,000	22.5	146	***72.3***	203	1.6 J	0.19 J	56.4	71.3
NIMM-TL-10 (northern calcine tailings pile)	**13,200**	5.5 J	***26.0***	**197**	0.34 J	1.8 J	*133*	18.5	**73.7**	73,800	26.2	174	***28.9***	228	1.0 J	0.16 J	54.4	84.4
NIMM-TL-10 (duplicate)	**13,800**	5.6 J	***26.7***	**211**	0.34 J	1.8 J	*135*	18.4	**74.2**	68,800	25	173	***31.5***	231	1.2 J	0.12 J	55.4	90.3

Table 2
Summary of 2010 ESI Results for Source Samples - Tailings
New Idria Mercury Mine
San Benito County, California
Reported in milligrams per kilogram (equivalent to parts per million)

Sample Number/ Location	Aluminum	Antinomy	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Vanadium	Zinc
CRQL	20.0	6.0	1.0	20	0.50	0.50	1.0	5.0	2.5	10.0	1.0	1.5	0.10	4.0	3.5	1.0	5.0	6.0

Notes:
Bold and underlined values are greater or equal to 3 times background concentrations.
Italics = the associated numeric value is greater or equal to the benchmark.
<## = not detected at or above laboratory reporting limit shown.
J = the associated numerical value is qualified and is an estimated quantity.
RSL = Regional Screening Levels (EPA 2009) for Industrial soil.
CRQL = Contract required quantitation limit.

The following is a description of the data qualification for metals flagged with a "J":
Antinomy is qualified due to detections below the CRQL and/or matrix spike recovery results outside of QC limits and may be biased low.
Beryllium is qualified due to detections below the CRQL.
Cadmium is qualified due to iron exceeding the concentrations in the interelement check sample and may be biased high.
Selenium is qualified due to iron exceeding the concentrations in the interelement check sample and may be biased low.
Silver is qualified due to detections below the CRQL.
Qualified data has been evaluated against the EPA Quick Reference Fact Sheet *Using Qualified Data to Document an Observed Release and Observed Contamination*, 1996.

3.3.1.2 Acid Mine Drainage

AMD samples were also collected to document the release of hazardous substance source*** to surface water. Filtered and un-filtered surface water samples NIMM-SW-4 and NIMM-SW-5 were collected from the Level 10 adit AMD. Filtered and unfiltered surface water samples collected from the headwaters of San Carlos Creek upstream from the AMD were used to establish background concentrations. Sample locations are shown on Figure 4; analytical results are summarized in Table 3.

Laboratory results from the AMD analysis indicate that aluminum, arsenic, cadmium, chromium, copper, iron, nickel, mercury, selenium, and zinc are significantly* elevated above background** concentrations. The AMD sample NIMM-SW-4, collected from the Level 10 adit, did not contain detectable concentrations of mercury indicating mercury is entrained in the AMD as it flows over the tailings piles. The highest mercury concentration found in a background water sample location (NIMM-SW-9) was 0.10 ppb. Two of the three AMD samples exceeded three times background concentrations for mercury. Mercury detected in sample location NIMM-SW-5, collected from the AMD prior to the discharge to San Carlos Creek, contained 21.2 ppb in the unfiltered samples and 11.2 ppb in the filtered sample. The background sample NIMM-SW-9 was collected in the New Idria Mining District which contains naturally occurring chromium resulting in relatively high concentrations of chromium in the sample.

* Significant Release: The release sample is at least three times greater than the background level.

** Background: The concentration of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred.

*** Source: any area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated through migration.

Table 3
Summary of 2010 ESI Results for Source Samples - AMD
New Idria Mercury Mine
San Benito County, California
Reported in micrograms per liter (equivalent to parts per billion)

Sample Number/ Location	Aluminum	Aluminum (dissolved)	Arsenic	Arsenic (dissolved)	Cadmium	Cadmium (dissolved)	Chromium	Chromium (dissolved)	Copper	Copper (dissolved)	Iron	Iron (dissolved)	Lead	Lead (dissolved)	Mercury	Mercury (dissolved)	Nickel	Nickel (dissolved)	Selenium	Selenium (dissolved)	Silver	Silver (dissolved)	Zinc	Zinc (dissolved)
NIMM-SW-1 Upper San Carlos Creek (background)	<200	<200	<1.0	<1.0	<1.0	<1.0	31.6	29	<2.0	0.40 J	35.4 J	<100	<1.0	<1.0	0.084 J	<0.20	10.3	4.5	<5.0 J	<5.0	<1.0	<1.0	1.4 J	2.9
NIMM-SW-9 Tributary leading to East Fork San Carlos Creek (background)	1,150	<200	<1.0	<1.0	<1.0	<1.0	199	11.5	4.0	<2.0	12,500	<100	0.54 J	<1.0	0.10 J	<0.20	800	5.1	<5.0 J	<5.0	<1.0	<1.0	9.5 J	2.4
NIMM-SW-4 AMD (Level 10 Adit)	**135,000**	**132,000**	**72.4**	**66.1**	**1.7**	**1.4**	101	**91.9**	3.4	**3.2**	**502,000**	**497,000**	<1.0	<1.0	<0.20	<0.20	1,530	**1,440**	**11.2 J**	**10.6 J**	0.055 J	0.070 J	**2,500 J**	**2,350**
NIMM-SW-5 AMD (near San Carlos Creek)	**128,000**	**125,000**	**7.2**	**6.2**	**1.7**	**1.2**	51.4	47.2	7.1	**8.0**	**325,000**	**318,000**	<1.0	<1.0	**21.2**	**11.2**	1,640	**1,560**	**12.0 J**	**11.3 J**	0.066 J	0.064 J	**2,610 J**	**2,460**
NIMM-SW-5 (duplicate)	**127,000**	NA	**6.7**	NA	**1.6**	NA	49.5	NA	6.6	NA	**322,000**	NA	<1.0	NA	**20.1**	NA	1,610	NA	**12.4 J**	NA	0.055 J	NA	**2,540 J**	NA
CRQL	200	200	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	100	100	1.0	1.0	0.20	0.20	1.0	1.0	5.0	5.0	1.0	1.0	2.0	2.0

Notes:
Bold and underlined values are greater or equal to 3 times background concentrations.
<## = not detected at or above laboratory reporting limit shown.
J = the associated numerical value is qualified and is an estimated quantity.
AMD = acid mine drainage
CRQL = Contract required quantiation limit.
NA = not analyzed

The following is a description of the data qualification for metals flagged with a "J":
Copper is qualified due to detections below the CRQL.
Iron is qualified due to detections below the CRQL.
Lead is qualified due to detections below the CRQL.
Mercury is qualified due to detections below the CRQL.
Selenium is qualified due to detections below the CRQL and/or Selenium is qualified due to matrix spike recovery results outside of QC limits and may be biased high.
Silver is qualified due to detections below the CRQL.
Zinc is qualified due to detections below the CRQL and/or due to ICP serial dilution results are outside of QC limits and may be biased low.
Qualified data has been evaluated against the EPA Quick Reference Fact Sheet*Using Qualified Data to Document an Observed Release and Observed Contamination, 1996.*

3.3.2 Sediment Sampling

WESTON collected a total of 34 sediment samples (NIMM-SD-1 through NIMM-SD-34) from the Site and from upstream and downstream locations of the Site to establish whether a release to surface water has occurred. Background sediment sample NIMM-SD-1 was collected from the headwaters of San Carlos Creek approximately 3.9 miles upstream from the AMD and calcine tailings piles, and background sediment sample NIMM-SD-11 was collected from a tributary leading to East Fork San Carlos Creek located approximately 2.7 miles south-southeast of the Site. Sample locations are presented on Figures 2, 4, 6, 8, 9, 11, and 12; analytical results are summarized in Table 4.

Reservoir sediment sample NIMM-SD-2 was collected from the San Carlos Reservoir. Sediment Sample NIMM-SD-3 was collected from the San Carlos Creek adjacent to a calcine tailings pile and upstream from the AMD discharge. Four sediment samples (NIMM-SD-4 through NIMM-SD-7) were collected from the AMD between the Level 10 Adit and San Carlos Creek. Two sediment samples (NIMM-SD-8 and NIMM-SD-9) were collected from San Carlos Creek below the AMD and adjacent to the calcine tailings piles. Four sediment samples (NIMM-SD-10, NIMM-SD-12, NIMM-SD-13, and NIMM-SD-15) were collected from San Carlos Creek from locations 0.6, 2.4, 4.1, and 4.7 miles, respectively, downstream from the calcine piles. One sediment sample (NIMM-SD-14) was collected from Larious Creek, upstream from its confluence with San Carlos and Silver Creeks, approximately 4.5 miles downstream from the calcine tailings piles, to assess attribution from mercury mines in the New Idria Mining District draining to Sampson and Larious Creeks. A total of 17 sediment samples (NIMM-SD-16 through NIMM-SD-32) were generally collected at intervals of approximately one mile along Silver Creek to Panoche Creek. Two sediment samples (NIMM-SD-33 and NIMM-SD-34) were collected from Panoche Creek at locations upstream and downstream, respectively.

Three samples were collected at each location and were sieved and field screened for mercury concentrations with the XRF in the same manner as the calcine tailing samples described in section 3.3.1.1. The XRF mercury measurements ranged from 20 ppm to 85 ppm in sediment samples collected from the AMD and from non detect (<10 ppm) to 64 ppm in sediment samples collected from the creeks. Samples for laboratory analysis were contained in 4-ounce glass containers and placed on ice for preservation (Weston, 2010).

Laboratory results from the sediment analysis indicate that mercury is significantly* elevated above background** in 24 of 26 surface water pathway sample locations collected downgradient from the mercury mines. The mercury concentration found in the background sediment sample location (NIMM-SD-1) was 0.19 ppm, Mercury concentrations ranged from an estimated value of 0.070 ppm to 32.6 ppm in samples collected from San Carlos and Silver Creeks. Sediment analytical results are presented in Table 4.

Mercury concentrations ranged from 9.9 ppm to 41.3 ppm in four AMD sediment samples collected from locations between the Level 10 adit and San Carlos Creek.

* Significant Release: The release sample is at least three times greater than the background level.
** Background: The concentration of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred.

Mercury was detected at low concentrations (estimated value of 0.081 ppm) in sediment sample NIMM-SD-14 collected from Larious Creek near the confluence with San Carlos Creek to assess possible attribution from mercury mines in the New Idria Mining District draining to Sampson and Larious Creeks. Mercury was also detected at low concentrations (estimated value of 0.050 ppm) in a sample collected from Panoche Creek at a location upstream from the confluence of Silver Creek to assess possible attribution from mercury mines from other watersheds draining to Panoche Creek. Mercury was detected in a Panoche Creek sediment sample, located nearly 20 miles downstream from the Site, at a concentration of 1.1 ppm.

Sediment samples collected 0.6 mile downstream from the Site contained concentrations significantly* above background** for copper. Sediment samples collected 4.1 miles downstream from the Site contained concentrations significantly above background for arsenic.

* Significant Release: The release sample is at least three times greater than the background level.

** Background: The concentration of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred.

Table 4
Summary of 2010 ESI Results for Sediment Samples
New Idria Mercury Mine
San Benito County, California
Reported in milligrams per kilogram (equivalent to parts per million)

Sample Number/ Location	Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Selenium	Zinc
Benchmark NOAA TELs (freshwater sediment)	--	5.9	0.596	37.3	35.7	--	35	0.174	18	--	123
Background Sediment Samples											
NIMM-SD-1 San Carlos Creek, (background)	1,930	<1.0	*1.5 J*	*1,400*	6.2	47,200	3.9	*0.19*	*2,340*	<3.5 J	35.6
NIMM-SD-11 Tributary to East Fork San Carlos Creek (background)	3,180	<1.1	*1.2 J*	*1,220*	8.6	47,700	4.1	<0.11 R	*2,130*	<3.7 J	21.6
Acid Mine Drainage Sediment Samples											
NIMM-SD-4 AMD (Level 10 Adit)	**15,100**	***10.4***	*1.2 J*	*43.8*	***48.1***	46,600	**12.1**	***14.4***	*61.8*	<3.7J	98.5
NIMM-SD-5 AMD	**16,200**	***42.3***	***5.4 J***	*38.3*	**25.8**	**204,000**	**18.6**	***9.9***	*112*	<5.3J	***142***
NIMM-SD-5 (duplicate)	**13,800**	***38.3***	***5.8 J***	34.1 J	**20.7**	**241,000**	**20.4 J**	***12.1***	*101*	<5.5	***136***
NIMM-SD-6 AMD (below waste piles)	8,600	***14.4***	*1.6 J*	31.5 J	**28.1**	59,300	**20.5J**	***41.3***	*68.5*	<3.8J	***323***
NIMM-SD-7 AMD (near San Carlos Creek)	8,070	***57.1***	***8.6 J***	*50.8*	**18.9**	**307,000**	**22.4**	***25.0***	*55.3*	<4.8	**119 J**

Table 4
Summary of 2010 ESI Results for Sediment Samples
New Idria Mercury Mine
San Benito County, California
Reported in milligrams per kilogram (equivalent to parts per million)

Sample Number/ Location	Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Selenium	Zinc
Stream Sediment Samples											
NIMM-SD-3 San Carlos Creek (southern calcine pile)	**14,100**	***9.0***	*1.1 J*	*133*	***44.6***	36,700	11.1	***4.9***	*170*	<3.5 J	80.7
NIMM-SD-8 San Carlos Creek (southern calcine pile)	**13,700**	***10***	*1.1 J*	*180*	***40.3***	37,000	**11.8**	***4.7***	*194*	<3.6 J	82.4
NIMM-SD-9 San Carlos Creek (northern calcine pile)	**11,800**	***14.1***	*1.3 J*	*49.3*	***55.9***	37,300	**16.0**	***4.9***	*85.1*	0.59 J	106
NIMM-SD-10 San Carlos Creek (0.6 mile downstream)	7,800	***8.7***	0.59 J	*110*	**30.7**	26,500	11.3	***32.6***	*148*	<3.5	91.4
NIMM-SD-12 San Carlos Creek (2.4 miles downstream)	6,150	***8.3***	0.44 J	*58.2*	25.2	20,100	8.5	***8.9 J***	*86.7*	<3.6	68.5
NIMM-SD-13 San Carlos Creek (4.1 miles downstream)	**10,600**	***11.9***	*3.3 J*	*41.8*	12.8	13,700	6.4	***2.0 J***	*40.4*	0.89 J	53.8
NIMM-SD-14 Larious Creek (attribution)	5,290	*6.6*	0.74 J	*303*	19.4	22,700	7.3	0.081 J	*393*	2.6 J	44.6
NIMM-SD-15 San Carlos Creek (4.7 miles downstream)	5,540	*5.7*	0.50 J	*49.8*	15.7	18,700	6.4	***4.6 J***	*98.8*	<3.5	102
NIMM-SD-15 (duplicate)	5,650	*5.9*	*0.66 J*	*65.8 J*	15.4	20,200	6.4J	***4.0***	*97.1*	<3.4	101
NIMM-SD-15 (unsieved sample)	5,900	*6.3*	0.50 J	*71.8 J*	18.4	19,700	6.2J	***4.4***	*96.0*	<3.5	96.7

Table 4
Summary of 2010 ESI Results for Sediment Samples
New Idria Mercury Mine
San Benito County, California
Reported in milligrams per kilogram (equivalent to parts per million)

Sample Number/ Location	Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Selenium	Zinc
Stream Sediment Samples											
NIMM-SD-16 Silver Creek (5.4 miles downstream)	4,440	*6.3*	0.49 J	*50.6*	17.0	14,200	5.6	***1.8 J***	*79.0*	2.8J	56.0
NIMM-SD-17 Silver Creek (6.4 miles downstream)	6,490	6.4	0.58 J	*76.4*	21.2	18,400	7.6	***3.9 J***	*113*	1.2J	65.4
NIMM-SD-18 Silver Creek (7.4 miles downstream)	5,400	6.2	0.48 J	*59.5*	14.8	16,500	6.2	***2.7 J***	*63.1*	<3.5	42.4
NIMM-SD-19 Silver Creek (8.4 miles downstream)	13,800	6.8	*0.77 J*	*61.2*	27.6	25,200	11.3	0.070 J	*81.3*	<3.5	71.0
NIMM-SD-20 Silver Creek (9.2 miles downstream)	5,520	4.9	0.37 J	*40.9*	16.4	14,000	6.0	***11.2 J***	*56.9*	3.4 J	48.6
NIMM-SD-21 Silver Creek (10.2 miles downstream)	5,370	5.4	0.46 J	32.2	16.4	15,000	6.9	***1.3 J***	*49.3*	0.85 J	50.1
NIMM-SD-22 Silver Creek (11.2 miles downstream)	5,080	5.5	0.45 J	27.5	16.4	15,400	6.9	***0.60 J***	*42.0*	1.4 J	56.0
NIMM-SD-23 Silver Creek (12.2 miles downstream)	2,490	4.3	0.37 J	*77.1*	9.6	15,000	4.6	*0.38 J*	*82.4*	1.2 J	35.7
NIMM-SD-24 Silver Creek (13.0 miles downstream)	6,250	7.1	0.51 J	*61.8*	16.9	17,000	8.5	***4.2 J***	*83.9*	1.7 J	62.2
NIMM-SD-25 Silver Creek (14.0 miles downstream)	3,600	5.8	0.40 J	*60.2*	13.9	15,100	5.0	***2.4 J***	*78.7*	1.5 J	55.1
NIMM-SD-25 (duplicate)	3,630	6.6	*0.60 J*	*65.1 J*	13.4	16,000	5.3J	***1.4***	*88.5*	2.0 J	59.0

Table 4
Summary of 2010 ESI Results for Sediment Samples
New Idria Mercury Mine
San Benito County, California
Reported in milligrams per kilogram (equivalent to parts per million)

Sample Number/ Location	Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Selenium	Zinc
Stream Sediment Samples											
NIMM-SD-26 Silver Creek (15.0 miles downstream)	4,700	5.0	0.34 J	28.9	13.5	13,800	6.4	***1.7 J***	*43.5*	0.61 J	46.3
NIMM-SD-27 Silver Creek (15.8 miles downstream)	6,130	5.4	0.44 J	*46.0*	15.9	16,100	6.9	***1.5 J***	*57.7*	<3.5	48.2
NIMM-SD-28 Silver Creek (16.2 miles downstream)	5,060	5.9	0.40 J	29.4	15.6	14,800	6.9	***1.1 J***	*47.2*	1.3 J	58.9
NIMM-SD-29 Silver Creek (16.9 miles downstream)	3,290	4.7	0.39 J	*67.4*	9.9	14,100	4.3	***2.3 J***	*72.6*	1.0 J	42.5
NIMM-SD-30 Silver Creek (17.8 miles downstream)	4,450	*5.9*	0.58 J	*113 J*	14.9	17,700	6.4 J	***1.2***	*84.6*	1.6 J	48.7
NIMM-SD-31 Silver Creek (18.7 miles downstream)	4,230	4.7	0.39 J	*41.7 J*	11.1	12,800	5.5 J	***1.0***	*38.5*	0.58 J	39.2
NIMM-SD-32 Silver Creek (19.5 miles downstream)	3,420	5.5	0.46 J	*62.1 J*	10.6	14,500	5.3 J	***1.0***	*64.8*	0.89 J	45.9
NIMM-SD-33 Panoche Creek (attribution)	3,140	3.9	0.34 J	8.6 J	8.1	10,700	4.0 J	<0.10	*12.9*	<3.4	24.4
NIMM-SD-33 (duplicate)	3,060	3.6	0.24 J	8.5 J	7.9	11,200	4.6 J	0.050 J	*12.0*	<3.5	23.9
NIMM-SD-34 Panoche Creek (19.9 miles downstream)	6,640	5.5	0.51 J	25.8 J	18.1	16,000	7.9 J	***1.1***	*38.9*	1.2 J	58.0

Table 4
Summary of 2010 ESI Results for Sediment Samples
New Idria Mercury Mine
San Benito County, California
Reported in milligrams per kilogram (equivalent to parts per million)

Sample Number/ Location	Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Selenium	Zinc
Reservoir Sediment Sample											
NIMM-SD-2 San Carlos Reservoir	2,620	**<u>2.1</u>**	*0.74 J*	*981*	8.6	25,500	5.4	***<u>5.5</u>***	*1,520*	<4.0	**25.4**
CRQL	20.0	1.0	0.50	1.0	2.5	10.0	1.0	0.10	4.0	3.5	6.0

Notes:
Bold and <u>underlined</u> values are greater or equal to 3 times background concentrations.
Italics = the associated numeric value is greater or equal to the benchmark.
<## = not detected at or above laboratory reporting limit shown.
J = the associated numerical value is qualified and is an estimated quantity.
R = the associated numerical value has been rejected and is not usable.
TEL = Threshold Effects Level NOAA Screening Quick Reference Tables - guidance thresholds for the protection of freshwater aquatic life.
AMD = acid mine drainage.
CRQL = Contract required quantitation limit.

The following is a description of the data qualification for metals flagged with a "J" or "R":
Beryllium is qualified due to detections below the CRQL.
Cadmium is qualified due to iron exceeding the concentrations in the interelement check sample and may be biased high.
Cadmium is qualified due to ICP serial dilution results are outside of QC limits and may be biased high.
Chromium is qualified due to laboratory duplicate result is outside QC limits and results are uncertain.
Chromium is qualified due to ICP serial dilution results are outside of QC limits and may be biased low.
Lead is qualified due to ICP serial dilution results are outside of QC limits and may be biased low.
Selenium is qualified due to iron exceeding the concentrations in the interelement check sample and may be biased low.
Mercury in background sample NIMM-SD-11 is rejected due to matrix spike recovery does not meet QC limits.
Mercury is qualified due to matrix spike recovery results outside of QC limits and may be biased low .
Qualified data has been evaluated against the EPA Quick Reference Fact Sheet *Using Qualified Data to Document an Observed Release and Observed Contamination* , 1996.

3.3.3 Surface Water Sampling

WESTON collected surface water samples from 15 locations from upstream and downstream locations relative to the Site to establish whether a release to surface water has occurred. Background sample NIMM-SW-1 was collected from the headwaters of San Carlos Creek approximately 3.5 miles upstream from the AMD and calcine tailings piles, and background sample NIMM-SW-9 was collected from a tributary leading to East Fork San Carlos Creek located approximately 2.7 miles south-southeast of the Site. Three surface water samples (BLM-SW-1 through BLM-SW-3) were collected from upper San Carlos Creek at locations upstream, adjacent, and downstream of the remediated Aurora mercury mine, respectively. Sample locations are presented on Figures 2, 4, and 6; analytical results are summarized in Table 5.

Reservoir water sample NIMM-SW-2 was collected from the San Carlos Reservoir. Surface water sample NIMM-SW-3 was collected from San Carlos Creek adjacent to a calcine pile and upstream from the AMD discharge. Two surface water samples (NIMM-SW-4 and NIMM-SW-5) were collected from the AMD between the Level 10 Adit and San Carlos Creek. Two surface water samples (NIMM-SW-6 and NIMM-SD-7) were collected from San Carlos Creek below the AMD and adjacent to the calcine tailings piles. Two surface water samples (NIMM-SW-8 and NIMM-SW-10) were collected from San Carlos Creek from locations 0.6 and 2.4 miles downstream from the calcine piles, respectively. One surface water sample (NIMM-SW-12) was collected from Larious Creek, upstream from its confluence with San Carlos and Silver Creeks to assess attribution from mercury mines in the New Idria Mining District draining to Larious Creek. Surface water sample NIMM-SW-14 was collected from a location in Silver Creek approximately 5.4 miles downstream from the calcine tailings piles. At the time of sampling, water in Silver Creek was originating from Larious Creek and San Carlos Creek was dry at the planned upstream surface water sample location NIMM-SW-11.

Both filtered and un-filtered water samples were collected at each sampling location by either submerging a clean one-liter plastic bottle beneath the water surface or by using dedicated tubing and a peristaltic pump. The samples were preserved with nitric acid to a pH less than 2; the samples were placed on ice in preparation for shipping to a CLP laboratory for metals analysis by CLP method ILM 5.2. Six sampling locations (NIMM-SW-2, NIMM-SW-3, NIMM-SW-5, NIMM-SW-7, NIMM-SW-12, and NIMM-SW-14) were additionally sampled using ultraclean methods following EPA Region 9 Field Sampling Guidance Document #1229 Trace Metal Clean Sampling of Natural Waters and submitted to Brooks Rand Labs for methyl mercury analysis by EPA Method 1631. Water quality parameters were also collected at each water sample location. Sample results are presented in Table 5. The data reports are in Appendix I.

Water quality parameters measured at the water sampling locations include pH, temperature (degrees Celsius, or ºC), conductivity (micro Siemens, or µS), and dissolved oxygen (ppm). The pH measured in the AMD was 2.94 prior to entering San Carlos Creek and 4.91 at the Level 10 adit. The pH measured in San Carlos Creek was 7.81 upstream from the AMD and dropped to 7.19 and 6.81 at sample locations downstream of the AMD discharge. The pH ranged from 7.48 to 8.33 in other samples collected from the creeks and was 8.66 in the reservoir. Temperatures in all samples ranged from 16.52 to 33.36 ºC. Conductivity ranged from 6,035 to 6,427 µS in the AMD, and 683 to 4866 µS in the creeks. Dissolved oxygen measured in the AMD ranged from 0.13 to 1.45 ppm, and 2.94 to 8.99 ppm in the creeks (Weston, 2010).

Laboratory results for dissolved and total metals analyses indicate that mercury is significantly* elevated above background** in surface water pathway sample locations collected adjacent to the calcine piles and locations downgradient from the Site.

Unfiltered Surface Water Sample Results

The total mercury concentration found in background surface water sample NIMM-SW-1 was estimated value at 0.084 ppb. Mercury was not detected in sample NIMM-SW-4 collected from the level 10 adit AMD; however, 21.2 ppb mercury was detected in sample NIMM-SW-5 collected from AMD near the discharge to San Carlos Creek. Mercury was detected in San Carlos Creek surface water samples (NIMM-SW-3 and NIMM-SW-6, NIMM-SW-7, NIMM-SW-8, and NIMM-SW-10) collected from locations downstream from Site mining activities at concentrations ranging from 0.28 ppb to 4.9 ppb. Mercury was not detected in samples BLM-SW-1 through BLM-SW-3 collected from the upper San Carlos Creek, sample NIMM-SW-2 collected from the reservoir, and samples NIMM-SW-10, NIMM-SW-12, and NIMM-SW-14, collected from downstream portions of San Carlos, Larious, and Silver Creeks.

Additionally, unfiltered surface water samples collected 0.6 mile downstream from the Site contained concentrations significantly* above background** for arsenic, copper, iron and selenium. Surface water samples collected 2.4 miles downstream from the Site contained concentrations significantly above background for aluminum and zinc.

Filtered Surface Water Sample Results

The dissolved mercury concentration found in background surface water sample NIMM-SW-1 was non-detect (<0.20 ppb). Dissolved mercury was not detected in sample NIMM-SW-4 collected from the level 10 adit AMD; however, 11.2 ppb dissolved mercury was detected in sample NIMM-SW-5 collected from AMD near the discharge to San Carlos Creek. Dissolved mercury was detected significantly* above background** at concentrations of 0.30 ppb in sample NIMM-SW-3 collected from San Carlos Creek upstream from the AMD discharge. Dissolved mercury was detected in San Carlos Creek surface water samples (NIMM-SW-6, NIMM-SW-7, and NIMM-SW-8) collected from locations downstream from the AMD discharge at concentrations ranging from estimated values of 0.14 ppb to 0.16 ppb. Dissolved mercury was not detected in samples BLM-SW-1 through BLM-SW-3 collected from the upper San Carlos Creek, sample NIMM-SW-2 collected from the reservoir, and samples NIMM-SW-10, NIMM-SW-12, and NIMM-SW-14, collected from downstream portions of San Carlos, Larious, and Silver Creeks.

Methyl mercury analysis was conducted on surface water samples to assess the methylation of mercury at the Site and results were not compared to background levels. Methyl mercury was detected in all of the surface water samples. The lowest concentration was detected in the sample NIMM-SW-3, collected from San Carlos Creek adjacent to the southern calcine tailings pile and upstream of the AMD discharge, at 0.039 ppt. The highest concentration of methyl mercury was detected in sample NIMM-SW-5, collected from the AMD near the discharge to San Carlos Creek, at a concentration of 2.30 ppt.

* Significant Release: The release sample is at least three times greater than the background level.
** Background: The concentration of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred.

Methyl mercury in surface water sample NIMM-SW-7, collected from San Carlos Creek adjacent to the northern calcines tailings pile, was detected at a concentrations of 0.210 ppt. Methyl mercury in surface water samples collected form Larious Creek (NIMM-SW-12) and Silver Creek (NIMM-SW-14) was detected at concentrations of 0.086 ppt and 0.072 ppt, respectively. Methyl mercury in reservoir water sample NIMM-SW-2, collected from the San Carlos Reservoir, was detected at a concentration of 0.245 ppt.

Additionally, filtered surface water samples collected 2.4 miles downstream from the Site contained concentrations significantly* above background** for aluminum, nickel, and zinc.

Hardness was calculated as calcium carbonate ($CaCO_3$) from analytical results of calcium and magnesium. Hardness calculated for surface water samples NIMM-SW-4 and NIMM-SW-5, collected from the AMD, was 1,677 ppm and 1,819 ppm. Hardness calculated for surface water samples, collected from locations upstream of the AMD discharge, ranged from 436 ppm to 738 ppm. Hardness calculated for surface water samples, collected from locations downstream of the AMD discharge, ranged from 1,153 ppm to 1,906 ppm. Hardness calculated for the surface water sample NIMM-SW-12, collected from Larious Creek, was 1,173 ppm (WESTON, 2010).

* Significant Release: The release sample is at least three times greater than the background level.

** Background: The concentration of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred.

Table 5
Summary of 2010 ESI Results for Surface Water Samples
New Idria Mercury Mine
San Benito County, California
Reported in micrograms per liter (equivalent to parts per billion), unless otherwise noted

Sample Number/ Location	Aluminum	Aluminum (dissolved)	Arsenic	Arsenic (dissolved)	Cadmium	Cadmium (dissolved)	Chromium	Chromium (dissolved)	Copper	Copper (dissolved)	Iron	Iron (dissolved)	Lead	Lead (dissolved)	Mercury	Mercury (dissolved)	Methyl Mercury (dissolved)	Nickel	Nickel (dissolved)	Selenium	Selenium (dissolved)	Zinc	Zinc (dissolved)
Benchmark AWQC (Fresh Surface Water)	87		150		1.27		Cr (III) 231 Cr (VI) 10.6		37.1		1,000		10.9		0.77		2.8 ng/L	168		5		382	
Background Water Samples																							
NIMM-SW-1 Upper San Carlos Creek (background)	<200	<200	<1.0	<1.0	<1.0	<1.0	31.6	*29*	<2.0	0.40 J	35.4 J	<100	<1.0	<1.0	0.084 J	<0.20	NA	10.3	4.5	<5.0 J	<5.0	1.4 J	2.9
NIMM-SW-9 Tributary leading to East Fork San Carlos Creek (background)	*1,150*	<200	<1.0	<1.0	<1.0	<1.0	199	*11.5*	4.0	<2.0	*12,500*	<100	0.54 J	<1.0	0.10 J	<0.20	NA	800	5.1	<5.0 J	<5.0	9.5 J	2.4
Aurora Mine Water Samples																							
BLM-SW-1 Upper San Carlos Creek (Aurora Mine background)	<200	<200	<1.0	<1.0	<1.0	<1.0	22.9	*52.9*	<2.0	<2.0	<100	<100	<1.0	<1.0	<0.20	<0.20	NA	6.1	3.7	<5.0 J	<5.0	1.8 J	1.5 J
BLM-SW-2 Upper San Carlos Creek (Aurora Mine)	<200	<200	<1.0	<1.0	<1.0	<1.0	19.0	*50.1*	<2.0	0.38 J	<100	<100	<1.0	<1.0	<0.20	<0.20	NA	5.0	3.5	<5.0 J	<5.0	1.4 J	2.3
BLM-SW-3 Upper San Carlos Creek (Aurora Mine)	64.2 J	<200 R	<1.0	<1.0 R	<1.0	<1.0 R	21.0	*51.7 J*	<2.0	<2.0 R	<100	<100 R	<1.0	<1.0 R	<0.20	<0.20 R	NA	7.0	3.7 J	<5.0 J	<5.0 R	1.3 J	2.4 J
Acid Mine Drainage Water Samples																							
NIMM-SW-4 AMD (Level 10 Adit)	***135,000***	***132,000***	**72.4**	**66.1**	**1.7**	***1.4***	101	***91.9***	3.4	**3.2**	***502,000***	***497,000***	<1.0	<1.0	<0.20	<0.20	NA	1,530	***1,440***	***11.2 J***	***10.6 J***	**2,500 J**	***2,350***
NIMM-SW-5 AMD (near San Carlos Creek)	***128,000***	***125,000***	**7.2**	**6.2**	**1.7**	**1.2**	51.4	*47.2*	7.1	**8.0**	***325,000***	***318,000***	<1.0	<1.0	**21.2**	***11.2***	2.30 ng/L	1,640	***1,560***	***12.0 J***	***11.3 J***	**2,610 J**	***2,460***
NIMM-SW-5 (duplicate)	**127,000**	NA	**6.7**	NA	**1.6**	NA	49.5	NA	6.6	NA	***322,000***	NA	<1.0	NA	**20.1**	NA	NA	1,610	NA	**12.4 J**	NA	**2,540 J**	NA

Table 5
Summary of 2010 ESI Results for Surface Water Samples
New Idria Mercury Mine
San Benito County, California
Reported in micrograms per liter (equivalent to parts per billion), unless otherwise noted

Sample Number/ Location	Aluminum	Aluminum (dissolved)	Arsenic	Arsenic (dissolved)	Cadmium	Cadmium (dissolved)	Chromium	Chromium (dissolved)	Copper	Copper (dissolved)	Iron	Iron (dissolved)	Lead	Lead (dissolved)	Mercury	Mercury (dissolved)	Methyl Mercury (dissolved)	Nickel	Nickel (dissolved)	Selenium	Selenium (dissolved)	Zinc	Zinc (dissolved)
Surface Water Samples																							
NIMM-SW-3 San Carlos Creek (southern calcine pile)	<200	<200	<1.0	0.21 J	<1.0	<1.0	18.5	*18.8*	0.66J	0.53 J	<200	<100	<1.0	<1.0	**0.28**	**0.30**	0.039 J ng/L	1.8	1.6	0.53 J	0.47 J	2.3 J	1.6 J
NIMM-SW-6 San Carlos Creek (southern calcine pile)	**20,700**	<200	**1.3**	<1.0	0.20 J	<1.0	16.4	<2.0	2.3	1.5 J	***53,200***	***17,000***	<1.0	<1.0	**4.9**	0.16 J	NA	277	***231***	2.2 J	1.0 J	**396 J**	**61.6**
NIMM-SW-7 San Carlos Creek (northern calcine pile)	**23,500**	***576***	**1.9**	<1.0	**1.2**	0.13 J	15.4	<2.0	**17.2**	**3.2**	***43,500***	**456**	0.26 J	<1.0	**4.8**	0.14 J	0.210 ng/L	325	***175***	***8.2 J***	***6.6 J***	**1,150 J**	**66.1**
NIMM-SW-7 (duplicate)	**24,900**	***342***	**1.3**	<1.0	0.99 J	0.077 J	17.4	<2.0	**18.0**	1.4 J	***46,100***	**199**	<1.0	<1.0	**4.7**	0.093 J	0.200 ng/L	349	***172***	***8.7 J***	***6.3 J***	**1,270 J**	**54.9**
NIMM-SW-8 San Carlos Creek (0.6 miles downstream)	**23,800**	***1,140***	**1.8**	<1.0	0.68 J	<1.0	17.7	<2.0	**13.6**	1.5 J	**52,300**	199	<1.0	<1.0	**4.6**	0.14 J	NA	298	***73.2***	***6.1 J***	4.8 J	**987 J**	**13.5**
NIMM-SW-10 San Carlos Creek (2.4 miles downstream)	**4,970**	***338***	0.21 J	<1.0	0.20 J	<1.0	6.2	<2.0	4.1	***2.1***	*11,300*	<100	<1.0	<1.0	**0.79**	<0.20	NA	144	**33.5**	3.5 J	2.9 J	**176 J**	**9.1**
NIMM-SW-12 Larious Creek (attribution)	*62.3 J*	<200	3.5	3.3	<1.0	<1.0	23.2	*23.1*	6.1	6.3	<87.6 J	<100	<1.0	<1.0	<0.20	<0.20	0.086 ng/L	10.9	9.9	*165 J*	*162 J*	4.6 J	4.8
NIMM-SW-14 Silver Creek (5.4 downstream)	<200	<200	2.6	2.3	<1.0	<1.0	8.9	5.9	6.8	6.3	583	**102**	<1.0	<1.0	<0.20	<0.20	0.072 ng/L	17.2	16.1	*113 J*	*105 J*	6.8 J	5.8
Reservoir Water Sample																							
NIMM-SW-2 San Carlos Reservoir	<200	<200	<1.0	<1.0	0.080 J	<1.0	15.1	*14.2*	<2.0	<2.0	<100	<100	<1.0	<1.0	<0.20	<0.20	0.245 ng/L	6.0	4.8	<5.0 J	<5.0	3.1 J	3.8

Table 5
Summary of 2010 ESI Results for Surface Water Samples
New Idria Mercury Mine
San Benito County, California
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Sample Number/ Location	Aluminum	Aluminum (dissolved)	Arsenic	Arsenic (dissolved)	Cadmium	Cadmium (dissolved)	Chromium	Chromium (dissolved)	Copper	Copper (dissolved)	Iron	Iron (dissolved)	Lead	Lead (dissolved)	Mercury	Mercury (dissolved)	Methyl Mercury (dissolved)	Nickel	Nickel (dissolved)	Selenium	Selenium (dissolved)	Zinc	Zinc (dissolved)
Quality Assurance Samples																							
NIMM-SW-17 Equipment blank for dedicated disposable soil sieve	<200 R	NA	<1.0 R	NA	<1.0 R	NA	0.57 J	NA	<2.0 R	NA	<100 R	NA	<1.0 R	NA	<0.2 R	NA	NA	<1.0 R	NA	<1.0 R	NA	62.7 J	NA
NIMM-SW-18 Field Blank	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.019 ng/L	NA	NA	NA	NA	NA	NA
CRQL	200	200	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	100	100	1.0	1.0	0.20	0.20	0.049 ng/L	1.0	1.0	5.0	5.0	2.0	2.0

Notes:
Bold and underlined values are greater or equal to 3 times background concentrations.
Italics = the associated numeric value is greater or equal to the benchmark.
<## = not detected at or above laboratory reporting limit shown.
J = the associated numerical value is qualified and is an estimated quantity.
R = the associated numerical value has been rejected and is not usable.
AMD = acid mine drainage
ng/L = nanograms per liter (equivalent to parts per trillion)
NA = not analyzed
CRQL = Contract required quantitation limit.

The following is a description of the data qualification for metals flagged with a "J" or "R":
Aluminum, is qualified due to detections below the CRQL.
Arsenic is qualified due to detections below the CRQL.
Cadmium is qualified due to detections below the CRQL.
Copper is qualified due to detections below the CRQL.
Iron is qualified due to detections below the CRQL.
Lead is qualified due to detections below the CRQL.
Mercury is qualified due to detections below the CRQL.
Selenium is qualified due to detections below the CRQL and/or Selenium is qualified due to matrix spike recovery results outside of QC limits and may be biased high.
Zinc is qualified due to detections below the CRQL and/or due to ICP serial dilution results are outside of QC limits and may be biased low.
Samples for BLM-SW-3 (dissolved) and NIMM-SW-17 are rejected for non-detect samples and biased low for detections due to inadequate preservation.
Qualified data has been evaluated against the EPA Quick Reference Fact Sheet *Using Qualified Data to Document an Observed Release and Observed Contamination, 1996.*

3.3.4 Calcine Identification

Calcine tailings piles at the Site were observed to be entering San Carlos Creek and are transported downstream during periods of heavy rainfall. Calcines can be distinguished from other gravel based on their size, shape, and reddish color; when a calcine is split, the interior color is typically gray.

Streambeds were inspected for calcines at each downstream sampling location. Suspect calcines were split and screened with the XRF to assess mercury concentrations. The calcines were photographed and mercury concentrations were recorded. Potential calcines were observed at all the downstream sampling locations in the San Carlos, Silver, and Larious Creeks. Possible calcines were observed in Panoche Creek at a gravel operation west of Interstate 5, at the USGS gaging station at Interstate 5, located approximately 25 miles downstream from the NIMM site, in January 2010 while observing a Panoche Creek flood event; however, they were not screened with the XRF. Calcines were also observed at Aurora Mine sampling locations BLM-SW-2 and BLM-SW-3. Any downstream transport of calcines from the Aurora mine are impeded by the San Carlos Creek Reservoir dam (Appendix C, WESTON 2010).

3.3.5 Deviations from the SAP

The following deviations from the NIMM SAP occurred during the field work:

- The SAP specified background sample location NIMM-SW-9/SD-11 to be collected from East Fork San Carlos Creek upstream from its confluence with San Carlos Creek. The sample was relocated to a tributary of the East Fork San Carlos Creek because the access agreement for that property was not available.

- The planned surface water sample locations NIMM-SW-11 and NIMM-SW-13 were not collected as the creek was dry at these locations.

- Three additional surface water samples (BLM-1 through BLM-3) were collected from San Carlos Creek to provide the BLM with current data to assess their reclamation efforts of the mine conducted between 2000 and 2003.

- Calcine identification in the surface water pathway was aided by use of the XRF to provide qualitative mercury concentrations.

- One equipment blank water sample (NIMM-SW-17) and one filtered surface water sample (BLM-3-F) were not preserved in the field and were received by the laboratory with pH of 7.

- The SAP specified that samples collected for methyl mercury analysis would be preserved at the laboratory. The laboratory conducting the methyl mercury analyses recommended field preservation. The surface water samples were collected in pre-preserved bottles supplied by the laboratory.

- The SAP specified that two sediment sample locations have both sieved and un-sieved samples analyzed by the laboratory for comparative analyses. Only one sample location of sieved and un-sieved samples was submitted to the laboratory.

- Surface water samples were not analyzed for total hardness by EPA Method 130.2. Hardness was calculated as $CaCO_3$ from analytical results of calcium and magnesium.

None of these deviations are expected to have any adverse impact on the data or conclusions of this report.

4.0 HAZARD RANKING SYSTEM FACTORS

4.1 Source of Contamination

For HRS purposes, a source is defined as an area where a hazardous substance has been deposited, stored, disposed, or placed, plus those soils that have become contaminated from migration of a hazardous substance.

Potential hazardous substance sources associated with the NIMM include, but may not be limited to:

- Contaminated soils and calcine tailings piles associated with NIMM site. Calcine tailings and waste rock piles cover over 40 acres of the Site with no containment. Portions of the town of Idria may have been built on ravines and slopes filled with tailings during the 120 years of mining activities at the Site. The base of the calcine tailings piles is in San Carlos Creek.

- Mercury was detected in the calcine tailings piles at concentrations significantly* above background**, up to 446 ppm, during the July 2010 ESI sampling. The tailings also contained antinomy, arsenic, barium, beryllium, copper, and selenium at concentrations significantly above background.

- The Level 10 adit AMD discharges to San Carlos Creek at rates of 10 to 20 gallons per minute. The AMD is not treated and there are no functioning containment measures.

- Mercury was detected in the AMD after it drains over tailings at concentrations significantly* above background** prior to discharging to San Carlos Creek. The AMD samples collected at the Level 10 adit did not contain detectable concentrations of mercury; however, they contained dissolved aluminum, arsenic, cadmium, chromium, copper, iron, nickel, selenium, silver, and zinc at concentrations significantly above background.

4.2 Groundwater Pathway

In determining a score for the groundwater migration pathway, the HRS evaluates: 1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to groundwater; 2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and 3) the people (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on the number of people who regularly obtain their drinking water from wells that are located within four miles of the site. The HRS emphasizes drinking water usage over other uses of groundwater (e.g., food crop irrigation and livestock watering), because, as a screening tool, it is designed to give the greatest weight to the most direct and extensively studied exposure routes.

* Significant Release: The release sample is at least three times greater than the background level.
** Background: The concentration of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred.

The Vallecitos Creek Valley Groundwater Basin, of the Tulare Lake Hydrologic Region, is located two miles north of the site. The majority of the basin is located in a northwest-southeast trending synclinal valley in the Coast Range Mountains of eastern San Benito County. The eastern portion of the basin extends along the San Carlos Creek and Silver Creek valley to the Griswold Hills. The middle of the valley is occupied by Quaternary Alluvium surrounded by Plio-Pleistocene nonmarine sediments and Lower Miocene to Paleocene marine sediments. The basin is drained to the northwest and to the east from the syncline divide near the center of the basin. No information was found by the Department of Water Resources in published literature regarding the occurrence of groundwater within the basin. Review of San Joaquin District well completion report files revealed records for three wells. The three wells were all located in the northwest portion of the basin. Well depths ranged from 80 to 122 feet, with initial water levels at 15 to 40 feet. No yield data was provided. There were no well records for the main body of the basin. Review of the USGS topographic maps of the area and a field reconnaissance revealed several stock wells. It is likely that the water bearing units are restricted to the shallow alluvium in the center of the valley (DWR 2004).

Over 30 miles of underground mine shafts and adits, which extend to a depth of approximately 1,300 feet below ground surface, either collect groundwater or drain surface water at the site to the Level 10 adit. It is likely that groundwater to surface water flow is a significant mechanism of contaminant migration at the Site.

There are no known drinking water wells within four miles of the site (WESTON, 2002).

4.3 Surface Water Pathway

In determining the score for the surface water pathway, the HRS evaluates: (1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to surface water (e.g., streams, rivers, lakes, and oceans); (2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, persistence, bioaccumulation potential, and quantity); and (3) the people or sensitive environments (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on drinking water intakes, fisheries, and sensitive environments associated with surface water bodies within 15 miles downstream of the site.

4.3.1 Hydrological Setting

The HRS surface water pathway evaluated in this ESI is along the San Carlos Creek from the Site to Silver Creek and Silver Creek to Panoche Creek. The majority of San Carlos Creek is a perennial stream and becomes an intermittent stream before it reaches the confluence of Larious Creek. Larious and Silver Creeks are also intermittent streams as well as the Panoche at the Silver Creek Confluence. Although the streams are intermittent, they are still evaluated under the HRS as an eligible surface water pathway as the drainage area receives less than 20 inches of mean annual precipitation. Attribution of mercury to San Carlos and Silver Creeks appears to be solely from mines in the New Idria Mining District based on mining records and geological maps of the area. The headwaters of San Carlos Creek are located on the northern slope of San Benito Mountain, located approximately three miles south of the site, and flow into the San Carlos Reservoir which served as a drinking water reservoir for the town of Idria. In addition to the New

Idria Mine, the San Carlos Creek and its tributaries are in the drainage of San Carlos, Aurora, Molina, Creek Pit, Sulfur Spring, Ranchito, H.G. Quicksilver, and Spanish Mines. These mines are located upstream of the Level 10 adit and onsite calcine tailings piles. The Level 10 adit AMD flows overland through calcine and waste rock piles and discharges into San Carlos Creek south of the crossing of New Idria Road. The AMD-impacted San Carlos Creek flows northward along the base of calcine tailings piles for a distance of approximately 2,500 feet resulting in additional mercury contamination. The AMD impact to San Carlos Creek is observed by the deposition of orange iron flocculants deposited on the stream bed and is apparent downstream to Silver Creek. San Carlos Creek becomes Silver Creek at the confluence of Larious Creek. Silver Creek flows northward between the Griswold Hills and Tumey Hills and enters Panoche Creek approximately 19.5 river miles downstream from the calcine tailings piles (Appendix C).

The Panoche Creek, upstream and west of the confluence with Silver Creek, receives drainage from over two dozen mercury mines located on the southern and western hills of the Panoche Valley. The Panoche Creek flows eastward to the Panoche alluvial fan in agricultural land of the Central Valley. The present day Panoche Creek bed terminates at Belmont Avenue approximately seven miles west of the City of Mendota and 15 miles east of Silver Creek (USGS, 2005; Appendix C).

During flood events, surface water from the Panoche Creek flows eastward along the south shoulder of Belmont Avenue. The flood water diverges from Belmont Avenue at the intersection of Douglass Avenue where the majority of the flow crosses over the road and drains north. The Douglass Avenue flood water flows north to Ashland Avenue alignment ponds and over the banks of the Firebaugh No. 3 lift canal where it flows both north and south. The northern flow can enter numerous drains, the southern flow enters the Mendota Pool. The floodwater can also enter the Fresno Slough and San Joaquin River which ultimately flow to the San Francisco Bay and Pacific Ocean (Appendices C and D-1).

A portion of the flood water continues eastward along the south shoulder of Belmont Avenue, crosses beneath the road at the intersection of Lyon Avenue, and continues along the north shoulder of Belmont Avenue. A small portion of this flood water flows north on Washoe Avenue into farmlands. The Belmont flood water continues east to a storm drain at the intersection of Derrick Avenue where it passes beneath the City of Mendota and emerges on the east side of Route 180 where it flows through ditches to the Fresno Slough wetlands or Mendota Pool (Appendices C and D-1).

4.3.2 Surface Water Targets

The target distance limit for the NIMM Site is approximately 20 miles downstream. The July 2010 ESI sampling event documented the furthest downstream sampling point, meeting the criteria for an observed release, to be located at the Silver Creek confluence with Panoche Creek. There are no known surface water intakes within 20 miles downstream of the Site. Surface water is utilized by residences, located approximately one mile downstream of the Site, as a non-potable water source after it passes through a treatment system. The installation of a new water line by the residents was in progress to obtain surface water from San Carlos Creek at a location upstream of the AMD discharge and upstream of sample location NIMM-SW-3 (Appendix C).

The San Carlos Creek reservoir, located upstream of the AMD discharge and calcine tailings piles and downstream of some of the New Idria Mining District Mines, historically has been used as a drinking water source and could be utilized in the future as a water supply. Surface water in San Carlos and Silver Creeks is also used for livestock watering (E&E, 1998).

There are no commercial or recreational fisheries along the surface water pathway 20 mile TDL. The Mendota Pool and San Joaquin River, located eight miles downgradient from the TDL, are used as a recreational fishery (Appendix C).

The EPA conducted a survey of the surface water pathway for wetlands along San Carlos Creek and Silver Creek and portions of Panoche Creek as described in section 3.2 of this report. The inspection confirmed the presence of jurisdictional wetlands in the following areas: (1) the entire perimeter of the Reservoir Site; (2) a relatively small patch at the outlet of the AMD Portal Site; (3) adjacent to both banks of San Carlos Creek from the town of New Idria downstream to its confluence with Larious Creek; and (4) adjacent to both banks of Silver Creek from the confluences of San Carlos and Larious creeks downstream to its confluence with Panoche Creek (EPA 2010c).

The presence of these wetlands and intermittent pools of water provide a unique habitat in an otherwise arid environment of the Tumey and Griswold Hills and the Panoche Valley. Palustrine wetlands are also reported to occur along the surface water pathway in Panoche Creek to Belmont Avenue (EPA, 2010c; USFWS, 2009).

Habitats for threatened or endangered species are present in the vicinity of the Site and downstream of the Site. Federally threatened species that may be present along the surface water pathway include the California tiger salamander, California red-legged frog, Giant Garter Snake, palmate-bracted bird's-beak, vernal pool fairy shrimp, and Western snowy plover (wintering), The threatened San Benito evening primrose may be located in serpentinite soils in and around the New Idria Mining District. Federally endangered species that may be present along the surface water pathway include the California Condor, San Joaquin Kit Fox, Giant Kangaroo Rat, Fresno kangaroo rat, Blunt-nosed Leopard Lizard, San Joaquin woollythreads, and palmate-bracted bird's-beak (USFWS, 2010; Appendix C).

State endangered species that may be present along the surface water pathway include the western yellow-billed cuckoo. State threatened species that may be present along the surface water pathway include the bank swallow, Nelson's antelope squirrel, and Swanson's hawk. State species of concern that may be present along the surface water pathway include the Western pond turtle (USFWS, 2010; Appendix C).

The San Joaquin Antelope Squirrel, Golden Eagle, Prairie Falcon, Burrowing Owl, Cooper’s Hawk, Northern Harrier, and Long Eared Owl are among the species of concern that may be present in the New Idria Mining District (BLM, 2009).

4.3.3 Surface Water Pathway Conclusion

Based on the 2010 ESI surface water and sediment sampling results, a release of aluminum, arsenic, copper, iron, mercury, nickel, selenium and zinc to San Carlos Creek was documented, as defined by the HRS. For HRS purposes, a release to surface water is documented when a hazardous substance is detected in a downstream water or sediment samples at a concentration significantly* above background** levels (i.e., detected downstream when not detected upstream; or detected at a concentration greater than or equal to three times background when detected upstream). A release of mercury was documented further downstream in Silver and Panoche Creeks and the furthest reaches of the mercury release have not been determined. Results of the ESI sampling event relating to a release to surface water are presented in Tables 4 and 5.

The target distance limit for the NIMM Site is approximately 20 miles downstream from the Site to Panoche Creek. Wetlands impacted with mercury are present along the entire surface water pathway (San Carlos and Silver Creeks) to approximately 20 miles downstream from the Site. The presence of these wetlands and intermittent pools of water provide a unique habitat in an otherwise arid environment of the Tumey and Griswold Hills and the Panoche Valley. Palustrine wetlands are also reported to occur along the surface water pathway in Panoche Creek to Belmont Avenue. Seven federally endangered species and six threatened species may be located along the surface water pathway. Surface water in San Carlos and Silver Creeks is also used for livestock watering (Appendix C; EPA, 2010; USFWS, 2010; E&E, 1998).

4.4 Soil Exposure and Air Migration Pathways

In determining the score for the soil exposure pathway, the HRS evaluates: (1) the likelihood that surficial contamination is associated with the site (e.g., contaminated soil that is not covered by pavement or at least 2 feet of clean soil); (2) the characteristics of the hazardous substances in the surficial contamination (i.e., toxicity and quantity); and (3) the people or sensitive environments (targets) who actually have been, or potentially could be, exposed to the contamination. For the targets component of the evaluation, the HRS focuses on populations that are regularly and currently present on or within 200 feet of surficial contamination. The four populations that receive the most weight are residents, students, daycare attendees, and terrestrial sensitive environments.

In determining the score for the air migration pathway, the HRS evaluates: (1) the likelihood that sources at a site actually have released, or potentially could release, hazardous substances to ambient outdoor air; (2) the characteristics of the hazardous substances that are available for a release (i.e., toxicity, mobility, and quantity); and (3) the people or sensitive environments (targets) who actually have been, or potentially could be, impacted by the release. For the targets component of the evaluation, the HRS focuses on regularly occupied residences, schools, and workplaces within 200 feet of the site. Transient populations, such as customers and travelers passing through the area, are not counted.

As discussed in Section 3.3.1, contaminated soils and tailings piles are located at the Site at concentrations significantly* above background**. Concentrations of arsenic, chromium (assuming hexavalent chromium), and mercury, exceed their RSL for industrial soil and may pose a risk to site visitors.

* Significant Release: The release sample is at least three times greater than the background level.
** Background: The concentration of a hazardous substance that provides a defensible reference point that can be used to evaluate whether or not a release from the site has occurred.

There are currently no schools, daycare centers, regularly occupied residences, or sensitive environments on site and within 200 feet of potentially contaminated areas (Appendix C).

5.0 EMERGENCY RESPONSE CONSIDERATIONS

The National Contingency Plan [40 CFR 300.415 (b) (2)] authorizes the EPA to consider emergency response actions at those sites that pose an imminent threat to human health or the environment. For the following reasons, a referral to EPA Region 9's Emergency Response Office does not appear to be necessary:

- Although tailings at the Site exceed RSLs for arsenic, mercury, and possibly chromium in industrial soil, the Site is remote and posted with signs indicating potential hazards exist.
- There are no drinking water diversions along the surface water pathway.

6.0 SUMMARY

The New Idria Mercury Mine (NIMM) site is on 8,000 acres of private land in the Diablo Mountain Range and incorporates the abandoned town of Idria in San Benito County, California. The mine is located in the New Idria Mining District, which includes over a dozen smaller mercury mines. The abandoned town of Idria was comprised of dozens of dilapidated buildings until a fire in July 2010 destroyed nearly half of the historic structures in the northern portion of the town. A small reservoir, constructed by damming San Carlos Creek south of the town, was used as the local drinking water source. Extensive waste rock and calcine tailings piles (0.5 to 2 million tons) cover over 40 acres at the Site and have no engineered liner or drainage controls. A large furnace and process area and other mine working features remain at the Site. Acid mine drainage (AMD) from the Level 10 adit runs between a waste rock pile and calcine tailings pile, and ultimately discharges to San Carlos Creek. The NIMM operated from 1854 to the early 1970s, was the second most productive mercury mine in North America, and produced over 500,000 flasks of mercury.

Although regulated by the RWQCB starting in the late 1960s, surface water discharges of AMD from the mine remain uncontrolled after the mine shut down in the early 1970s. The EPA, USGS, RWQCB, and academic institutions have conducted investigations at the NIMM site and surrounding area to assess mercury contamination in sources at the Site and in creeks downstream of the mine. The EPA recommended further assessment under CERCLA and referred the Site to the RWQCB. Due to a lack of a viable responsible party and relatively low priority associated with the remoteness of the NIMM site, no remedial measure was implemented.

In 2006, under Section 303(d) of the Clean Water Act, a 5.1 mile segment of San Carlos Creek downstream of New Idria Mine and the portion of Panoche Creek between Silver Creek and Belmont Avenue were listed as impacted by mercury from resource extraction and abandoned mines. A Total Maximum Daily Load for mercury in these creeks has an estimated completion of 2020.

The documented presence of wetlands and intermittent pools of water along San Carlos and Silver creeks between the NIMM site and Panoche Creek provide over 20 miles of unique ecological habitat in the otherwise arid environment of the Tumey and Griswold Hills and the Panoche Valley in the Diablo Range. Habitats for six (6) six threatened and seven (7) endangered species are present in the vicinity of the NIMM and downstream of the Site.

A hydraulic connection from the Panoche Creek to the Mendota Pool, Fresno Slough, and San Joaquin River is present during periods of heavy rainfall and flood events that occur at least once a decade. The San Joaquin River Restoration Project, located downstream of the Site, is restoring salmon and other fish habitats to the river. The San Francisco Bay, a fishery with known mercury contamination, is located downstream of the NIMM site.

The 2010 Expanded Site Inspection (ESI) sampling results documented releases of aluminum, arsenic, copper, iron, mercury, nickel, selenium and zinc in the San Carlos Creek, and of mercury in the entire length of Silver Creek to Panoche Creek, nearly 20 miles downstream from the NIMM site. The extent of mercury contamination in the Panoche Creek is undetermined.

There are no drinking water diversions along the surface water pathway. There are no residences, schools, daycare centers, or regularly occupied workplaces on the NIMM site.

Based on the 2010 ESI, the following pertinent Hazard Ranking System factors are associated with the site:

- Several metals were detected at concentrations significantly above background concentrations in AMD and calcine tailings piles, the latter of which cover over 40 acres at the Site. Both calcine tailings piles and AMD were observed entering San Carlos Creek.

- Some of these same hazardous substances were detected at concentrations significantly above background levels, as defined by the HRS, in San Carlos Creek. Mercury was detected at concentrations significantly above background levels in the San Carlos, Silver, and Panoche creeks as far as 20 miles downstream from the Site.

- Over 20 miles of wetlands, along the San Carlos and Silver creeks, are documented as impacted by mercury. The San Carlos and Silver creeks are characterized by extensive wetlands in a predominantly arid, upland environment. As such, the aquatic and wetland habitats, and dependent animal species, are of regional ecological significance. Only a few large watersheds in the 200-mile long Diablo Range are characterized as having intermittent or perennial flow conditions for water flowing east to the San Joaquin Valley.

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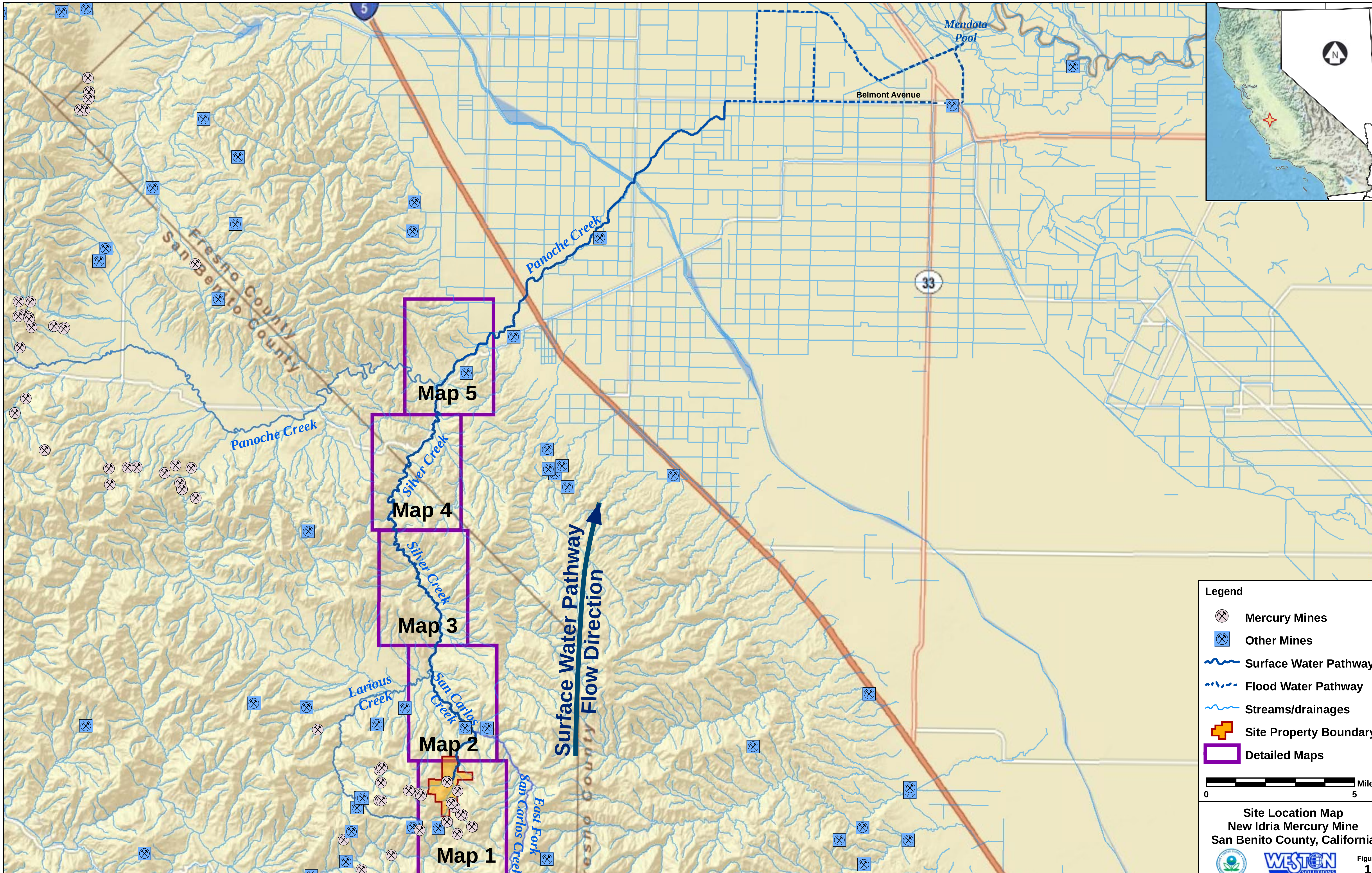
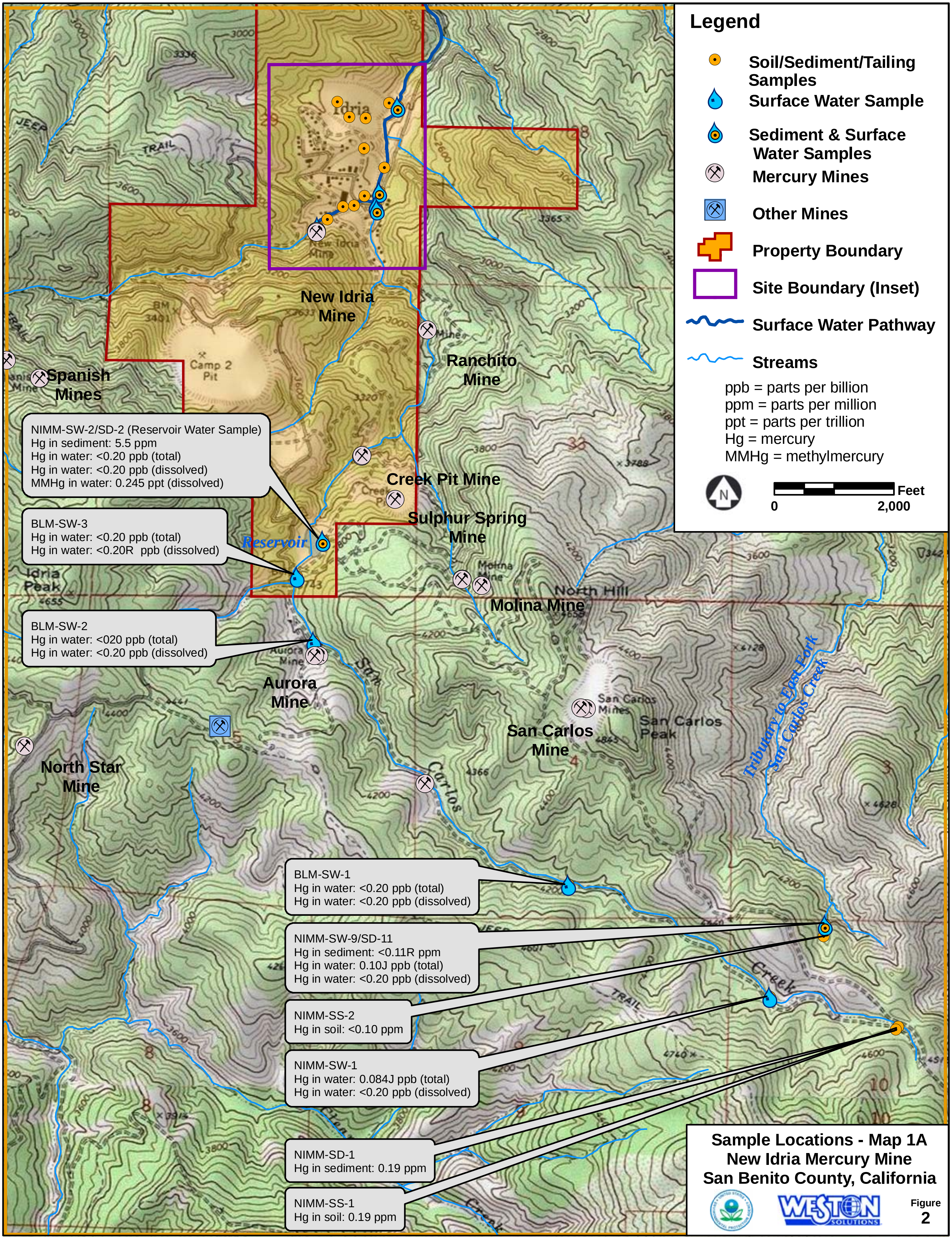
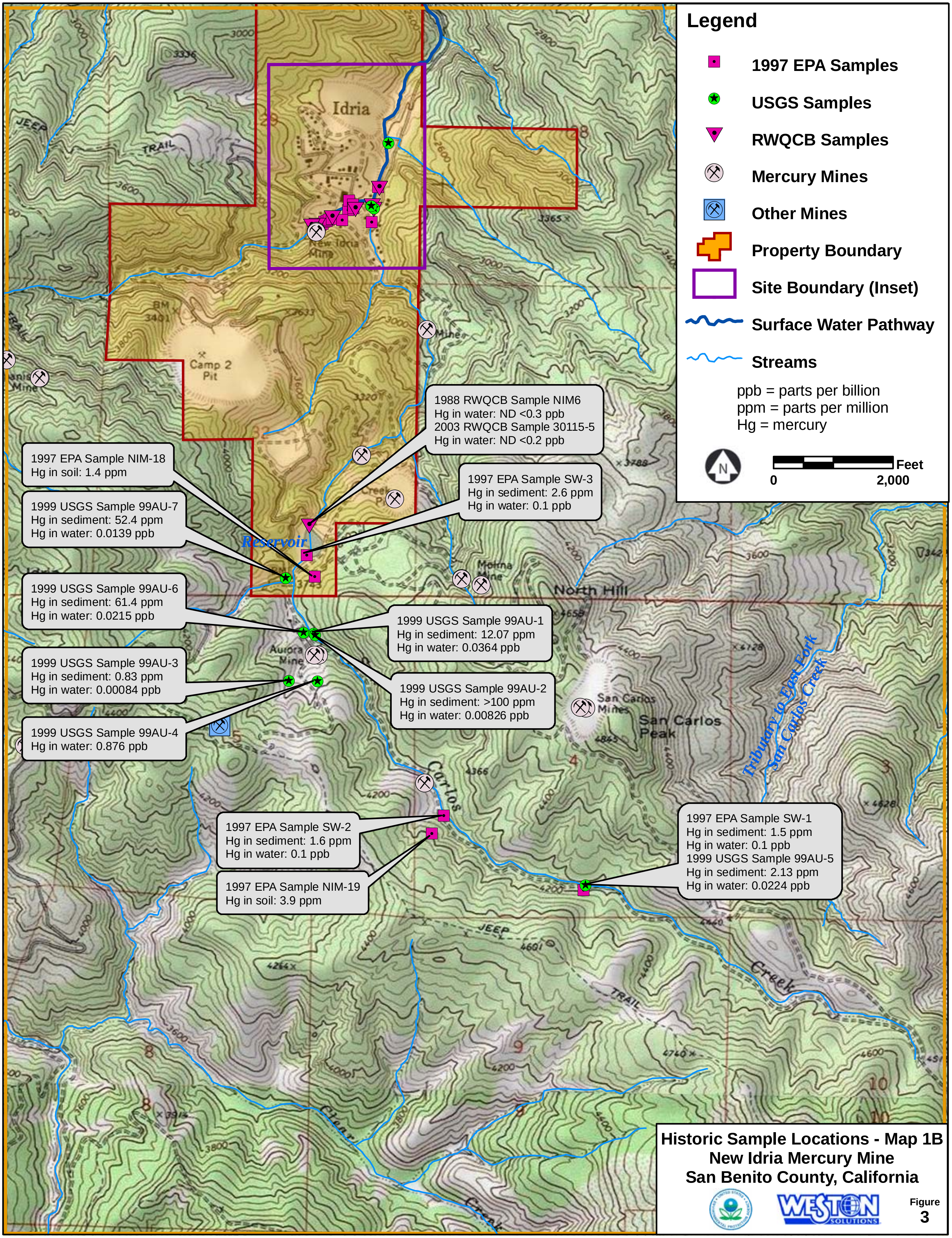
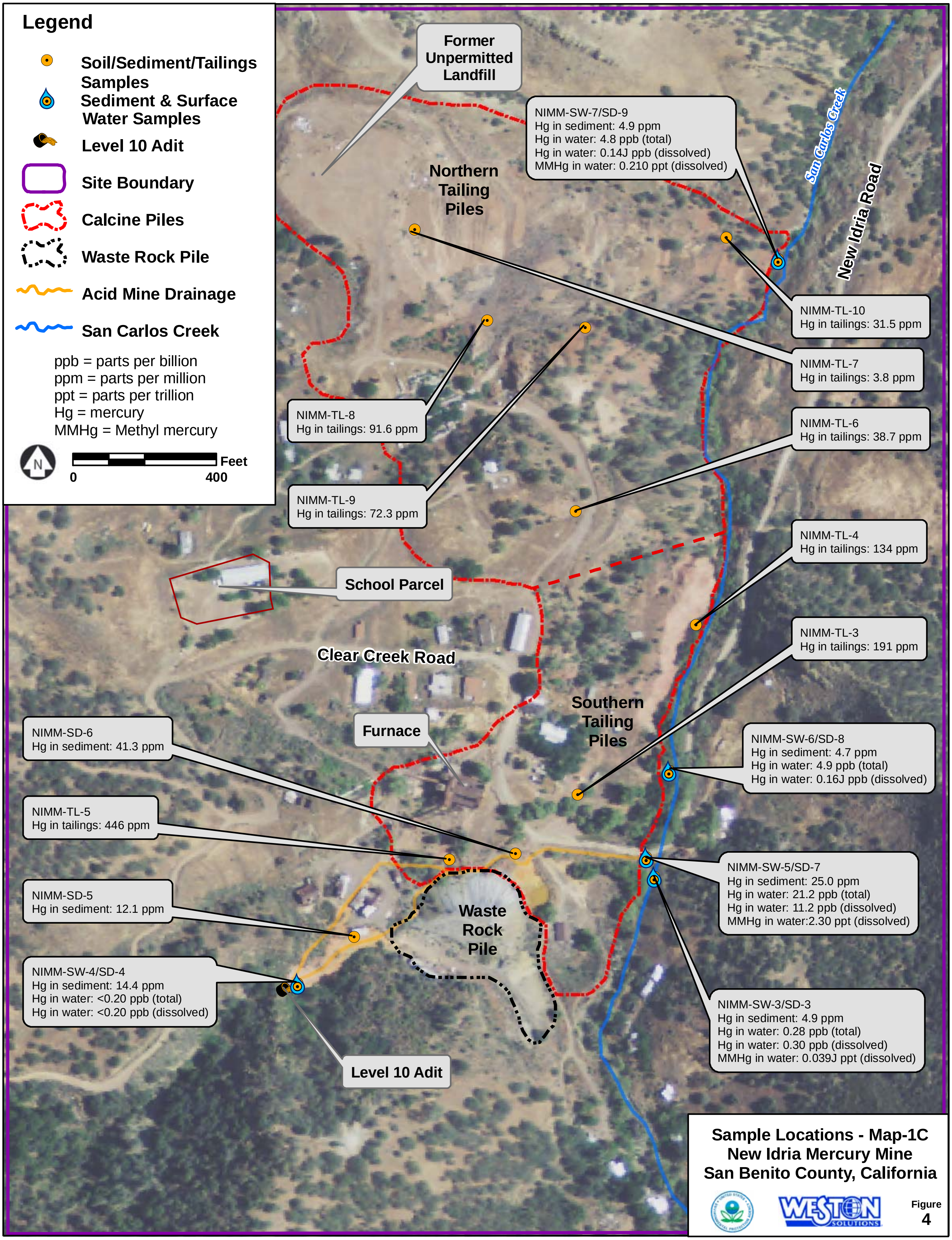
FIGURES

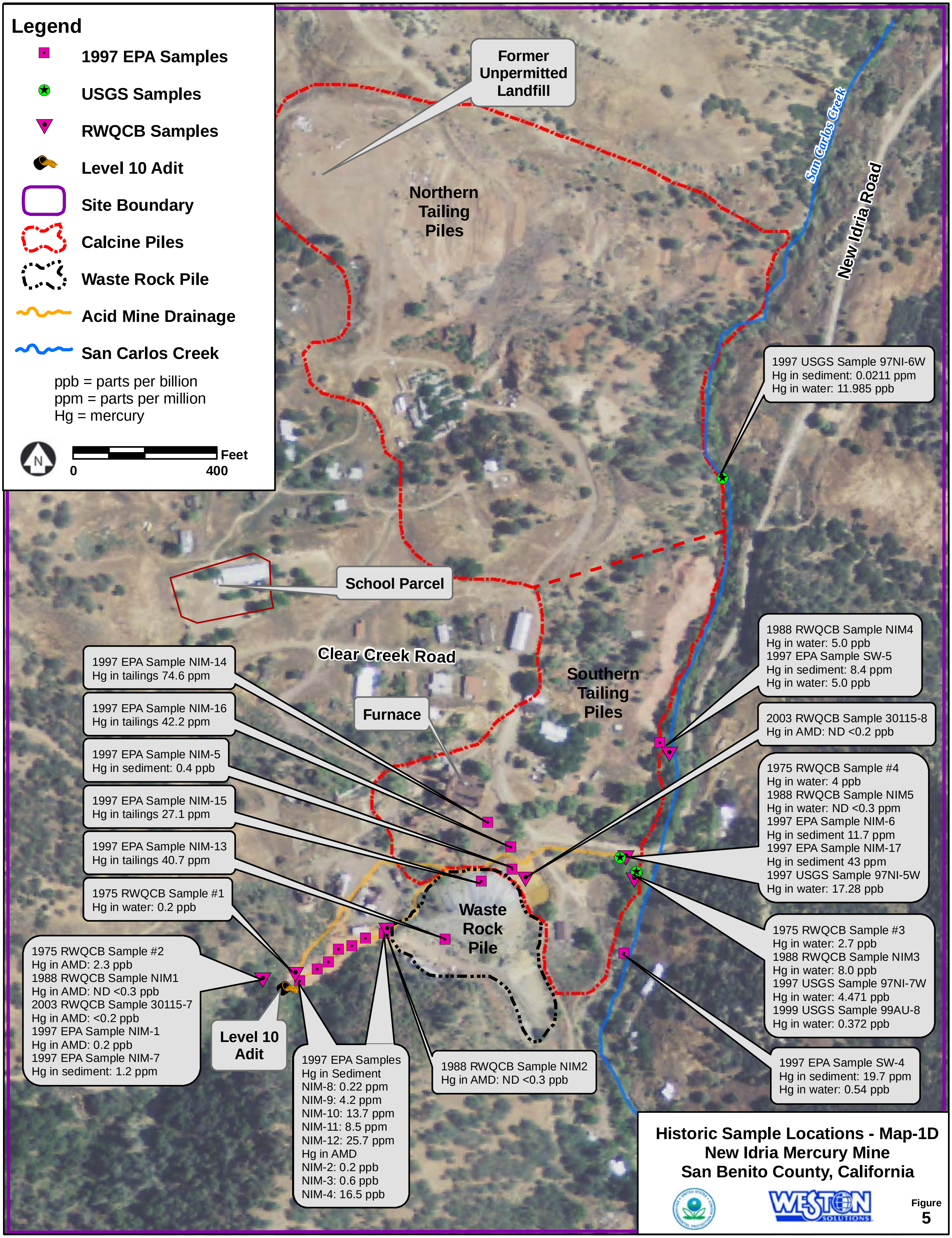


Mendota Pool
Belmont Avenue
5
33
Panoche Creek
Fresno County
San Benito County
Map 5
Map 4
Map 3
Map 2
Map 1
Silver Creek
Larious Creek
San Carlos Creek
East Fork
Surface Water Pathway
Flow Direction
Legend
Mercury Mines
Other Mines
Surface Water Pathway
Flood Water Pathway
Streams/drainages
Site Property Boundary
Detailed Maps
0
5
Miles
Site Location Map
New Idria Mercury Mine
San Benito County, California
Figure 1


Legend
Soil/Sediment/Tailing Samples
Surface Water Sample
Sediment & Surface Water Samples
Mercury Mines
Other Mines
Property Boundary
Site Boundary (Inset)
Surface Water Pathway
Streams
ppb = parts per billion
ppm = parts per million
ppt = parts per trillion
Hg = mercury
MMHg = methylmercury
N
Feet
0
2,000
New Idria Mine
Spanish Mines
Ranchito Mine
Creek Pit Mine
Sulphur Spring Mine
Molina Mine
Aurora Mine
North Star Mine
San Carlos Mine
San Carlos Peak
North Hill
Idria Peak
Camp 2 Pit
Reservoir
Tributary to East Fork San Carlos Creek
NIMM-SW-2/SD-2 (Reservoir Water Sample)
Hg in sediment: 5.5 ppm
Hg in water: <0.20 ppb (total)
Hg in water: <0.20 ppb (dissolved)
MMHg in water: 0.245 ppt (dissolved)
BLM-SW-3
Hg in water: <0.20 ppb (total)
Hg in water: <0.20R ppb (dissolved)
BLM-SW-2
Hg in water: <020 ppb (total)
Hg in water: <0.20 ppb (dissolved)
BLM-SW-1
Hg in water: <0.20 ppb (total)
Hg in water: <0.20 ppb (dissolved)
NIMM-SW-9/SD-11
Hg in sediment: <0.11R ppm
Hg in water: 0.10J ppb (total)
Hg in water: <0.20 ppb (dissolved)
NIMM-SS-2
Hg in soil: <0.10 ppm
NIMM-SW-1
Hg in water: 0.084J ppb (total)
Hg in water: <0.20 ppb (dissolved)
NIMM-SD-1
Hg in sediment: 0.19 ppm
NIMM-SS-1
Hg in soil: 0.19 ppm
Sample Locations - Map 1A
New Idria Mercury Mine
San Benito County, California
WESTON SOLUTIONS
Figure 2


Legend
1997 EPA Samples
USGS Samples
RWQCB Samples
Mercury Mines
Other Mines
Property Boundary
Site Boundary (Inset)
Surface Water Pathway
Streams
ppb = parts per billion
ppm = parts per million
Hg = mercury
Feet
0
2,000
1988 RWQCB Sample NIM6
Hg in water: ND <0.3 ppb
2003 RWQCB Sample 30115-5
Hg in water: ND <0.2 ppb
1997 EPA Sample NIM-18
Hg in soil: 1.4 ppm
1997 EPA Sample SW-3
Hg in sediment: 2.6 ppm
Hg in water: 0.1 ppb
1999 USGS Sample 99AU-7
Hg in sediment: 52.4 ppm
Hg in water: 0.0139 ppb
1999 USGS Sample 99AU-6
Hg in sediment: 61.4 ppm
Hg in water: 0.0215 ppb
1999 USGS Sample 99AU-1
Hg in sediment: 12.07 ppm
Hg in water: 0.0364 ppb
1999 USGS Sample 99AU-3
Hg in sediment: 0.83 ppm
Hg in water: 0.00084 ppb
1999 USGS Sample 99AU-2
Hg in sediment: >100 ppm
Hg in water: 0.00826 ppb
1999 USGS Sample 99AU-4
Hg in water: 0.876 ppb
1997 EPA Sample SW-2
Hg in sediment: 1.6 ppm
Hg in water: 0.1 ppb
1997 EPA Sample NIM-19
Hg in soil: 3.9 ppm
1997 EPA Sample SW-1
Hg in sediment: 1.5 ppm
Hg in water: 0.1 ppb
1999 USGS Sample 99AU-5
Hg in sediment: 2.13 ppm
Hg in water: 0.0224 ppb
Idria
New Idria Mine
Camp 2 Pit
Reservoir
North Hill
Aurora Mine
San Carlos Mines
San Carlos Peak
Tributary to East Fork San Carlos Creek
Carlos
Creek
JEEP TRAIL
Historic Sample Locations - Map 1B
New Idria Mercury Mine
San Benito County, California
WESTON SOLUTIONS
Figure
3

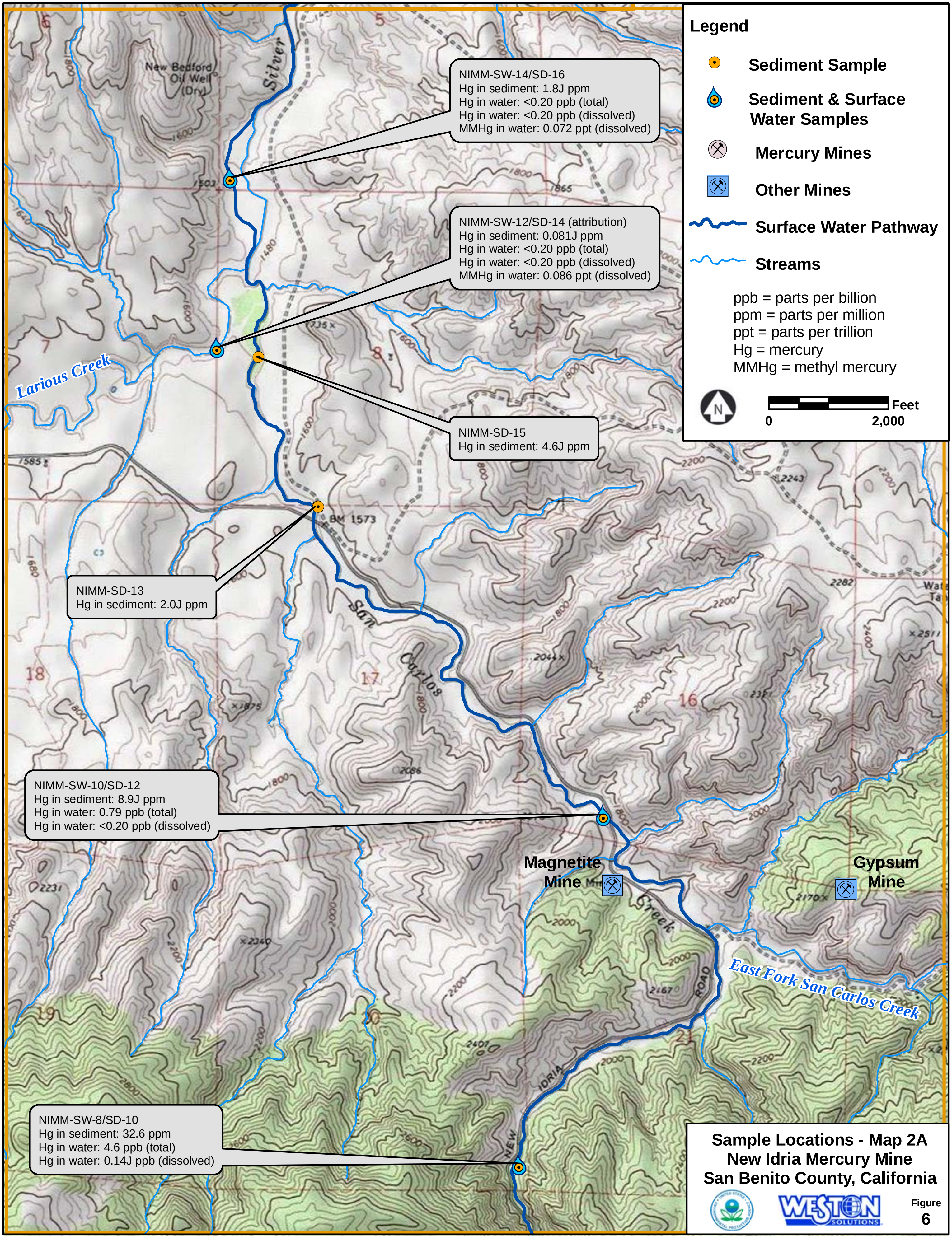

Legend
Soil/Sediment/Tailings Samples
Sediment & Surface Water Samples
Level 10 Adit
Site Boundary
Calcine Piles
Waste Rock Pile
Acid Mine Drainage
San Carlos Creek
ppb = parts per billion
ppm = parts per million
ppt = parts per trillion
Hg = mercury
MMHg = Methyl mercury
N
Feet
0
400
Former Unpermitted Landfill
Northern Tailing Piles
NIMM-SW-7/SD-9
Hg in sediment: 4.9 ppm
Hg in water: 4.8 ppb (total)
Hg in water: 0.14J ppb (dissolved)
MMHg in water: 0.210 ppt (dissolved)
San Carlos Creek
New Idria Road
NIMM-TL-10
Hg in tailings: 31.5 ppm
NIMM-TL-7
Hg in tailings: 3.8 ppm
NIMM-TL-8
Hg in tailings: 91.6 ppm
NIMM-TL-6
Hg in tailings: 38.7 ppm
NIMM-TL-9
Hg in tailings: 72.3 ppm
NIMM-TL-4
Hg in tailings: 134 ppm
School Parcel
NIMM-TL-3
Hg in tailings: 191 ppm
Clear Creek Road
Southern Tailing Piles
Furnace
NIMM-SD-6
Hg in sediment: 41.3 ppm
NIMM-SW-6/SD-8
Hg in sediment: 4.7 ppm
Hg in water: 4.9 ppb (total)
Hg in water: 0.16J ppb (dissolved)
NIMM-TL-5
Hg in tailings: 446 ppm
NIMM-SW-5/SD-7
Hg in sediment: 25.0 ppm
Hg in water: 21.2 ppb (total)
Hg in water: 11.2 ppb (dissolved)
MMHg in water:2.30 ppt (dissolved)
NIMM-SD-5
Hg in sediment: 12.1 ppm
Waste Rock Pile
NIMM-SW-4/SD-4
Hg in sediment: 14.4 ppm
Hg in water: <0.20 ppb (total)
Hg in water: <0.20 ppb (dissolved)
NIMM-SW-3/SD-3
Hg in sediment: 4.9 ppm
Hg in water: 0.28 ppb (total)
Hg in water: 0.30 ppb (dissolved)
MMHg in water: 0.039J ppt (dissolved)
Level 10 Adit
Sample Locations - Map-1C
New Idria Mercury Mine
San Benito County, California
WESTON SOLUTIONS
Figure
4



Historic Sample Locations - Map-1D
New Idria Mercury Mine
San Benito County, California

WESTON SOLUTIONS

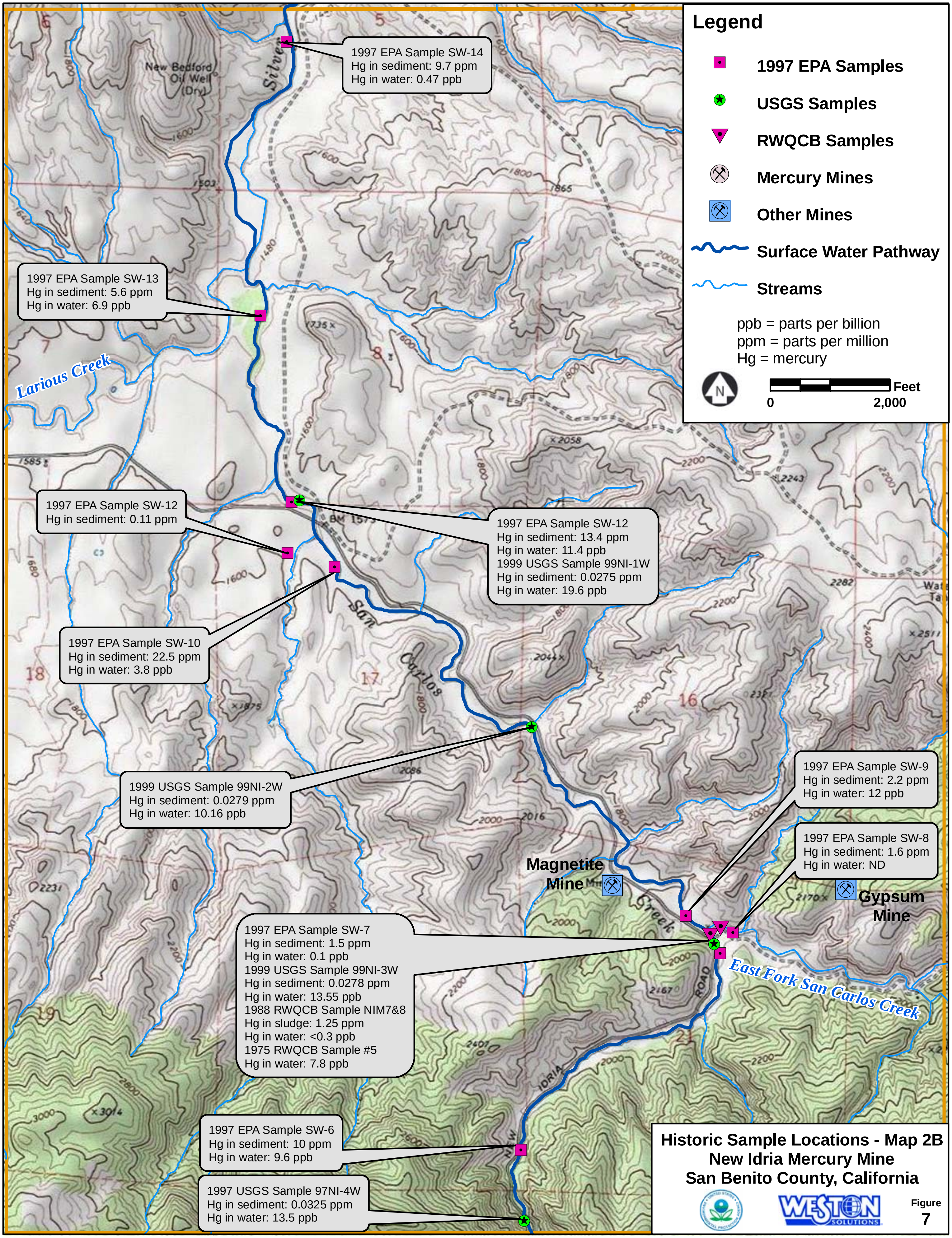
Figure
5



Sample Locations - Map 2A
New Idria Mercury Mine
San Benito County, California

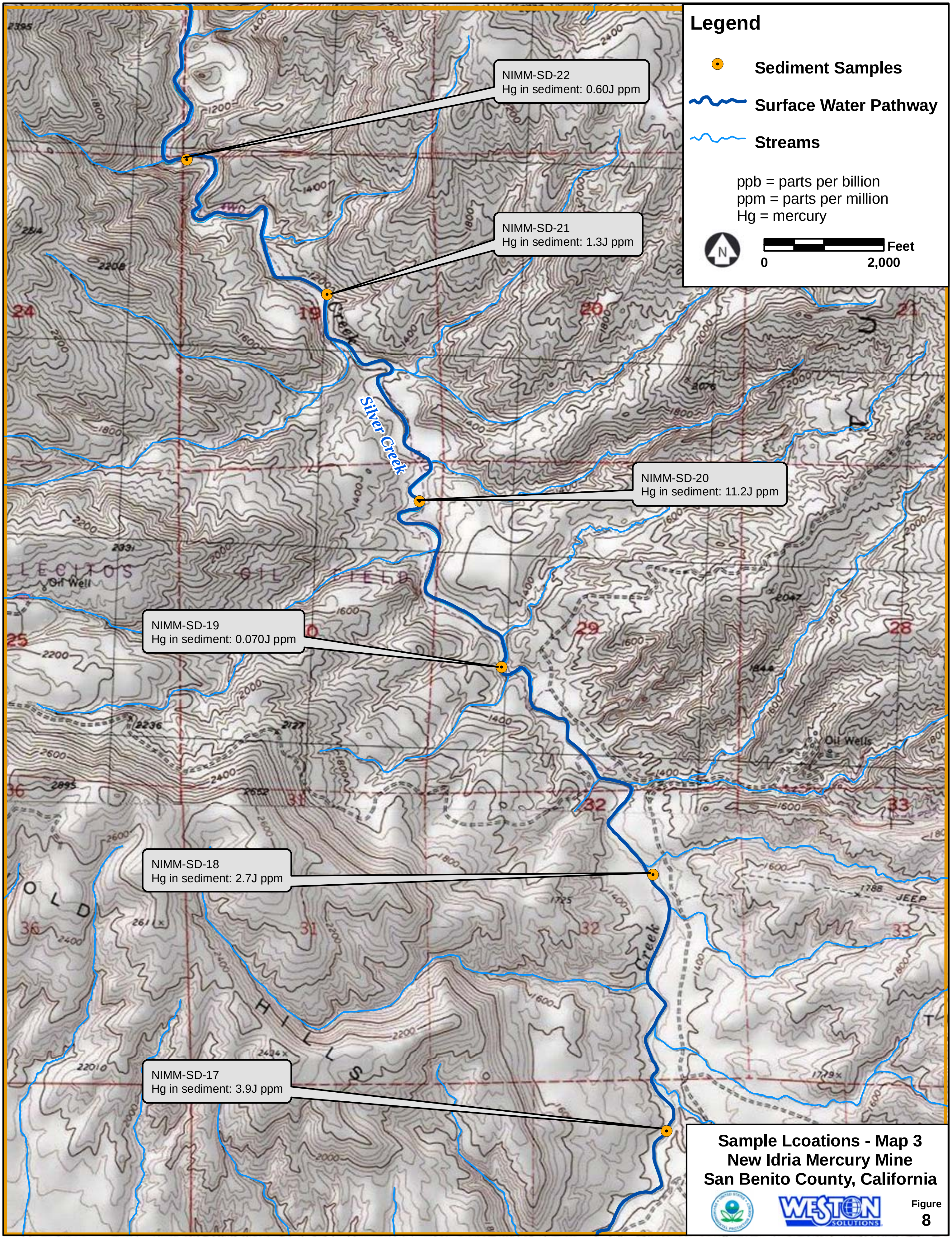
WESTON SOLUTIONS

Figure 6

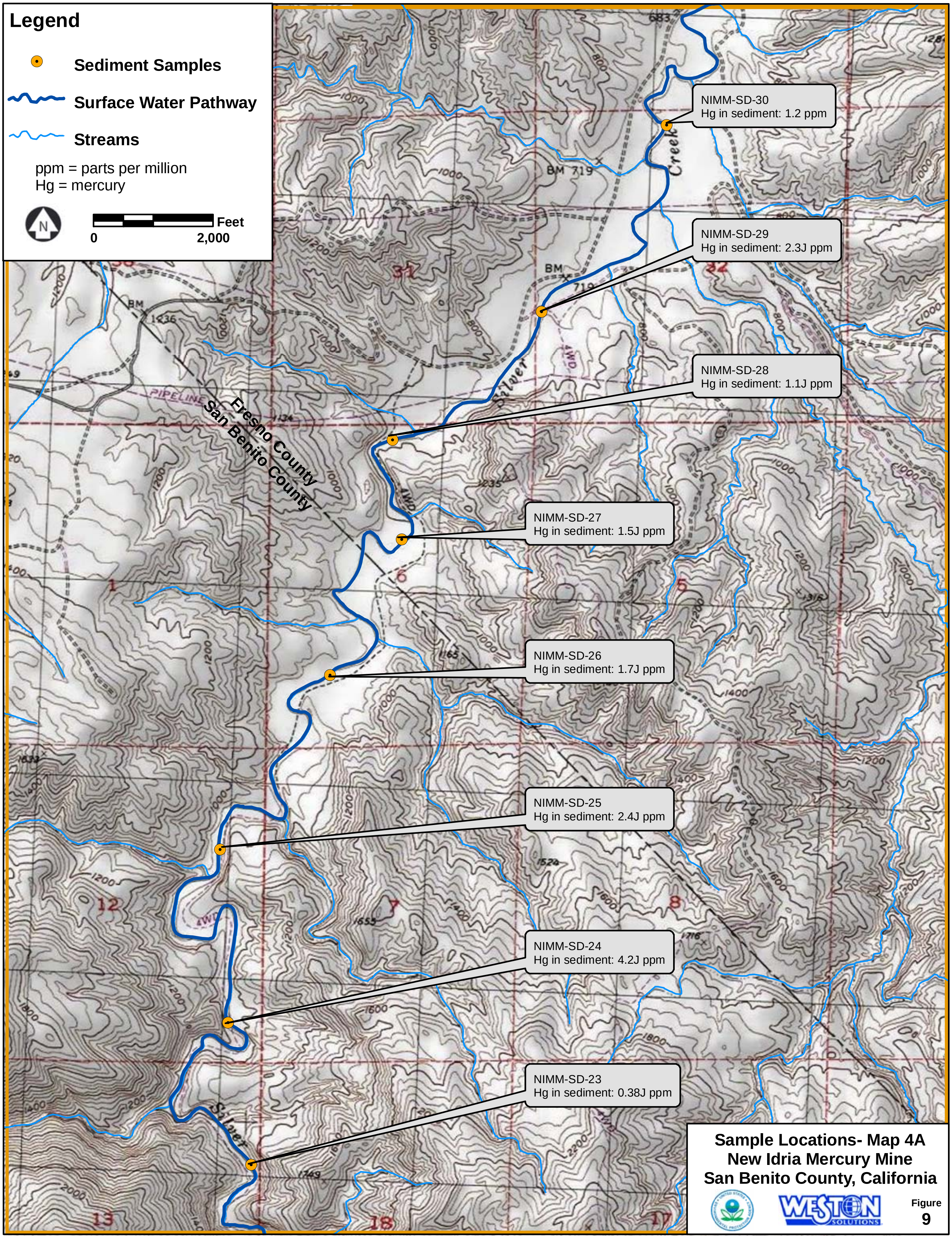


Historic Sample Locations - Map 2B
New Idria Mercury Mine
San Benito County, California

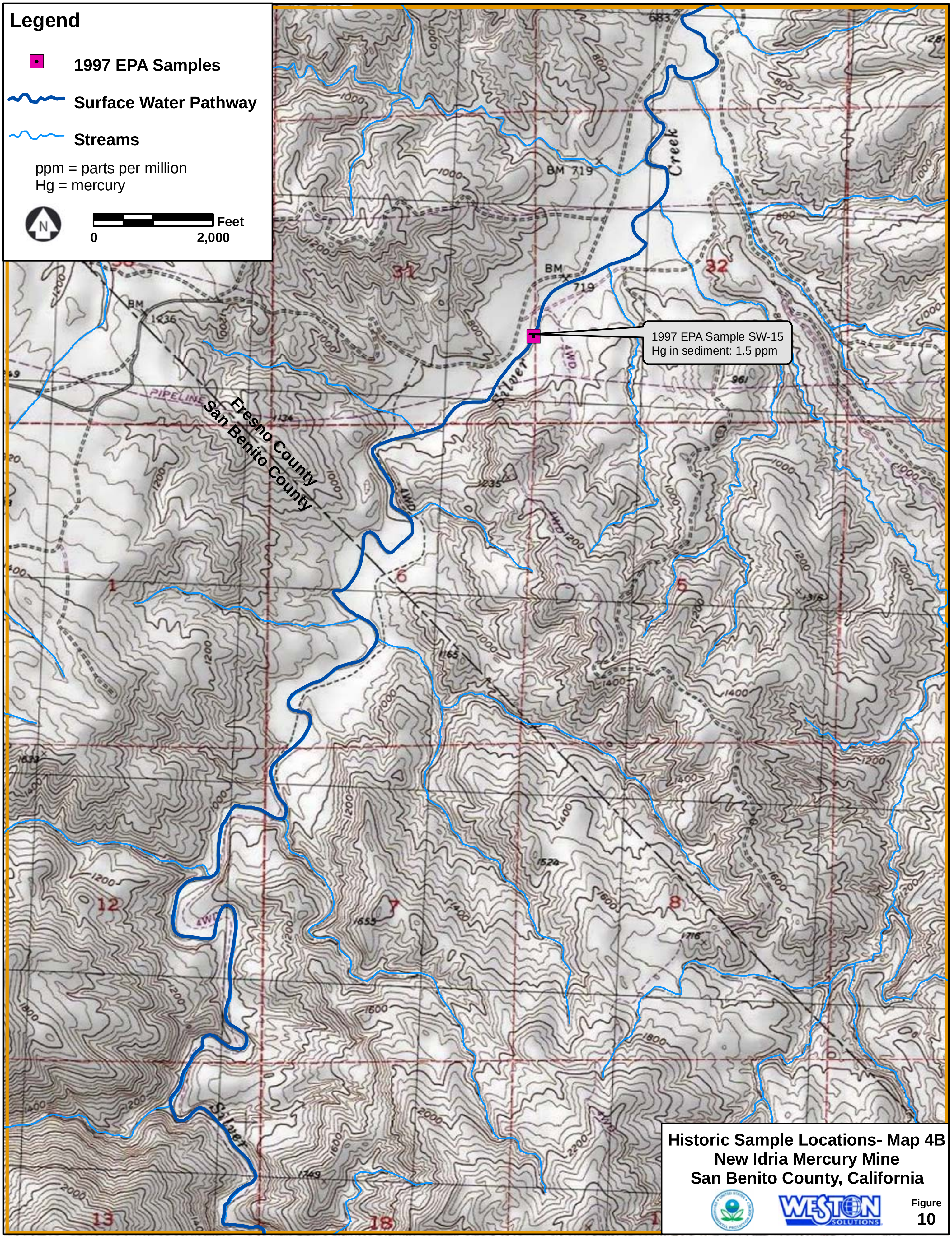
Figure
7



Legend
Sediment Samples
Surface Water Pathway
Streams
ppb = parts per billion
ppm = parts per million
Hg = mercury
N
Feet
0
2,000
NIMM-SD-22
Hg in sediment: 0.60J ppm
NIMM-SD-21
Hg in sediment: 1.3J ppm
Silver Creek
NIMM-SD-20
Hg in sediment: 11.2J ppm
NIMM-SD-19
Hg in sediment: 0.070J ppm
NIMM-SD-18
Hg in sediment: 2.7J ppm
NIMM-SD-17
Hg in sediment: 3.9J ppm
Sample Lcoations - Map 3
New Idria Mercury Mine
San Benito County, California
WESTON SOLUTIONS
Figure
8

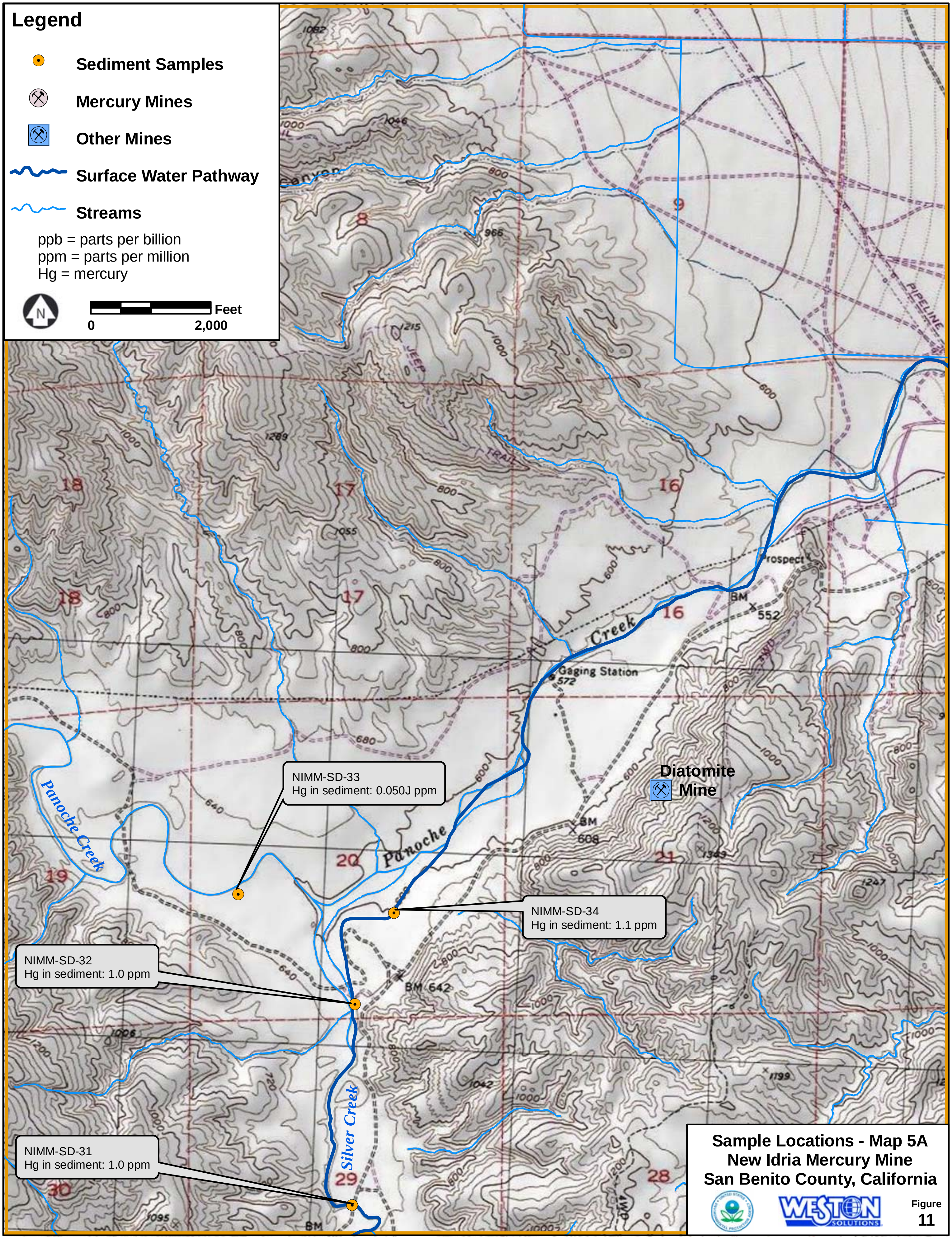


Legend
Sediment Samples
Surface Water Pathway
Streams
ppm = parts per million
Hg = mercury
N
Feet
0
2,000
NIMM-SD-30
Hg in sediment: 1.2 ppm
NIMM-SD-29
Hg in sediment: 2.3J ppm
NIMM-SD-28
Hg in sediment: 1.1J ppm
NIMM-SD-27
Hg in sediment: 1.5J ppm
NIMM-SD-26
Hg in sediment: 1.7J ppm
NIMM-SD-25
Hg in sediment: 2.4J ppm
NIMM-SD-24
Hg in sediment: 4.2J ppm
NIMM-SD-23
Hg in sediment: 0.38J ppm
Fresno County
San Benito County
Silver Creek
Sample Locations- Map 4A
New Idria Mercury Mine
San Benito County, California
WESTON SOLUTIONS
Figure
9



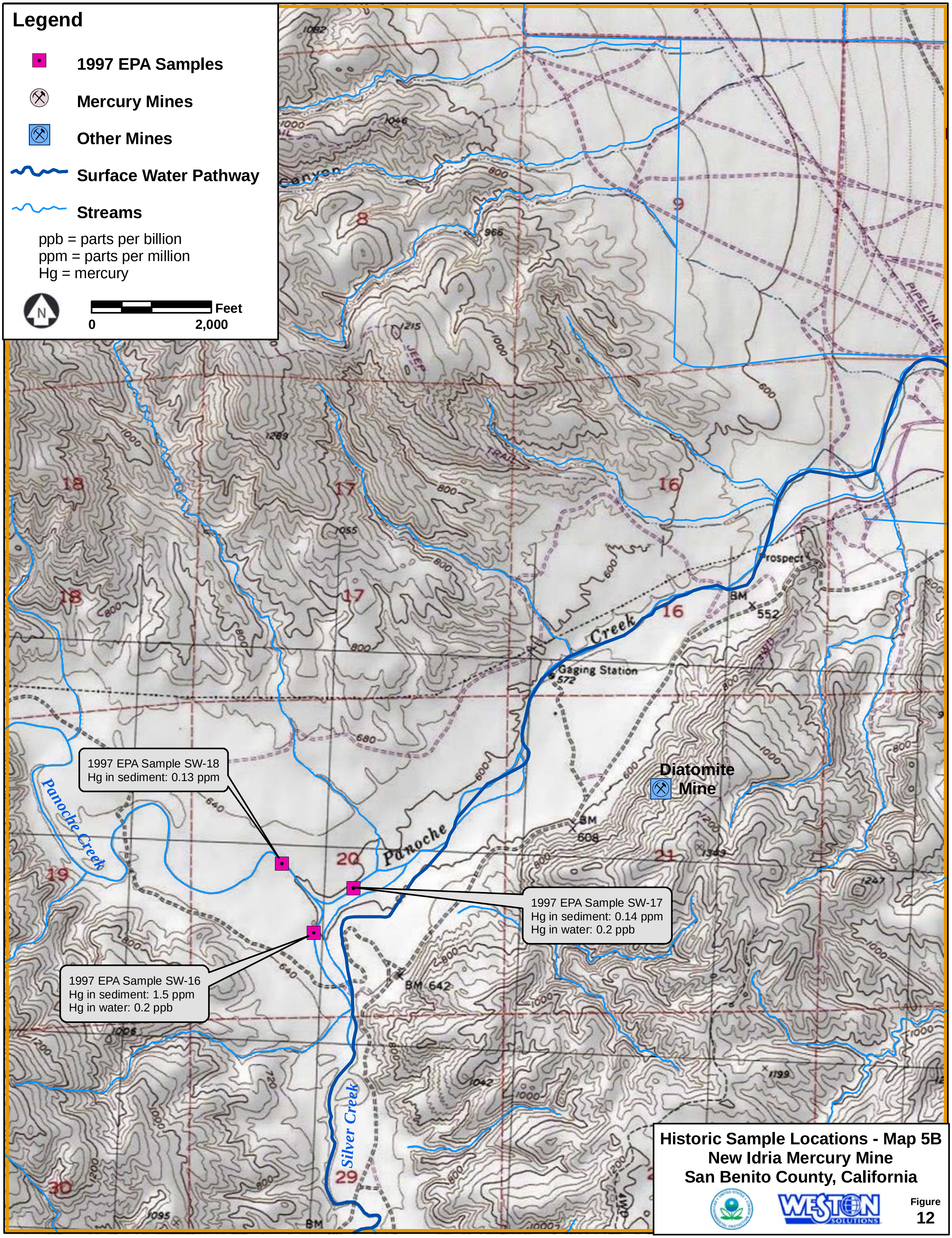
Historic Sample Locations- Map 4B
New Idria Mercury Mine
San Benito County, California

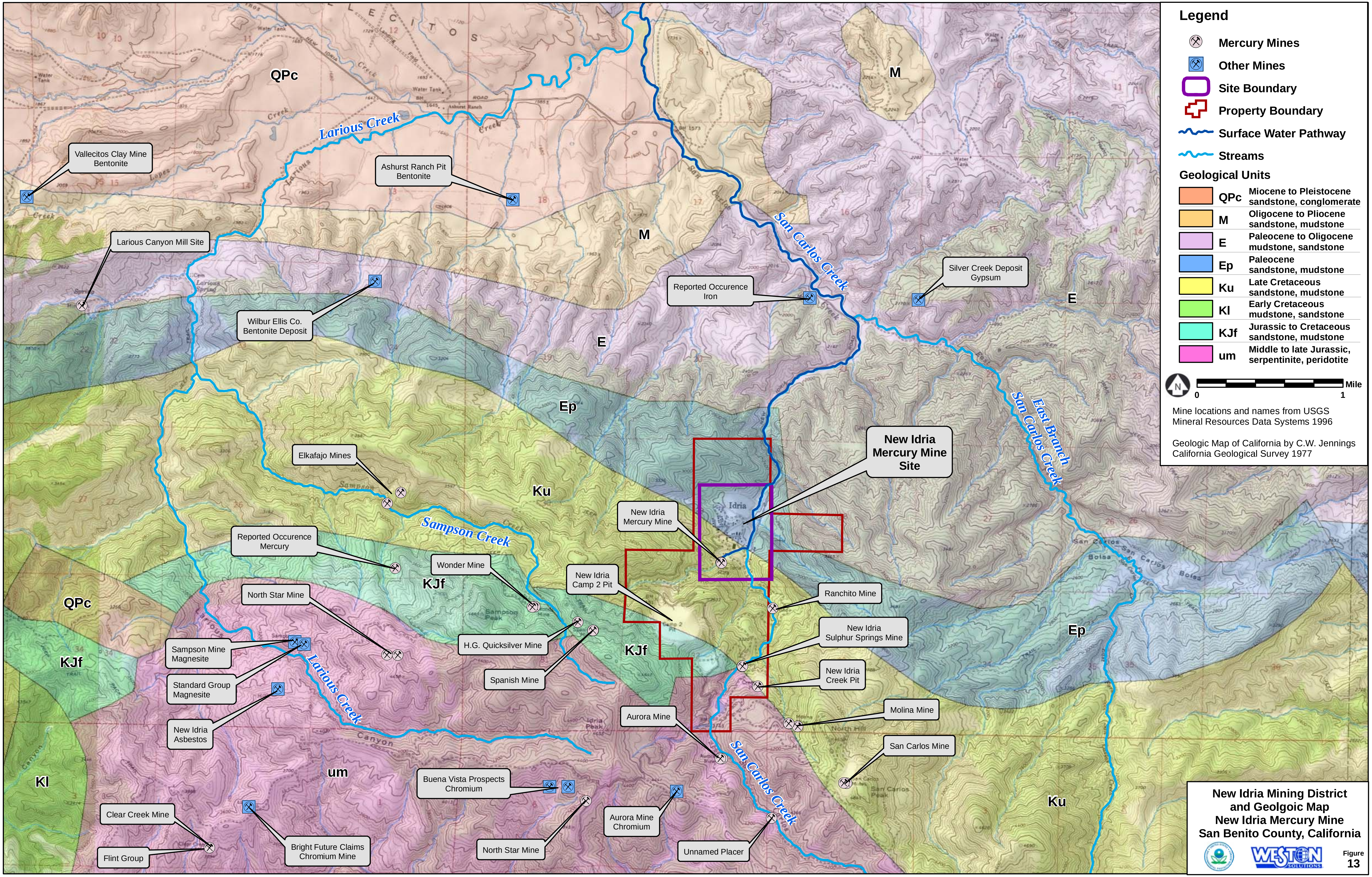
Figure 10



Sample Locations - Map 5A
New Idria Mercury Mine
San Benito County, California

Figure 11


Legend
1997 EPA Samples
Mercury Mines
Other Mines
Surface Water Pathway
Streams
ppb = parts per billion
ppm = parts per million
Hg = mercury
N
Feet
0
2,000
1997 EPA Sample SW-18
Hg in sediment: 0.13 ppm
1997 EPA Sample SW-17
Hg in sediment: 0.14 ppm
Hg in water: 0.2 ppb
1997 EPA Sample SW-16
Hg in sediment: 1.5 ppm
Hg in water: 0.2 ppb
Diatomite
Mine
Panoche Creek
Panoche
Creek
Silver Creek
Gaging Station
572
Prospect
BM 552
BM 608
BM 642
PIPELINE
JEEP
TRAIL
Historic Sample Locations - Map 5B
New Idria Mercury Mine
San Benito County, California
Figure
12


Legend
Mercury Mines
Other Mines
Site Boundary
Property Boundary
Surface Water Pathway
Streams
Geological Units
QPc Miocene to Pleistocene sandstone, conglomerate
M Oligocene to Pliocene sandstone, mudstone
E Paleocene to Oligocene mudstone, sandstone
Ep Paleocene sandstone, mudstone
Ku Late Cretaceous sandstone, mudstone
Kl Early Cretaceous mudstone, sandstone
KJf Jurassic to Cretaceous sandstone, mudstone
um Middle to late Jurassic, serpentinite, peridotite
Mile
0
1
Mine locations and names from USGS Mineral Resources Data Systems 1996
Geologic Map of California by C.W. Jennings California Geological Survey 1977
New Idria Mercury Mine Site
Vallecitos Clay Mine Bentonite
Ashurst Ranch Pit Bentonite
Larious Canyon Mill Site
Wilbur Ellis Co. Bentonite Deposit
Reported Occurence Iron
Silver Creek Deposit Gypsum
Elkafajo Mines
New Idria Mercury Mine
Reported Occurence Mercury
Wonder Mine
New Idria Camp 2 Pit
North Star Mine
H.G. Quicksilver Mine
Ranchito Mine
New Idria Sulphur Springs Mine
Sampson Mine Magnesite
Standard Group Magnesite
Spanish Mine
New Idria Creek Pit
New Idria Asbestos
Aurora Mine
Molina Mine
San Carlos Mine
Buena Vista Prospects Chromium
Clear Creek Mine
Flint Group
Bright Future Claims Chromium Mine
North Star Mine
Aurora Mine Chromium
Unnamed Placer
Larious Creek
San Carlos Creek
Sampson Creek
East Branch San Carlos Creek
QPc
M
E
Ep
Ku
KJf
Kl
um
New Idria Mining District and Geolgoic Map
New Idria Mercury Mine
San Benito County, California
Figure 13

TABLES

Table 1
Benchmark Levels
New Idria Mercury Mine
San Benito County, California

Analyte	Secondary Benchmarks			Other Relevant Benchmarks					
	RSLs Industrial	AWQC Chronic Fresh Water	TEL Fresh Water Sediments	RSLs Residential	TTLC	BLM	BLM	BLM	MCL (Fed/State)
	Soil/Tailings	Water	Sediment	Soil/Tailings	Soil	Soil	Sed	Water	Water
	mg/kg	ug/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/L	ug/L
Aluminum	990,000	87	--	77,000	15				-- /1,000
Antimony	410	30 [a]	--	31	15	50	62	124	6/6
Arsenic	1.6	150 [d]	5.9	0.39	500	20	46	93	10/10
Barium	190,000	3.9	--	15,000	10,000	-	-	-	2,000/1,000
Beryllium	2,000	0.66	--	160	75	-	-	-	4/4
Cadmium	800	1.27 [b,d]	0.596	70	100	70	155	155	5/5
Chromium	5.6	10.6 [b,d,e]	37.3	0.29	2,500	-	-	-	100/50
Cobalt	300	3.0	--	23	8,000	-	-	-	-
Copper	41,000	37.1 [b,d]	35.7	3,100	2,500	5,000	5,745	11,490	1,300/1,300
Iron	720,000	1,000	--	55,000					300/300 [g]
Lead	800	10.9 [b,d]	35	400	1,000	1,000	1,000	50	15
Manganese	23,000	--	--	1,800		19,000	21,679	1,548	50/50 [g]
Mercury	34	0.77 [d]	0.174	5.6	20	40	46	93	2
Nickel	20,000	168 [b,d]	18	1,500	2,000	2,700	3,094	6,194	-- /100
Selenium	5,100	5	--	390	100	700	774	1,548	50/50
Silver	5,100	37.4 [b,c,d]	--	390	500	700	774	1,548	-- /100
Thallium	--	--	--	--	700	-	-	-	2/2
Vanadium	72	--	--	5.5	2,400	-	-	-	-
Zinc	310,000	382 [b,d]	123	23,000	5,000	40,000	46,455	92,909	5,000/5,000 [g]
Methyl Mercury	100	0.0028 [f]	-	7.8	-	-	-	-	-

Notes:
RSL = Regional Screening Levels (EPA Region 9, 2009)
AWQC = EPA Ambient Water Quality Criteria. CCC (criterion continuous concentration) chronic values presented unless otherwise noted.
TEL = Threshold Effects Level NOAA Screening Quick Reference Tables - guidance thresholds for the protection of freshwater aquatic life.
BLM - Human Risk Management Criteria for Campers "Risk Management Criteria for Metals at BLM Mining Sites", BLM Technical Note 390, 2004.
MCLs - Primary Maximum Contaminant Levels for dinking water levels pursuant to the Safe Drinking Water Act.
mg/kg = milligrams per kilogram (equivalent to parts per million).
ug/L = milligrams per liter (equivalent to parts per billion).
TTLC = Total Threshold Limit Concentration
a = proposed value.
b = values have been adjusted using the maximum hardness of 400 milligrams per liter.
c = values presented are CMC (criterion maximum concentration) acute values.
d = values applicable to dissolved metals
e = chromium (VI) value presented
f = Ecotox Threshold value
g = Secondary MCL value

Table 2
Summary of 2010 ESI Results for Source Samples - Tailings
New Idria Mercury Mine
San Benito County, California
Reported in milligrams per kilogram (equivalent to parts per million)

Sample Number/ Location	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Vanadium	Zinc
Benchmark RSLs for Industrial Soil	990,000	410	1.6	190,000	2,000	800	5.6	300	41,000	720,000	800	23,000	34	20,000	5,100	5,100	72	310,000
NIMM-SS-1 (background)	3,630	<6.2 J	0.63 J	29.8	<0.52	2.1 J	*911*	126	12	61,700	7.7	1,010	0.19	2,370	<3.6 J	0.084 J	18.5	49.5
NIMM-SS-2 (background)	3,990	<6.2 J	<1.0	20.8	<0.51	1.7 J	*988*	106	11.2	53,100	22.8	844	<0.10	2,210	<3.6 J	<1.0	20.3	28.7
NIMM-TL-3 (southern calcine tailings pile)	11,700	5.2 J	***22.7***	**173**	0.31 J	1.2 J	*45.0*	10	**59.9**	46,600	18.1	138	***191***	31.3	1.3 J	0.17 J	***70.2***	56.2
NIMM-TL-4 (southern calcine tailings pile)	7,080	**7.9 J**	***17.7***	**119**	0.23 J	0.51 J	*23.5*	5.6	**39.2**	23,800	9.0	60.3	***134***	20.4	0.78 J	<1.0	59.0	39.3
NIMM-TL-5 (southern calcine tailings pile)	8,440	3.9 J	***16.2***	**263**	0.34 J	1.3 J	*40.4*	10.1	**48.5**	36,000	49.5	237	***446***	67.7	0.94 J	0.18 J	50.5	**396**
NIMM-TL-6 (southern calcine tailings pile)	**14,000**	5.4 J	***17.2***	**242**	0.42 J	0.99 J	*74.8*	21.1	**47.1**	38,100	61.5	314	***38.7***	159	0.70 J	0.082 J	54.0	104
NIMM-TL-7 (northern calcine tailings pile)	11,300	**7.0 J**	***23.3***	**146**	0.26 J	1.5 J	*65.6*	7.6	**69.0**	57,700	23.5	110	**3.8**	66.1	1.2 J	0.075 J	55.9	50.8
NIMM-TL-8 (northern calcine tailings pile)	**13,900**	5.4 J	***18.8***	**144**	0.42 J	1.3 J	*59.2*	22.7	**60.3**	48,200	18.2	301	***91.6***	99.8	1.3 J	0.24 J	55.0	98.7
NIMM-TL-9 (northern calcine tailings pile)	**12,400**	5.7 J	***27.7***	**163**	0.34 J	1.6 J	*130*	16.3	**79.8**	65,000	22.5	146	***72.3***	203	1.6 J	0.19 J	56.4	71.3
NIMM-TL-10 (northern calcine tailings pile)	**13,200**	5.5 J	***26.0***	**197**	0.34 J	1.8 J	*133*	18.5	**73.7**	73,800	26.2	174	***28.9***	228	1.0 J	0.16 J	54.4	84.4
NIMM-TL-10 (duplicate)	**13,800**	5.6 J	***26.7***	**211**	0.34 J	1.8 J	*135*	18.4	**74.2**	68,800	25	173	***31.5***	231	1.2 J	0.12 J	55.4	90.3

Table 2
Summary of 2010 ESI Results for Source Samples - Tailings
New Idria Mercury Mine
San Benito County, California
Reported in milligrams per kilogram (equivalent to parts per million)

Sample Number/ Location	Aluminum	Antinomy	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Manganese	Mercury	Nickel	Selenium	Silver	Vanadium	Zinc
CRQL	20.0	6.0	1.0	20	0.50	0.50	1.0	5.0	2.5	10.0	1.0	1.5	0.10	4.0	3.5	1.0	5.0	6.0

Notes:
Bold and underlined values are greater or equal to 3 times background concentrations.
Italics = the associated numeric value is greater or equal to the benchmark.
<## = not detected at or above laboratory reporting limit shown.
J = the associated numerical value is qualified and is an estimated quantity.
RSL = Regional Screening Levels (EPA 2009) for Industrial soil.
CRQL = Contract required quantitation limit.

The following is a description of the data qualification for metals flagged with a "J":
Antinomy is qualified due to detections below the CRQL and/or matrix spike recovery results outside of QC limits and may be biased low.
Beryllium is qualified due to detections below the CRQL.
Cadmium is qualified due to iron exceeding the concentrations in the interelement check sample and may be biased high.
Selenium is qualified due to iron exceeding the concentrations in the interelement check sample and may be biased low.
Silver is qualified due to detections below the CRQL.
Qualified data has been evaluated against the EPA Quick Reference Fact Sheet *Using Qualified Data to Document an Observed Release and Observed Contamination*, 1996.

Table 3
Summary of 2010 ESI Results for Source Samples - AMD
New Idria Mercury Mine
San Benito County, California
Reported in micrograms per liter (equivalent to parts per billion)

Sample Number/ Location	Aluminum	Aluminum (dissolved)	Arsenic	Arsenic (dissolved)	Cadmium	Cadmium (dissolved)	Chromium	Chromium (dissolved)	Copper	Copper (dissolved)	Iron	Iron (dissolved)	Lead	Lead (dissolved)	Mercury	Mercury (dissolved)	Nickel	Nickel (dissolved)	Selenium	Selenium (dissolved)	Silver	Silver (dissolved)	Zinc	Zinc (dissolved)
NIMM-SW-1 Upper San Carlos Creek (background)	<200	<200	<1.0	<1.0	<1.0	<1.0	31.6	29	<2.0	0.40 J	35.4 J	<100	<1.0	<1.0	0.084 J	<0.20	10.3	4.5	<5.0 J	<5.0	<1.0	<1.0	1.4 J	2.9
NIMM-SW-9 Tributary leading to East Fork San Carlos Creek (background)	1,150	<200	<1.0	<1.0	<1.0	<1.0	199	11.5	4.0	<2.0	12,500	<100	0.54 J	<1.0	0.10 J	<0.20	800	5.1	<5.0 J	<5.0	<1.0	<1.0	9.5 J	2.4
NIMM-SW-4 AMD (Level 10 Adit)	**135,000**	**132,000**	**72.4**	**66.1**	**1.7**	**1.4**	101	**91.9**	3.4	**3.2**	**502,000**	**497,000**	<1.0	<1.0	<0.20	<0.20	1,530	**1,440**	**11.2 J**	**10.6 J**	0.055 J	0.070 J	**2,500 J**	**2,350**
NIMM-SW-5 AMD (near San Carlos Creek)	**128,000**	**125,000**	**7.2**	**6.2**	**1.7**	**1.2**	51.4	47.2	7.1	**8.0**	**325,000**	**318,000**	<1.0	<1.0	**21.2**	**11.2**	1,640	**1,560**	**12.0 J**	**11.3 J**	0.066 J	0.064 J	**2,610 J**	**2,460**
NIMM-SW-5 (duplicate)	**127,000**	NA	**6.7**	NA	**1.6**	NA	49.5	NA	6.6	NA	**322,000**	NA	<1.0	NA	**20.1**	NA	1,610	NA	**12.4 J**	NA	0.055 J	NA	**2,540 J**	NA
CRQL	200	200	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	100	100	1.0	1.0	0.20	0.20	1.0	1.0	5.0	5.0	1.0	1.0	2.0	2.0

Notes:
Bold and underlined values are greater or equal to 3 times background concentrations
<## = not detected at or above laboratory reporting limit shown.
J = the associated numerical value is qualified and is an estimated quantity.
AMD = acid mine drainage
CRQL = Contract required quantiation limit.
NA = not analyzed

The following is a description of the data qualification for metals flagged with a "J":
Copper is qualified due to detections below the CRQL.
Iron is qualified due to detections below the CRQL.
Lead is qualified due to detections below the CRQL.
Mercury is qualified due to detections below the CRQL.
Selenium is qualified due to detections below the CRQL and/or Selenium is qualified due to matrix spike recovery results outside of QC limits and may be biased high.
Silver is qualified due to detections below the CRQL.
Zinc is qualified due to detections below the CRQL and/or due to ICP serial dilution results are outside of QC limits and may be biased low.
Qualified data has been evaluated against the EPA Quick Reference Fact Sheet *Using Qualified Data to Document an Observed Release and Observed Contamination, 1996.*

Table 4
Summary of 2010 ESI Results for Sediment Samples
New Idria Mercury Mine
San Benito County, California
Reported in milligrams per kilogram (equivalent to parts per million)

Sample Number/ Location	Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Selenium	Zinc
Benchmark NOAA TELs (freshwater sediment)	--	5.9	0.596	37.3	35.7	--	35	0.174	18	--	123
Background Sediment Samples											
NIMM-SD-1 San Carlos Creek, (background)	1,930	<1.0	*1.5 J*	*1,400*	6.2	47,200	3.9	*0.19*	*2,340*	<3.5 J	35.6
NIMM-SD-11 Tributary to East Fork San Carlos Creek (background)	3,180	<1.1	*1.2 J*	*1,220*	8.6	47,700	4.1	<0.11 R	*2,130*	<3.7 J	21.6
Acid Mine Drainage Sediment Samples											
NIMM-SD-4 AMD (Level 10 Adit)	**15,100**	***10.4***	*1.2 J*	*43.8*	***48.1***	46,600	**12.1**	***14.4***	*61.8*	<3.7J	98.5
NIMM-SD-5 AMD	**16,200**	***42.3***	***5.4 J***	*38.3*	**25.8**	**204,000**	**18.6**	***9.9***	*112*	<5.3J	***142***
NIMM-SD-5 (duplicate)	**13,800**	***38.3***	***5.8 J***	34.1 J	**20.7**	**241,000**	**20.4 J**	***12.1***	*101*	<5.5	***136***
NIMM-SD-6 AMD (below waste piles)	8,600	***14.4***	*1.6 J*	31.5 J	**28.1**	59,300	**20.5J**	***41.3***	*68.5*	<3.8J	***323***
NIMM-SD-7 AMD (near San Carlos Creek)	8,070	***57.1***	***8.6 J***	*50.8*	**18.9**	**307,000**	**22.4**	***25.0***	*55.3*	<4.8	**119 J**

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Sample Number/ Location	Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Selenium	Zinc
Stream Sediment Samples											
NIMM-SD-3 San Carlos Creek (southern calcine pile)	**14,100**	***9.0***	*1.1 J*	*133*	***44.6***	36,700	11.1	***4.9***	*170*	<3.5 J	80.7
NIMM-SD-8 San Carlos Creek (southern calcine pile)	**13,700**	***10***	*1.1 J*	*180*	***40.3***	37,000	**11.8**	***4.7***	*194*	<3.6 J	82.4
NIMM-SD-9 San Carlos Creek (northern calcine pile)	**11,800**	***14.1***	*1.3 J*	*49.3*	***55.9***	37,300	**16.0**	***4.9***	*85.1*	0.59 J	106
NIMM-SD-10 San Carlos Creek (0.6 mile downstream)	7,800	***8.7***	0.59 J	*110*	**30.7**	26,500	11.3	***32.6***	*148*	<3.5	91.4
NIMM-SD-12 San Carlos Creek (2.4 miles downstream)	6,150	***8.3***	0.44 J	*58.2*	25.2	20,100	8.5	***8.9 J***	*86.7*	<3.6	68.5
NIMM-SD-13 San Carlos Creek (4.1 miles downstream)	**10,600**	***11.9***	*3.3 J*	*41.8*	12.8	13,700	6.4	***2.0 J***	*40.4*	0.89 J	53.8
NIMM-SD-14 Larious Creek (attribution)	5,290	*6.6*	0.74 J	*303*	19.4	22,700	7.3	0.081 J	*393*	2.6 J	44.6
NIMM-SD-15 San Carlos Creek (4.7 miles downstream)	5,540	*5.7*	0.50 J	*49.8*	15.7	18,700	6.4	***4.6 J***	*98.8*	<3.5	102
NIMM-SD-15 (duplicate)	5,650	*5.9*	*0.66 J*	*65.8 J*	15.4	20,200	6.4J	***4.0***	*97.1*	<3.4	101
NIMM-SD-15 (unsieved sample)	5,900	*6.3*	0.50 J	*71.8 J*	18.4	19,700	6.2J	***4.4***	*96.0*	<3.5	96.7

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Sample Number/ Location	Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Selenium	Zinc
Stream Sediment Samples											
NIMM-SD-16 Silver Creek (5.4 miles downstream)	4,440	*6.3*	0.49 J	*50.6*	17.0	14,200	5.6	***1.8 J***	*79.0*	2.8J	56.0
NIMM-SD-17 Silver Creek (6.4 miles downstream)	6,490	6.4	0.58 J	*76.4*	21.2	18,400	7.6	***3.9 J***	*113*	1.2J	65.4
NIMM-SD-18 Silver Creek (7.4 miles downstream)	5,400	6.2	0.48 J	*59.5*	14.8	16,500	6.2	***2.7 J***	*63.1*	<3.5	42.4
NIMM-SD-19 Silver Creek (8.4 miles downstream)	13,800	6.8	*0.77 J*	*61.2*	27.6	25,200	11.3	0.070 J	*81.3*	<3.5	71.0
NIMM-SD-20 Silver Creek (9.2 miles downstream)	5,520	4.9	0.37 J	*40.9*	16.4	14,000	6.0	***11.2 J***	*56.9*	3.4 J	48.6
NIMM-SD-21 Silver Creek (10.2 miles downstream)	5,370	5.4	0.46 J	32.2	16.4	15,000	6.9	***1.3 J***	*49.3*	0.85 J	50.1
NIMM-SD-22 Silver Creek (11.2 miles downstream)	5,080	5.5	0.45 J	27.5	16.4	15,400	6.9	***0.60 J***	*42.0*	1.4 J	56.0
NIMM-SD-23 Silver Creek (12.2 miles downstream)	2,490	4.3	0.37 J	*77.1*	9.6	15,000	4.6	*0.38 J*	*82.4*	1.2 J	35.7
NIMM-SD-24 Silver Creek (13.0 miles downstream)	6,250	7.1	0.51 J	*61.8*	16.9	17,000	8.5	***4.2 J***	*83.9*	1.7 J	62.2
NIMM-SD-25 Silver Creek (14.0 miles downstream)	3,600	5.8	0.40 J	*60.2*	13.9	15,100	5.0	***2.4 J***	*78.7*	1.5 J	55.1
NIMM-SD-25 (duplicate)	3,630	6.6	*0.60 J*	*65.1 J*	13.4	16,000	5.3J	***1.4***	*88.5*	2.0 J	59.0

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Sample Number/ Location	Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Selenium	Zinc
Stream Sediment Samples											
NIMM-SD-26 Silver Creek (15.0 miles downstream)	4,700	5.0	0.34 J	28.9	13.5	13,800	6.4	***1.7 J***	*43.5*	0.61 J	46.3
NIMM-SD-27 Silver Creek (15.8 miles downstream)	6,130	5.4	0.44 J	*46.0*	15.9	16,100	6.9	***1.5 J***	*57.7*	<3.5	48.2
NIMM-SD-28 Silver Creek (16.2 miles downstream)	5,060	5.9	0.40 J	29.4	15.6	14,800	6.9	***1.1 J***	*47.2*	1.3 J	58.9
NIMM-SD-29 Silver Creek (16.9 miles downstream)	3,290	4.7	0.39 J	*67.4*	9.9	14,100	4.3	***2.3 J***	*72.6*	1.0 J	42.5
NIMM-SD-30 Silver Creek (17.8 miles downstream)	4,450	*5.9*	0.58 J	*113 J*	14.9	17,700	6.4 J	***1.2***	*84.6*	1.6 J	48.7
NIMM-SD-31 Silver Creek (18.7 miles downstream)	4,230	4.7	0.39 J	*41.7 J*	11.1	12,800	5.5 J	***1.0***	*38.5*	0.58 J	39.2
NIMM-SD-32 Silver Creek (19.5 miles downstream)	3,420	5.5	0.46 J	*62.1 J*	10.6	14,500	5.3 J	***1.0***	*64.8*	0.89 J	45.9
NIMM-SD-33 Panoche Creek (attribution)	3,140	3.9	0.34 J	8.6 J	8.1	10,700	4.0 J	<0.10	*12.9*	<3.4	24.4
NIMM-SD-33 (duplicate)	3,060	3.6	0.24 J	8.5 J	7.9	11,200	4.6 J	0.050 J	*12.0*	<3.5	23.9
NIMM-SD-34 Panoche Creek (19.9 miles downstream)	6,640	5.5	0.51 J	25.8 J	18.1	16,000	7.9 J	***1.1***	*38.9*	1.2 J	58.0

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Summary of 2010 ESI Results for Sediment Samples
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Sample Number/ Location	Aluminum	Arsenic	Cadmium	Chromium	Copper	Iron	Lead	Mercury	Nickel	Selenium	Zinc
Reservoir Sediment Sample											
NIMM-SD-2 San Carlos Reservoir	2,620	<u>**2.1**</u>	*0.74 J*	*981*	8.6	25,500	5.4	<u>***5.5***</u>	*1,520*	<4.0	**25.4**
CRQL	20.0	1.0	0.50	1.0	2.5	10.0	1.0	0.10	4.0	3.5	6.0

Notes:
Bold and <u>underlined</u> values are greater or equal to 3 times background concentrations.
Italics = the associated numeric value is greater or equal to the benchmark.
<## = not detected at or above laboratory reporting limit shown.
J = the associated numerical value is qualified and is an estimated quantity.
R = the associated numerical value has been rejected and is not usable.
TEL = Threshold Effects Level NOAA Screening Quick Reference Tables - guidance thresholds for the protection of freshwater aquatic life.
AMD = acid mine drainage.
CRQL = Contract required quantitation limit.

The following is a description of the data qualification for metals flagged with a "J" or "R":
Beryllium is qualified due to detections below the CRQL.
Cadmium is qualified due to iron exceeding the concentrations in the interelement check sample and may be biased high.
Cadmium is qualified due to ICP serial dilution results are outside of QC limits and may be biased high.
Chromium is qualified due to laboratory duplicate result is outside QC limits and results are uncertain.
Chromium is qualified due to ICP serial dilution results are outside of QC limits and may be biased low.
Lead is qualified due to ICP serial dilution results are outside of QC limits and may be biased low.
Selenium is qualified due to iron exceeding the concentrations in the interelement check sample and may be biased low.
Mercury in background sample NIMM-SD-11 is rejected due to matrix spike recovery does not meet QC limits.
Mercury is qualified due to matrix spike recovery results outside of QC limits and may be biased low .
Qualified data has been evaluated against the EPA Quick Reference Fact Sheet *Using Qualified Data to Document an Observed Release and Observed Contamination* , 1996.

Table 5
Summary of 2010 ESI Results for Surface Water Samples
New Idria Mercury Mine
San Benito County, California
Reported in micrograms per liter (equivalent to parts per billion), unless otherwise noted

Sample Number/ Location	Aluminum	Aluminum (dissolved)	Arsenic	Arsenic (dissolved)	Cadmium	Cadmium (dissolved)	Chromium	Chromium (dissolved)	Copper	Copper (dissolved)	Iron	Iron (dissolved)	Lead	Lead (dissolved)	Mercury	Mercury (dissolved)	Methyl Mercury (dissolved)	Nickel	Nickel (dissolved)	Selenium	Selenium (dissolved)	Zinc	Zinc (dissolved)
Benchmark AWQC (Fresh Surface Water)	87		150		1.27		Cr (III) 231 Cr (VI) 10.6		37.1		1,000		10.9		0.77		2.8 ng/L	168		5		382	
Background Water Samples																							
NIMM-SW-1 Upper San Carlos Creek (background)	<200	<200	<1.0	<1.0	<1.0	<1.0	31.6	*29*	<2.0	0.40 J	35.4 J	<100	<1.0	<1.0	0.084 J	<0.20	NA	10.3	4.5	<5.0 J	<5.0	1.4 J	2.9
NIMM-SW-9 Tributary leading to East Fork San Carlos Creek (background)	*1,150*	<200	<1.0	<1.0	<1.0	<1.0	199	*11.5*	4.0	<2.0	*12,500*	<100	0.54 J	<1.0	0.10 J	<0.20	NA	800	5.1	<5.0 J	<5.0	9.5 J	2.4
Aurora Mine Water Samples																							
BLM-SW-1 Upper San Carlos Creek (Aurora Mine background)	<200	<200	<1.0	<1.0	<1.0	<1.0	22.9	*52.9*	<2.0	<2.0	<100	<100	<1.0	<1.0	<0.20	<0.20	NA	6.1	3.7	<5.0 J	<5.0	1.8 J	1.5 J
BLM-SW-2 Upper San Carlos Creek (Aurora Mine)	<200	<200	<1.0	<1.0	<1.0	<1.0	19.0	*50.1*	<2.0	0.38 J	<100	<100	<1.0	<1.0	<0.20	<0.20	NA	5.0	3.5	<5.0 J	<5.0	1.4 J	2.3
BLM-SW-3 Upper San Carlos Creek (Aurora Mine)	64.2 J	<200 R	<1.0	<1.0 R	<1.0	<1.0 R	21.0	*51.7 J*	<2.0	<2.0 R	<100	<100 R	<1.0	<1.0 R	<0.20	<0.20 R	NA	7.0	3.7 J	<5.0 J	<5.0 R	1.3 J	2.4 J
Acid Mine Drainage Water Samples																							
NIMM-SW-4 AMD (Level 10 Adit)	***135,000***	***132,000***	**72.4**	**66.1**	**1.7**	***1.4***	101	***91.9***	3.4	**3.2**	***502,000***	***497,000***	<1.0	<1.0	<0.20	<0.20	NA	1,530	***1,440***	***11.2 J***	***10.6 J***	**2,500 J**	***2,350***
NIMM-SW-5 AMD (near San Carlos Creek)	***128,000***	***125,000***	**7.2**	**6.2**	**1.7**	**1.2**	51.4	*47.2*	7.1	**8.0**	***325,000***	***318,000***	<1.0	<1.0	**21.2**	***11.2***	2.30 ng/L	1,640	***1,560***	***12.0 J***	***11.3 J***	**2,610 J**	***2,460***
NIMM-SW-5 (duplicate)	**127,000**	NA	**6.7**	NA	**1.6**	NA	49.5	NA	6.6	NA	***322,000***	NA	<1.0	NA	**20.1**	NA	NA	1,610	NA	**12.4 J**	NA	**2,540 J**	NA

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Sample Number/ Location	Aluminum	Aluminum (dissolved)	Arsenic	Arsenic (dissolved)	Cadmium	Cadmium (dissolved)	Chromium	Chromium (dissolved)	Copper	Copper (dissolved)	Iron	Iron (dissolved)	Lead	Lead (dissolved)	Mercury	Mercury (dissolved)	Methyl Mercury (dissolved)	Nickel	Nickel (dissolved)	Selenium	Selenium (dissolved)	Zinc	Zinc (dissolved)
Surface Water Samples																							
NIMM-SW-3 San Carlos Creek (southern calcine pile)	<200	<200	<1.0	0.21 J	<1.0	<1.0	18.5	*18.8*	0.66J	0.53 J	<200	<100	<1.0	<1.0	**0.28**	**0.30**	0.039 J ng/L	1.8	1.6	0.53 J	0.47 J	2.3 J	1.6 J
NIMM-SW-6 San Carlos Creek (southern calcine pile)	**20,700**	<200	**1.3**	<1.0	0.20 J	<1.0	16.4	<2.0	2.3	1.5 J	***53,200***	***17,000***	<1.0	<1.0	**4.9**	0.16 J	NA	277	***231***	2.2 J	1.0 J	**396 J**	**61.6**
NIMM-SW-7 San Carlos Creek (northern calcine pile)	**23,500**	***576***	**1.9**	<1.0	**1.2**	0.13 J	15.4	<2.0	**17.2**	**3.2**	***43,500***	**456**	0.26 J	<1.0	**4.8**	0.14 J	0.210 ng/L	325	***175***	***8.2 J***	***6.6 J***	**1,150 J**	**66.1**
NIMM-SW-7 (duplicate)	**24,900**	***342***	**1.3**	<1.0	0.99 J	0.077 J	17.4	<2.0	**18.0**	1.4 J	***46,100***	**199**	<1.0	<1.0	**4.7**	0.093 J	0.200 ng/L	349	***172***	***8.7 J***	***6.3 J***	**1,270 J**	**54.9**
NIMM-SW-8 San Carlos Creek (0.6 miles downstream)	**23,800**	***1,140***	**1.8**	<1.0	0.68 J	<1.0	17.7	<2.0	**13.6**	1.5 J	**52,300**	199	<1.0	<1.0	**4.6**	0.14 J	NA	298	***73.2***	***6.1 J***	4.8 J	**987 J**	**13.5**
NIMM-SW-10 San Carlos Creek (2.4 miles downstream)	**4,970**	***338***	0.21 J	<1.0	0.20 J	<1.0	6.2	<2.0	4.1	***2.1***	*11,300*	<100	<1.0	<1.0	**0.79**	<0.20	NA	144	**33.5**	3.5 J	2.9 J	**176 J**	**9.1**
NIMM-SW-12 Larious Creek (attribution)	*62.3 J*	<200	3.5	3.3	<1.0	<1.0	23.2	*23.1*	6.1	6.3	<87.6 J	<100	<1.0	<1.0	<0.20	<0.20	0.086 ng/L	10.9	9.9	*165 J*	*162 J*	4.6 J	4.8
NIMM-SW-14 Silver Creek (5.4 downstream)	<200	<200	2.6	2.3	<1.0	<1.0	8.9	5.9	6.8	6.3	583	**102**	<1.0	<1.0	<0.20	<0.20	0.072 ng/L	17.2	16.1	*113 J*	*105 J*	6.8 J	5.8
Reservoir Water Sample																							
NIMM-SW-2 San Carlos Reservoir	<200	<200	<1.0	<1.0	0.080 J	<1.0	15.1	*14.2*	<2.0	<2.0	<100	<100	<1.0	<1.0	<0.20	<0.20	0.245 ng/L	6.0	4.8	<5.0 J	<5.0	3.1 J	3.8

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Sample Number/ Location	Aluminum	Aluminum (dissolved)	Arsenic	Arsenic (dissolved)	Cadmium	Cadmium (dissolved)	Chromium	Chromium (dissolved)	Copper	Copper (dissolved)	Iron	Iron (dissolved)	Lead	Lead (dissolved)	Mercury	Mercury (dissolved)	Methyl Mercury (dissolved)	Nickel	Nickel (dissolved)	Selenium	Selenium (dissolved)	Zinc	Zinc (dissolved)
Quality Assurance Samples																							
NIMM-SW-17 Equipment blank for dedicated disposable soil sieve	<200 R	NA	<1.0 R	NA	<1.0 R	NA	0.57 J	NA	<2.0 R	NA	<100 R	NA	<1.0 R	NA	<0.2 R	NA	NA	<1.0 R	NA	<1.0 R	NA	62.7 J	NA
NIMM-SW-18 Field Blank	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.019 ng/L	NA	NA	NA	NA	NA	NA
CRQL	200	200	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	100	100	1.0	1.0	0.20	0.20	0.049 ng/L	1.0	1.0	5.0	5.0	2.0	2.0

Notes:
Bold and underlined values are greater or equal to 3 times background concentrations.
Italics = the associated numeric value is greater or equal to the benchmark.
<## = not detected at or above laboratory reporting limit shown.
J = the associated numerical value is qualified and is an estimated quantity.
R = the associated numerical value has been rejected and is not usable.
AMD = acid mine drainage
ng/L = nanograms per liter (equivalent to parts per trillion)
NA = not analyzed
CRQL = Contract required quantitation limit.

The following is a description of the data qualification for metals flagged with a "J" or "R":
Aluminum, is qualified due to detections below the CRQL.
Arsenic is qualified due to detections below the CRQL.
Cadmium is qualified due to detections below the CRQL.
Copper is qualified due to detections below the CRQL.
Iron is qualified due to detections below the CRQL.
Lead is qualified due to detections below the CRQL.
Mercury is qualified due to detections below the CRQL.
Selenium is qualified due to detections below the CRQL and/or Selenium is qualified due to matrix spike recovery results outside of QC limits and may be biased high.
Zinc is qualified due to detections below the CRQL and/or due to ICP serial dilution results are outside of QC limits and may be biased low.
Samples for BLM-SW-3 (dissolved) and NIMM-SW-17 are rejected for non-detect samples and biased low for detections due to inadequate preservation.
Qualified data has been evaluated against the EPA Quick Reference Fact Sheet *Using Qualified Data to Document an Observed Release and Observed Contamination, 1996.*