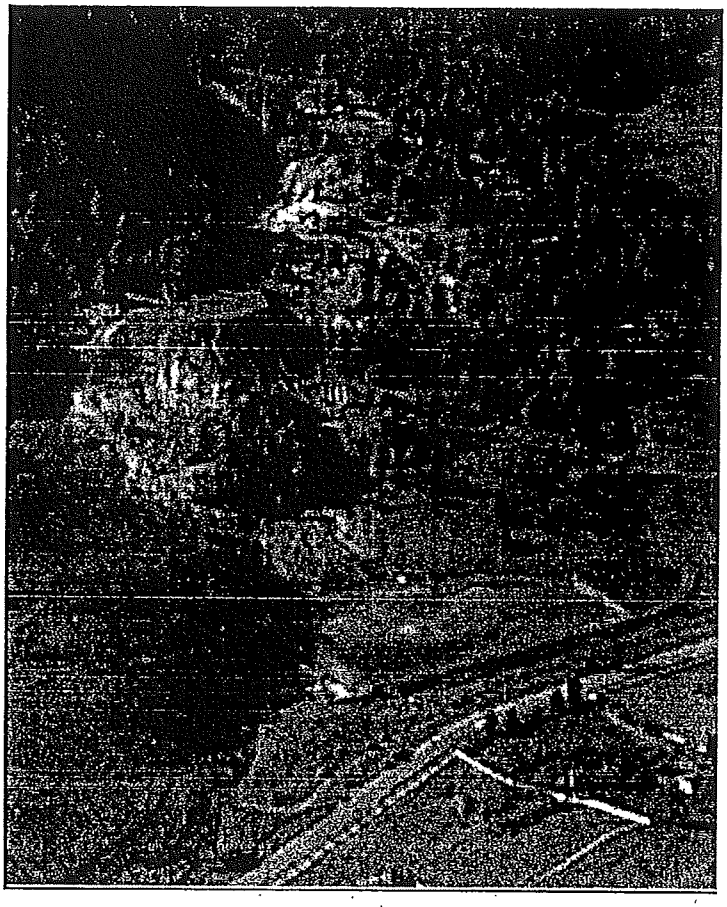
PRP SEARCH REPORT
SITE CHRONOLOGY AND PROPERTY HISTORY
MT. DIABLO QUICKSILVER MINE
CONTRA COSTA COUNTY, CALIFORNIA



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1.0 INTRODUCTION

1.1 Background

Mount Diablo Mercury Mine consists of a western and an eastern underground mine works, an open-pit mine, and mill works located in Township 1 North, Range 1 East, Section 29, Mount Diablo Baseline and Meridian (Figure 1), three miles from the City of Clayton, Contra Costa County, California. Mining activity began as four cinnabar mining claims; the Powell, Hastings, Welch, and Bendixen claims (Figure 2). The subject properties are Contra Costa County Assessor Parcel Numbers 078-060-034, 078-070-036, and 078-070-034 as well as 078-060-032 (Figure 3).

According to the public record at Contra Costa County, the acid mine drainage first came to the attention of the State of California in March 1939. A County prison farm (Thomas B. Swift Sunshine Preventorium) located downstream of the mine observed iron and sulfuric acid discharge to the creek and contacted the California Bureau of Sanitation, Department of Public Health . Mine drainage also elevated chloride from interception of natural spring water. In response, the mine operator constructed a catch basin that functioned to percolate acid mine drainage into the subsurface during the dry season and overflowed during the rainy season. The result was that sporadic complaints of hard water in downstream wells began to occur. Eventually, the prison farm abandoned its wells.

The United States Public Health Service published the first chemical water quality standards in 1946. After this, regulatory interest in the mine drainage by the Bureau of Sanitation, California Department of Public Health increased as evidenced by an increase in correspondence found in the County records. The focus at this time was on general water quality parameters, not toxicity.

The California Dickey Water Pollution Control Act was passed in 1949. On June 9, 1952, the Water Pollution Control Board #5 (predecessor of the Regional Water Quality Control Board Central Valley Region) issued the first waste discharge requirements for the mine discharge, Order No. 135. The order was written to Mr. Ronnie B. Smith. The Regional Water Pollution Control Board later issued Resolution Number 53-21 on February 27, 1953. Mr. Smith lost interest in the mine shortly after this occurred and the partnership of Jonas and Johnson assumed operation. The most recent order in the record is Order No. 78-114 on September 8, 1978 issued to Jack Wessman.

The original order included a pH neutralization requirement and resulted in the use of lime in the pond during high flow by 1958. Also in 1958 acid mine drainage was found to be polluting the water in the Kings Marsh Creek Springs Resort Swimming Pool.

This report was prepared by the Geotechnical and Environmental Engineering Branch of the Engineering Division, Sacramento District, United States Army Corps of Engineers (USACE).

1.2 Approach

This report follows EPA's guidance document titled PRP Search Manual (USEPA, 2003). A Baseline PRP Search has been conducted. The "Site Chronology and Property History Report" is presented here using the format suggested on Page 212 of the manual. The report does not include a PRP Synopsis Report.

1.3 Key contacts

Position	Name	E-mail	telephone
Program Manager	[redacted]	[redacted]@usace.army.mil	505-342-3435
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Technical Lead	[redacted]	[redacted]@usace.army.mil	916-557-7903
RWQCB	Victor Izzo	vizzo@waterboards.ca.gov	916-464-4626
RWQCB	Ross Atkinson	ratkinson@waterboards.ca.gov	916-464-4614
Contra Costa County	Edward Turner (GIS)	eturn@pw.cccounty.us	925-313-2015
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	Linda Wilcox (counsel)	LWilc@cc.cccounty.us	925-335-1800
	Sue Loyd (Hazmat)	sloyd@hsd.cccounty.us	925-250-7912
	Mitch Avalon (PW)	maval@pw.cccounty.us	925-313-2203
CH2MHill	Todd Wang	Todd.Wang@CH2M.com	916-563-2521

1.4 Report Overview

The report is divided into a site history and a property history. The site history discusses operations at the site and the permitting and regulatory history. The property history is a discussion of property ownership evidenced by legal documents such as titles, deeds and liens, and also discusses any environmental studies documenting risk to human health and the environment. All available references cited in the report are found in Chapter 4.0 (References) have been included in Appendix B as a compact disc. The land in Section 29 was patented to individuals by the US General Land Office in the late 1800s. Since then the land has been subdivided. A cross-reference table is included in Table 1 that correlates present day subdivision assessor parcels to original quicksilver (mercury) mining claims filed with Contra Costa County and the United States General Land Office as an aid to the reader.

2.0 SITE HISTORY

Some background information is necessary to understand the early history of the Mount Diablo Mercury Mine. A timeline is included in Appendix A. In the early days of American westward expansion, federal land was not yet surveyed, mining laws were inadequate or non-existent, squatting and sometimes violent disputes over mining claims was common. At Mount Diablo, many mercury mining claims were established years before the United States General Land Office (GLO) established control over public land. The initial mining claims were filed with Contra Costa County and recognized by the GLO only decades later. Subsequently the land was subdivided, consolidated, and subdivided again. In order to understand how the present and past parcel boundaries were drawn and hence which present and past property owners might be Potentially Responsible Parties (PRPs), and to understand the reasons for the sudden commencements and terminations of mining activities according to the market price of quicksilver (mercury) it is helpful to place the past mining activity in historical context.

California gained independence from Mexico on June 14, 1846. After four years as the "Bear Flag Republic", California gained Statehood on September 9, 1850 as part of the Compromise of 1850. William Ryder Powell filed the first recorded mineral claim with Contra Costa County on April 29, 1849 during the tenure of the Bear Flag Republic. His original claim therefore pre-dates federal jurisdiction. The claim was a placer-mining claim for cinnabar in Dunn Creek adjacent to what was to become the Mount Diablo Quicksilver Mine.

Mount Diablo was first established as a baseline and meridian for the United States Public Land Survey in the West in July 1851 by Col. Leander Ransom. R. D. Cutts of the Coast and Geodetic Survey (now the National Geodetic Survey of NOAA) placed a marker there for use in the National Triangulation Survey in 1852. Spanish land grants honored under the Treaty of Guadalupe Hidalgo were surveyed first, which lasted at least through 1859. These grants existed primarily along the California coast and in the

Central Valley. No such grants covered Mount Diablo; it therefore became federal land upon statehood.

Mining claims are difficult to file without cadastral data such as the Public Land Survey. William Brewer, accompanying Josiah Whitney's famous geological survey for the California Geological Survey, established the elevation of Mount Diablo peak in 1862, which established the basis for cadastral survey. The first official federal land patent in the Section was in 1862 to the Western Pacific Railroad, authorized by the Pacific Railway Act of 1862. Prior to this time there was no land record at Mount Diablo. The American Civil War officially began when the Confederacy fired on Fort Sumter on April 12, 1861. Few federal land patents other than those directed by Congress were issued in California until the late 1860s, even though mining operations on federal land were already well underway. Squatting on federal land by miners was encouraged during the Civil War since the Union needed metals for the war effort, but it took decades after the fact to sort out the land claims.

The town of Clayton near the mine was founded by Joel Clayton and Charles Rhine in 1857 which created a logistical base for mining on Mount Diablo. The Civil War created a great demand for strategic minerals, including copper and mercury. A "copper rush" began at Mount Diablo in 1862. Placer deposits of cinnabar were already known and being mined in the area for use in the gold fields. As a result of the search for copper, cinnabar (mercury sulfide) deposits were discovered on federal land at Mount Diablo in 1863.

A number of laws have affected mining in the West that are helpful to keep in mind while reviewing this report including the

- US Chaffee Mining Act of 1866
- US Mining Act of 1870 (placer mining)
- US General Mining Act of 1872
- US Timber & Stone Act of 1878

- Stock Raising Homestead Act of 1916
- US Public Health Service Drinking Water Standards Amendments of 1946
- California Dickey Water Pollution Control Act of 1949
- Defense Production Act of 1950
- US Public Health Service Drinking Water Standards Amendments of 1962
- California Porter Cologne Water Quality Control Act of 1969
- US Water Pollution Control Act Amendments of 1972 (Clean Water Act)
- Safe Drinking Water Act of 1974
- California Surface Mining and Reclamation Act of 1975
- US Surface Mining Control and Reclamation Act of 1977
- California Toxic Pits Cleanup Act of 1984

Demand for mercury for use in the manufacture of mercury fulminate in subsequent wars caused the price of mercury to soar and generated renewed interest in mercury mining at Mount Diablo. The site history shows renewed activity during the Second World War, the Korean War and the Vietnam War. The last known mining activity was by the Guadalupe Mining Company in the early 1970s. Since then demand for mercury has been low as substitutes have been found for many of its former uses. The last operating mercury mine in the United States, the Cordero Mine in Humboldt County, Nevada, shut down in 1981. Since then there has been no interest in re-opening the mercury mine on Mount Diablo.

2.1 Location

The area was once subject to a great deal of mining activity for mercury, copper, coal, and manganese and was referred to by the United States Bureau of Mines as the Mount Diablo Mining District. The site is located in Township 1 North, Range 1 East Section 29 of the Mount Diablo Baseline and Meridian (Figure 1). The western and eastern mine works are located on Contra Costa County Assessor Parcel Number 078-060-034. The settlement pond is located on Parcel Number 078-070-036. Some of the

mine waste is on Parcel Number 078-070-034 immediately to the southeast of the mine properties. Altogether the disturbed land is approximately 100 acres.

Geographically the site is on the northern slope of North Peak north of Mount Diablo, near the intersection of Marsh Creek Road and Morgan Territory Road. The nearest town is the City of Clayton three miles to the northwest. Mine drainage flows to Dunn Creek, a tributary of Marsh Creek. Lower Marsh Creek flows through a flood control project funded by the US Department of Agriculture Soil Conservation Service (now the Natural Resource Conservation Service) under the PL-566 Watershed Protection and Flood Prevention Program. The creek flows through the CalFed Dutch Slough Wetland Restoration Project and eventually flows to Big Break and Dutch Slough and hence to the San Joaquin River (Stockton Deep Water Ship Channel), near the confluence of the San Joaquin and Sacramento Rivers in the Sacramento-San Joaquin Legal Delta.

2.2 Adjoining Properties

The parcel to the immediate north of the mine property (078-070-033) was originally patented by the US General Land Office to the Western Pacific Railroad (See Attachment E) as the first land patent in the Section. The land patent was withdrawn, as the Transcontinental Railroad Act did now allow the railroads to receive land grants with mineral resources, and re-issued as a mineral patent to William Rider Powell of Powell Cinnabar in 1898. Powell had already filed a placer mining claim with Contra Costa County as early as 1849. Powell placer mined Dunn Creek for cinnabar. Today the land is owned by Mount Diablo State Park.

The parcel to the west (078-060-033) was originally part of the George Grutchfield GLO homestead claim and subsequent consolidated Mount Diablo Quicksilver Mine property. The property was used as a rock quarry by the Bradley Mining Company. The property was sold by Robert E. and Dana Dunn on June 11, 1992

to Save Mount Diablo, who in turn sold the property on July 10, 1992 to the California Department of Parks and Recreation (Mount Diablo State Park).

The parcel to the south (078-060-032) was originally a non-patented mineral claim filed by Jacob Bendixen with Contra Costa County on April 28, 1878. According to County records, Mary Ives Crocker and Kate Dillon Winship bought the land from Jacob Bendixen and Paul de Martini on December 23, 1908. The property is owned by Mount Diablo State Park today.

APN 078-060-009 to the south was patented (Patent 312143) by the General Land Office as a homestead claim to Joseph Arraya on January 28, 1937. The property belongs to Mount Diablo State Park today.

Parcel 078-070-034 to the southeast was originally part of the Lyman Hastings cinnabar claim (patent 1494) and the consolidated Mount Diablo Quicksilver Mine. The Morgan Territory Investment Company subsequently acquired it and sold it to The California Department of Parks and Recreation on February 2, 1976.

Land to the east was patented by the GLO as Patent 1494 to a mercury miner named Lyman W. Hastings on May 15, 1869, although his mining claim with the County preceded that. This land patent included 120 acres in Section 28 and 40 acres in Section 29 where the pond, eastern mine works and mill works from the Mount Diablo Mercury Mine are today. Immediately east of this land was the mercury prospect at Sunshine Camp.

Southeast of the property on APN 078-120-041 is the old Perkins Canyon mercury mine that has been attributed to Lyman Hastings. The land is owned today by Mount Diablo State Park.

The record shows there were several mercury mines and prospects in the Mount Diablo Mining District, two near Sunshine Camp, two in Perkins Canyon, two in Long Canyon,

and one at Russelmann Creek. Asbestos, manganese, and copper mines are more numerous in the mining district. No calcines can be found today at any of the other mines. Either the calcines have subsequently been washed away, or more likely, ore was transported to the millworks at the Ryne Mine and later the Mount Diablo Quicksilver mine for processing.

2.3 Site Owners/Operators

The current site owners are Jack and Carolyn Wessman who bought the property from the Guadalupe Mining Company on July 2, 1974. Mr. Wessman was an employee of Security Pacific Real Estate Services at the time. They subsequently subdivided the property and parcel 078-070-036 was deeded to the Mount Diablo Springs Improvement Society (Jack and Carolyn Wessman) on December 30, 2005 and Parcel 078-060-034 was deeded to the Wessman Family Trust on May 10, 2005.

For most of the mine's history, mine operations have been conducted under lease by mine operators and not the property owners. Past mine owners are discussed in the chain-of-title search discussed in Section 3.1

Robert Ogilby, an ownership partner with John Welch, financed and superintended the mine during its early years. Robert Ogilby later became a faculty member of the College of California in Oakland and hence became a charter professor at the University of California in 1869. He went on to found the gold mining town of Ogilby in Imperial County, California after the region was made accessible by the completion of the Southern Pacific Railway. Ogilby listed his profession at the time as surveyor and engineer. Because of his association with government, consideration was given as to whether at any time he might have acted as an agent for the State of California or the United States of America in any of his mining ventures. No evidence was found that Ogilby ever, at any time, acted as an agent for others.

Mr. Ogilby was named in Mining and Scientific Press of San Francisco as a capitalist who built the road to the Welch mine and financed the mill works. He also built the Ogilby Toll Road from "Lake Valley" in what is today South Lake Tahoe to Johnson's Pass along today's Highway 50 route. Ogilby Grade, Ogilby Creek and Ogilby Canyon in El Dorado County were all named for him. The ghost town of Ogilby in Imperial County was a gold mining town beginning around 1884 and was likely named for the same man. Robert Ogilby is also a renowned artist of early California scenes. His painting of Grass Valley during the Gold Rush hangs in the Bancroft Library of the University of California at Berkeley today. According to census records, he was an immigrant who came to California in 1849 or 1850 during the Gold Rush. He lived in Sacramento, Oakland, and is last known to have lived in and probably died in a boarding house in the City of San Francisco leaving behind a wife and two children. He evidently made and lost several fortunes. Mining busts at Mount Diablo and Imperial County probably left him a pauper in old age.

The first known mine operator who was not a mine owner was E.J. Ryan who operated the western mine works from 1875 to 1877. It is estimated that as many as 1,000 flasks or 76,000 lbs of mercury were produced from the western mine in the early years.

Miners named Vic Blomberg and others (Hardy, Moni) began leasing the eastern and western mine properties circa 1930. They produced at least 58 flasks pr 4,408 lbs. of mercury from the western (Ryne) mine works and 9 flasks or 684 lbs. from the eastern mine works.

Vic Blomberg formed Mount Diablo Quicksilver Mining Company, purchased the eastern Hastings mine from E.A. Howard Lumber in 1934 and purchased the western Welch (Ryne) mine from Joseph Tonge at about the same time. This consolidated the mining operations into one unified mining property.

C.W. Ericksen operated the mine from 1933 to 1936 and produced at least 730 flasks or 55,480 lbs of mercury. The archive at the Contra Costa County Historical Society includes a record of sales.

Mr. Ericksen was succeeded as mine operator by the Bradley Mining Company, owned by Worthen Bradley, from 1936 to 1947. According to the records of the US Bureau of Mines, the Bradley Mining Company operations account for most of the mercury production at the mine. They produced 10,329 flasks or 785,000 lbs. of mercury and generated 91,561 tons of calcine waste.

The mine closed in the aftermath of World War II but reopened during the Korean War. In 1951 the mine was leased and operated by a partnership. Ronnie B. Smith, whose office was in the Tower Petroleum Building in downtown Dallas, Texas served as trustee for a partnership formed by Jene Harper, President of Franklin Supply Co of Chicago, Illinois which still exists today, and James Dunnigan, President of Producers Refining which was later taken over by CITGO, which now belongs to PDVSA, the Venezuelan State Oil Company. Contact information given at the time is below:

Ronnie B. Smith, Trustee
2106 Tower Petroleum Building
1907 Elm Street
Dallas, Texas 75201

Gene Harper, President
Alfred J. Mitchell, Treasurer
Franklin Supply Company
624 South Michigan Avenue
Chicago, Illinois

James F. Dunnigan
Producers Refining
Chicago, Illinois

Ronnie B Smith obtained a 75/25 cost-sharing agreement with the United States Department of the Interior Defense Minerals Exploration Administration (DMEA) under the Defense Production Act of 1950. While they operated the mine for a short time, they

may never have done so under the contract with DMEA, which was signed in 1953. Their production is estimated to be 102 flasks of mercury and 1,369 tons of calcines.

By 1954, J.L. Jonas and J.E. Johnson operated the mine under the DMEA cost-sharing agreement. Production was 21 flasks of mercury and 309 tons of calcines. Their addresses were given as:

John L. Jonas

Ex4 [redacted]

John E. Johnson

Ex6 [redacted]

Jonas and Johnson arranged to assume the DMEA contract in place of the Smith partnership in 1954 and operated under the cost-sharing arrangement through 1955. The records can be found in DMEA Docket Number 2448, on file with the US Geological Survey office in Spokane, Washington (USGS, 2003). A review of the docket, which numbers several reams of paper, revealed as a condition of the cost-sharing agreement that the DMEA required advance submission of a plan detailing the exact location of planned shafts and drifts. The DMEA claimed 75% ownership of all capital equipment used in expanding the mine, hired an onsite consultant to monitor progress, and conducted detailed audits of expenditures at the mine. Furthermore, when the mine was flooded, the DMEA reviewed the plan to de-water the mine and later to treat acid mine drainage and approved payment for the work. The terms of the contract also gave DMEA a royalty interest in any minerals discovered as a result of the mine expansion performed with the loan.

The mine was flooded in 1955 during the execution of the DMEA loan contract and a miner was killed. The State of California Regional Water Pollution Control Board brought mine de-watering to a halt due to complaints from neighboring properties about

the acid mine discharge. Jonas and Johnson were never able to put the mine back into operation after the disastrous flooding.

Cordero Mining assumed operation of the mine in 1955. Contact information given was

Cordero Mining Co.
131 University Avenue
Palo Alto, California
J.N. Pew, Jr., President
S.H. Williston, Vice-President
John C. Agnew, Secretary-Treasurer

Cordero Mining was created with discovery of the Cordero Mercury Mine in Humboldt County, Nevada. At peak operation, the Cordero Mine was the largest mercury mine in the United States and was the last operating mercury mine in the United States before it closed in 1981. Cordero Mining was bought by Sun Oil Company (Sunoco) in 1941 and was dissolved or sold in 1993. Sun Oil Company is currently cleaning up the Horse Heaven Mine in Jefferson County, Oregon under a Record of Decision. The Horse Heaven Mine is an abandoned mercury mine property that was once owned by Cordero Mining and is now owned by Sunoco.

Cordero Mining declined to use DMEA funds and operated the mine independently, completing the work planned under the DMEA contract by adding several hundred feet of tunnels to the existing underground mine works. Ore was not of sufficient grade to be economic and Cordero dumped the excavated rock and unprocessed metacinnabar ore and ceased operations within a year.

Cordero's participation at Mount Diablo was documented in DMEA Docket #2448, and was also discussed on page 23 of CDMG Special Report 80.

Sometime in 1956, Nevada Scheelite (a subsidiary of Kennametal), a tungsten-mining company from Nevada, operated the mine. Amount of production is unknown. When Nevada Scheelite abandoned operations in 1958, John E. Johnson took over operation of the mine but died shortly thereafter and mine operations ceased.

In 1960, Pacific Gas and Electric sought an easement or right-of-way for high voltage power lines to pass over the Mount Diablo Quicksilver Mine property. More information is found in the mining company records now in the archives of the Contra Costa County Historical Society in Martinez, California. Vic Blomberg, mine superintendent and President of the mining company, demanded a payment of $250,000 as compensation for the easement. PG&E believed this amount to be unreasonable and filed a lawsuit. The court record was not obtained but outcome of that lawsuit is clear since the high voltage power lines now pass directly over mine waste from the western (Ryne) mine works. Site inspection would be required to determine if PG&E disturbed mine waste or mill works when they erected the power lines over the Ryne mine.

On May 11, 1962, Victoria Resources purchased the mining properties from Mount Diablo Quicksilver Mining Company, as determined by title search. The contact information was

Victoria Resources
Boris Gresov
925 Fifth Avenue
New York, New York

Whether they ever actually operated the mine is unknown. They may have been a lumber company like E.A. Howard before them. From 1965 to 1970, Victoria Resources leased the property to mine operator Welty & Randall. Little information was found on this mine operator. Their principle activity was reworking the mine waste to extract additional mercury (RWQCB Memo July 17, 1967).

On December 9, 1969, the Guadalupe Mining Company purchased the mine from Victoria Resources. The contact information given was

Guadalupe Mining Co.
14900 Guadalupe Mine Road
San Jose, California

No record of mine production was found but documents mentioned that mining activity continued until 1971. The Wessmans purchased the property from Guadalupe Mining Company on July 2, 1974 and have not operated the mine. The last marketable recorded production was 21 flasks or 1,596 lbs of mercury produced from 309 tons of ore by Jonas and Johnson during the tenure of the DMEA contract in the early 1950s.

2.4 When Operations Began

The first recorded mercury mining operation at Mount Diablo was reported to be prospector Francis Such in 1850. The first mining claim was filed by Lyman Hastings in nearby Perkins Canyon, date unknown. John Welch discovered cinnabar on the western part of APN 078-060-034 in 1863. The property to the north was a placer mining claim filed by William Ryder Powell in Dunn Creek apparently first filed with the County in 1849. Metacinnabar was discovered on the eastern part of the Wessman property by Frances C. Hastings-Hunsaker, widow of Lyman H. Hastings who had been placer mining Marsh Creek and mining in Perkins Canyon, sometime between 1874 and 1907, probably in 1877. Jacob Bendixen filed a mining claim in the southeast quarter of Section 29 on April 28, 1878. The Welch and Hastings claims were consolidated by Vic Blomberg and the Mount Diablo Quicksilver Mining Company in the early 1930s. Mining operations continued intermittently on the consolidated mine property until 1971. Mercury mining activity therefore spanned over a century.

2.5 Type of Operations

Initially mining at both the Welch (Ryne) Mine and the Hastings mine was conducted as hard rock mining underground. In 1936, the mining method was changed to open-pit mining by the Bradley Mining Company. For milling, ore was crushed and placed in a rotary kiln where it was heated to a temperature of over 500 degrees Centigrade to vaporize mercury, which was recovered by retorting. Low-grade ore and

processed calcines were disposed on-site. There is evidence that mine waste was also sold as aggregate (see Table 2).

2.6 Substances Manufactured, Treated, Stored, or Disposed

Mercury was extracted by mining, crushing, rotary kiln, and retorting of mercury vapors. Calcine waste was disposed onsite and sold (Table 1). Mercury had several historic uses. It was used in gold mines in the Sierra Nevada for separating gold from ore. Mercury was also used for ethyl mercury in vaccine preservation and calomel (Hg_2Cl_2), a sort of predecessor to tincture of iodine as an anti-bacterial treatment, and mercury nitrate, used in felting. But the biggest demand was for the manufacture of mercury fulminate - $Hg(ONC)_2$ - used in percussion caps and blasting caps. The price for mercury skyrocketed with each war, stimulating an increase in mining activity. Mining company records at the Contra Costa County Historical Society indicate that customers included a mercury commodity trader in San Francisco, furriers, major pharmaceutical companies, instrument companies, gold mines, and a rifle cartridge manufacturer.

2.7 Waste

Calcine tailings were the principle waste generated by the mine. The calcines typically contain metal sulfides such as pyrite (FeS), millerite (NiS), chalcocite (CuS), stibnite (SbS), realgar (AsS), alabandite (MnS), and galena (PbS). Acid mine drainage is a biogeochemical process that occurs as a result of the contact of reduced sulfur and metal sulfides with water and oxygen. This process generates sulfuric acid and dissolved metal ions, a self-sustaining process which presents the principle environmental concern from the mining operation.

2.8 Permits

The RWQCB issued Waste Discharge Requirements Order 78-114 on September 8, 1978 which is still in effect. Permits and orders are included in Appendix C.

2.9 Warnings or NOVs issued by regulatory agencies

The Bureau of Sanitation of the California Department of Public Health issued various citations beginning in 1939. The California Regional Water Quality Control Board Central Valley Region issued Resolution 135 on May 15, 1952 and Resolution Number 53-21 on February 27, 1953 to control discharge from acid mine drainage. A Waste Discharge Requirement and Cleanup and Abatement Order were issued on November 20, 1978 to Jack Wessman.

3.0 PROPERTY HISTORY

3.1 Chain-of-Title Search

The search began with the records of the Bureau of Land Management office. General Land Office records were searched to determine to whom the land was originally patented by the United States Government. Contra Costa County was contacted to determine current property ownership. NCO Financial Systems, Inc. performed the chain-of-title search for Environmental Data Resources, Inc. The chain-of-title search report is in Appendix D. The search was complex because the present-day subdivision parcel boundaries are different from the original federal land patent boundaries. Additional property records are found in Appendix E.

Western Parcel (western half of APN 078-060-034)

Copper miner John H, Welch filed a mining claim on April 15, 1863 with Contra Costa County. The claim included the northwest quarter of T1NR1ES29, the northwest quarter of the southeast quarter, and part of the southwest quarter of the northwest quarter (Figure 2). Mr. Welch was searching for copper on behalf of a copper mining company from the Sierra Nevada foothills called Pioneer Copper Mining Co of El Dorado County and discovered cinnabar in a rock outcrop on the subject parcel. The Mining and Scientific Press of San Francisco reported mining operations at this mine beginning in 1863. No records exist with the US Bureau of Mines or California Geological Survey from this time period. On April 17, 1875 Mr. Welch now of Welch Quicksilver Mining Company was granted a federal land patent for 20 acres in T1NR1ES29 referred to as Mineral Lot 37, Welch Quicksilver Mining Claim, and Mineral Lot 38 Welch Consolidated Mine & Mill Site. After the American Civil War, the price of mercury plummeted and there were a number of court cases recorded regarding debts owed by the mine and mining claim infringements in the years after the War.

The earliest production information is available from the reports of the California State Mining Bureau created in April 1880, the first report of mine production appearing in an 1888 report (CSMB, 1888). The source of its information regarding mineral production at Mount Diablo prior to 1888 is unknown. The first mining operations recorded began in 1875, although the mine had been operating since 1863. The production from 1863 to 1875 is therefore unknown. The US Bureau of Mines was created by Public Law 179, the Organic Act of 1916 (and was eliminated in 1995). The Bureau of Mines Mineral Yearbook had its first record of production at Mount Diablo in 1943. There is a gap in the record from 1877 to 1930. It is suspected some unreported production may have occurred during that time period.

The mine reportedly fell into litigation in 1877, probably with the Hastings claim at the eastern mine works or the Jacob Bendixen claim to the south (Mineral Survey 3639 Bendixen Mine, claimed filed with Contra Costa County on April28, 1878), and did not re-open. Perhaps as a consequence of inactivity, on December 10, 1912 the US General Land Office revoked the land patent for Mineral Lot 37, Welch Quicksilver Mine, Mineral Lot 38, Welch Consolidated Mine and Mill Site, and the Bendixen Mine (Mineral Survey 3639) , and restored the land to federal ownership. This made the US General Land Office an abandoned mercury mine owner for a period of about 17 months. On May 11, 1914, George E. Grutchfield was granted a federal land patent for 160 acres that includes the Welch quicksilver mine and the Bendixen Mine (the Hastings claim remained a separate property). The land was purchased from the General Land Office and was recorded as a homestead claim with Contra Costa County.

On April 27, 1915, Agnes Grutchfield inherited sole title as widow of George E. Grutchfield. She promptly leased the property to Joseph Tonge. Agnes sold the property to Joseph Tonge on April 24, 1930. In the meantime, beginning on January 14, 1930, Joseph Tonge subleased the mining property to miners named Blomberg, Hardy and Moni. Sometime between April 24, 1930 and January 17, 1936, Blomberg & Moni bought the property from Tonge, although that title document has not been found.

On January 17, 1936, the property title was transferred from Blomberg and Moni to the Mount Diablo Quicksilver Mining Company with Mr. Blomberg as company president.

Company officers were:

Vic Blomberg, President
Phil W. Cox, Vice-President
Harold Blomberg, Secretary

The eastern mine works dating to the Hastings claim was purchased by Mt. Diablo Quicksilver Mining Co. from E.A Howard of Howard Lumber Co. on February 11, 1934. So the three mining properties, Hastings, Welch, and Bendixen claims, were formally unified as one consolidated mining property on January 17, 1936.

On May 11, 1962, Victoria Resources of New York purchased the property from the Mount Diablo Quicksilver Mining Company. Victoria Resources was run by a man named Boris V. Gresov and the company address traced to a town home facing Manhattan's Central Park at 925 Fifth Avenue, New York, New York

The property was purchased on December 9, 1969 by Guadalupe Mining Company of Santa Clara County. On July 2, 1974, Jack and Carolyn Wessman, the current owners, purchased the property.

California real estate disclosure laws have been around since the Easton v. Strassburger decision of 1984, a case in which a real estate agent failed to disclose a landslide hazard which destroyed the value of a residential property in the city of Diablo (near the Mount Diablo mercury mine). The law now requires that sellers and their agents disclose all known material facts and defects about the property which is for sale. Ten years prior at the time the Wessmans purchased the property, caveat emptor was the law of the land.

On May 10, 2005, the Wessmans transferred title for the property to the Wessman Family Trust.

North Parcel (078-070-033, 078-070-040)

On April 29, 1949, William Ryder Powell filed the first mercury mining claim on record with the County. It was a placer mining claim for Dunn Creek and included Township 1 North Range 1 East Section 29 northeast quarter.

The 160 acre parcel north of the Wessman property (Patent 5 and later 29926), as well as the 80-acre northwest quarter (also Patent 5), were patented by the General Land Office to the Western Pacific Railroad on May 21, 1870 under the Act of Congress that authorized construction of the first Transcontinental Railroad. However the Act prohibited patenting land to the railroad containing mineral resources. Therefore, on April 4, 1898, 160 acres of the railroad patent was revoked by the GLO and re-issued to William Rider Powell of Powell Cinnabar as mining patent 29926 for placer-mining cinnabar from Dunn Creek. Part of the land from that mineral patent is now part of the Wessman property, and part is land now belonging to Mount Diablo State Park, California Department of Parks and Recreation.

East Parcel (078-070-036 and eastern half of 078-060-034)

On May 15, 1869 the eastern portion of the present mine property was patented to Lyman Hastings as a land purchase. There is some evidence that the mining claim was filed with Contra Costa County years before this. The claim was probably originally a placer mining claim for Dunn Creek. According to Seth Adams (Adams, 2000), Lyman Hastings is credited with the first discovery of mercury on Mount Diablo at a mine prospect in Perkins Canyon one mile to the south now on land belonging to Mount Diablo State Park, although it seems that in actuality William Ryder Powell and Francis Such preceded him. This property is also bounded by the Sunshine Camp mercury prospect to the immediate east.

On June 17, 1874, Lyman Hastings died and sole title transferred to his widow, Frances C. Hastings. Sometime shortly thereafter she married a man named Hunsaker and they discovered a metacinnabar (polymorph of cinnabar) deposit on the property. There is some evidence that mining there may have begun around 1875 when the California State Mining Bureau first reported production. Mining apparently ceased due to litigation with the Welch or Bendixen claim around 1877. E.A. Howard of Howard Lumber Company bought the parcel on October 25, 1907. Howard Lumber Company were probably harvesting oak and maple trees from Mount Diablo and sold oak and maple hardwood lumber in San Francisco.

Mount Diablo Quicksilver Mining Company bought the property from E.A. Howard on February 11, 1934 and the property was unified with the purchase and consolidation of the western Welch (Ryne) and southern Bendixen mines on January 17, 1936.

West Parcel (APN 078-060-033)

This parcel contains an old manganese mine prospect and a rock quarry once operated by the Bradley Mining Company. The property now belongs to Mount Diablo State Park. It was originally part of the George Grutchfield GLO homestead claim and subsequent consolidated Mount Diablo Quicksilver Mine property. The property was sold by Robert E. and Dana Dunn on June 11, 1992 to Save Mount Diablo, who in turn sold the property on July 10, 1992 to the California Department of Parks and Recreation (Mount Diablo State Park).

South Parcel(s) (APN 078-060-032, 078-060-009, 078-070-034)

The parcel to the immediate south (078-060-032) was originally a non-patented mineral claim (Mineral Survey 3639) filed by Jacob Bendixen with Contra Costa County on April 28, 1878. It was part of the federal land patent sold by the GLO to George E. Grutchfield as Patent 404717 on May 11, 1914 that included the Welch mercury mine property. According to County records, Mary Ives Crocker (an heiress of the Crocker

banking fortune) and Kate Dillon Winship bought the land from Jacob Bendixen and Paul de Martini on December 23, 1908. The property is owned by Mount Diablo State Park today.

Parcel 078-060-009 was patented to Joseph Arraya (Patent 312143) on January 28, 1913 as a homestead claim and belongs to Mount Diablo State Park today.

Parcel 078-070-034 to the southeast was originally part of the Lyman Hastings cinnabar claim (patent 1494) and the consolidated Mount Diablo Quicksilver Mine. The Morgan Territory Investment Company subsequently acquired it and sold it to The California Department of Parks and Recreation on February 2, 1976. There is mine waste on the property. The Regional Water Quality Control Board cited the State Park for discharge of acid mine drainage from Horse Creek on State Park property to Dunn Creek beginning in March 1989 and as recently as August 18, 2000 (RWQCB, 2000). No enforcement action has been taken.

Northwest Parcels (APN 078-060-003, 078-060-036, 078-060-035)

These properties contain the original mine road built by Mr. Ogilby in the 1860s and are part of John H. Welch's original mining claim with Contra Costa County. 078-060-003 was part of a federal land patent to the Western Pacific Railroad on May 21, 1870. The others were part of the land patent to George E. Grutchfield, who bought the property on May 11, 1914. 078-060-36 belongs to Mount Diablo State Park today, 078-060-035 is private land.

3.2 Environmental hazards

Acid mine drainage and calcine mine waste create many environmental hazards, most of which have not been assessed. Presumably there are environmental hazards at some as yet un-quantified level of risk to human health and the environment due to windblown

dust, exposure to contaminated soil, impact to groundwater, and unauthorized discharge to Marsh Creek. Of these hazards, only the impact to Marsh Creek water quality has been assessed and is of interest to the Army Corps of Engineers under the Restoration of Abandoned Mines Program. At the time of this writing, the public file of the Regional Water Quality Control Board had not yet been obtained and the existing data had not yet been fully assessed, although the Contra Costa County files were made available.

Beginning as early as 1939, the California Department of Public Health has observed discharge of low pH water with sulfuric acid, flocculated iron, high total dissolved solids, chloride, sulfate, and hardness and began enforcement with the passage of US Public Health Service drinking water standards in 1946. Beginning in May 1952, the Regional Water Pollution Control Board issued discharge requirements under the California Dickey Water Pollution Control Act of 1949 for color, precipitate, settleable solids, pH, and undefined "toxic materials". The 1978 Order still in effect added copper, iron, manganese and zinc to the reporting list, but not mercury or nickel, the primary contaminants of concern. The drinking water standard for mercury was set in 1992 as a consequence of the Safe Drinking Water Act of 1974 and therefore post-dated the effective Order. No drinking water standard has been established for nickel but a Preliminary Remediation Goal has been established by EPA.

Aside from regulatory orders discussed in Section 2.9, the first study under modern environmental law and regulation was performed at Marsh Creek Dam in 1980 (CRWQCB, 1980). A fish study was conducted by California Department of Fish and Game and the California Department of Parks and Recreation as part of an environmental impact study for the creation of John Marsh House Park. Largemouth bass were found with 2.7 ppm mercury. Catfish and sunfish had up to 1.8 ppm mercury. The mercury limit in fish set by the Food and Drug Administration is 1 ppm. Fishing was banned in the lake.

In 1987, the Water Board sampled sediment and water in Marsh Creek Reservoir (CRWQCB, 1987). Nickel was in bottom sediment at 118 mg/Kg and mercury averaged 0.46 mg/Kg.

A study was done in nearby Brentwood, California along Marsh Creek for the Sweetwater Ranch development project (Wahler & Associates, 1990) to assess mercury contamination in Marsh Creek. A series of studies by the University of California at Davis were prompted by the recognition that abandoned mercury mines on Mount Diablo have a significant impact on the water quality of Marsh Creek (Slotton *et al.*, 1996, 1997 and 1998). Dr. Slotton concluded that Mount Diablo Mercury Mine discharges over 90% of the mercury in Marsh Creek. According to the production records of the US Bureau of Mines, the western and eastern mine works of Mount Diablo Mercury Mine account for most of the mercury production from the mining district. However, no mill works or calcines have been found at the location of other mining claims and prospects, leading to a suspicion that ore may have been transported from other smaller mining claims to the Mount Diablo Mercury Mine for ore processing. Further historical research would be required to determine where and how mercury was extracted from the other mercury mines in the mining district.

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TABLE 1
TRACING CURRENT ASSESSOR PARCELS TO ORIGINAL MINING CLAIMS

PLSS SECTION	*ORIGINAL CLAIM*	*SUBSECTION*	*APN*	*Owner*	*Mine or Millworks?*
MDBM T1N R1E S29	William R. Powell	NE ¼	078-070-033	Mt Diablo State Park	
			078-070-040		
			078-060-034 (part)	**Wessman**	Y
	John Welch	SE ¼ NW ¼	**078-060-034 (part)**	**Wessman**	Y
			078-060-033(part)	Mt Diablo State Park	
		NW ¼	078-060-003	Mt Diablo State Park	
			078-060-035		
			078-060-015		
			078-060-021		
			078-060-036	Mt Diablo State Park	
		SW ¼	078-060-033	Mt Diablo State Park	
	Lyman Hastings	SE ¼ NE ¼	078-060-034 (part)	Wessman	Y
MDBM T1N R1E S28		SW ¼ W 1/2	**078-070-036**	**Mt. Diablo Springs Improvement Society**	Y
			078-070-035		
			078-070-034	Mt Diablo State Park	
		NW ¼ SW 1/4	078-070-024		
			078-070-021		
			078-070-042		
			078-070-043		

Table 2

Mount Diablo Quicksilver Mine
Production History

			Ryne Mine		Mount Diablo Mine		Ore	Ore	Calcines
	Owner	Operator	(flasks)	(lbs)	(flasks)	(lbs)	(tons)	(%)	$
1863-1875	General Land Office	Pioneer Copper Mining Co.	?	?			?	?	
	Welch	Welch Quicksilver							
1875-1877	Welch	Ryne Mining Co?	1,000	76,000			?	?	
1877-1912	?				?	?			
1912-1913	General Land Office								
1914-1929	George E. Grutchfield	E.A. Howard Lumber?							
1929	Mount Diablo Quicksilver Mining Co.								
1930			58	4,408	9	684	?	?	
1931									
1932									
1933		C.W. Ericksen			730	55,480	?	?	
1934									
1935									
1936									
1937		Bradley Mining Co.			314	23,864	2,911	3%	$40
1938					1,361	103,436	8,850	9%	$6
1939					1,462	111,112	12,000	13%	$42
1940					1,084	82,384	14,400	15%	$263
1941					1,622	123,272	14,400	15%	$827
1942					1,366	103,816	12,000	13%	$375
1943					1,127	85,652	11,000	12%	$2,562
1944					698	53,048	5,500	6%	$1,886
1945					434	32,984	4,500	5%	$3,880
1946					861	65,436	6,000	6%	$11,253
1947					126	9,576	1,000	1%	$32,899
1948					0	0	0		$25,739
1949					0	0	0		$8,640
1950					0	0	0		$9,356
1951-1952		Ronnie B. Smith			102	7,752	1,369	1%	
1953-1954		Jonas & Johnson			21	1,596	309	0%	
1955		Cordero Mining/Sunoco			?	?	?		
1956		Nevada Scheelite/Kennametal			?	?	?		
1958		J.E. Johnson			0	0	0		
1960	Victoria Resources	Welty & Randall			?	?	?		
1970	Guadalupe Mining Co.				?	?	?		
1974	Jack Wessman				0	0	0		
		TOTAL	1,058	80,408	11,317	860,092	94,239		$97,768

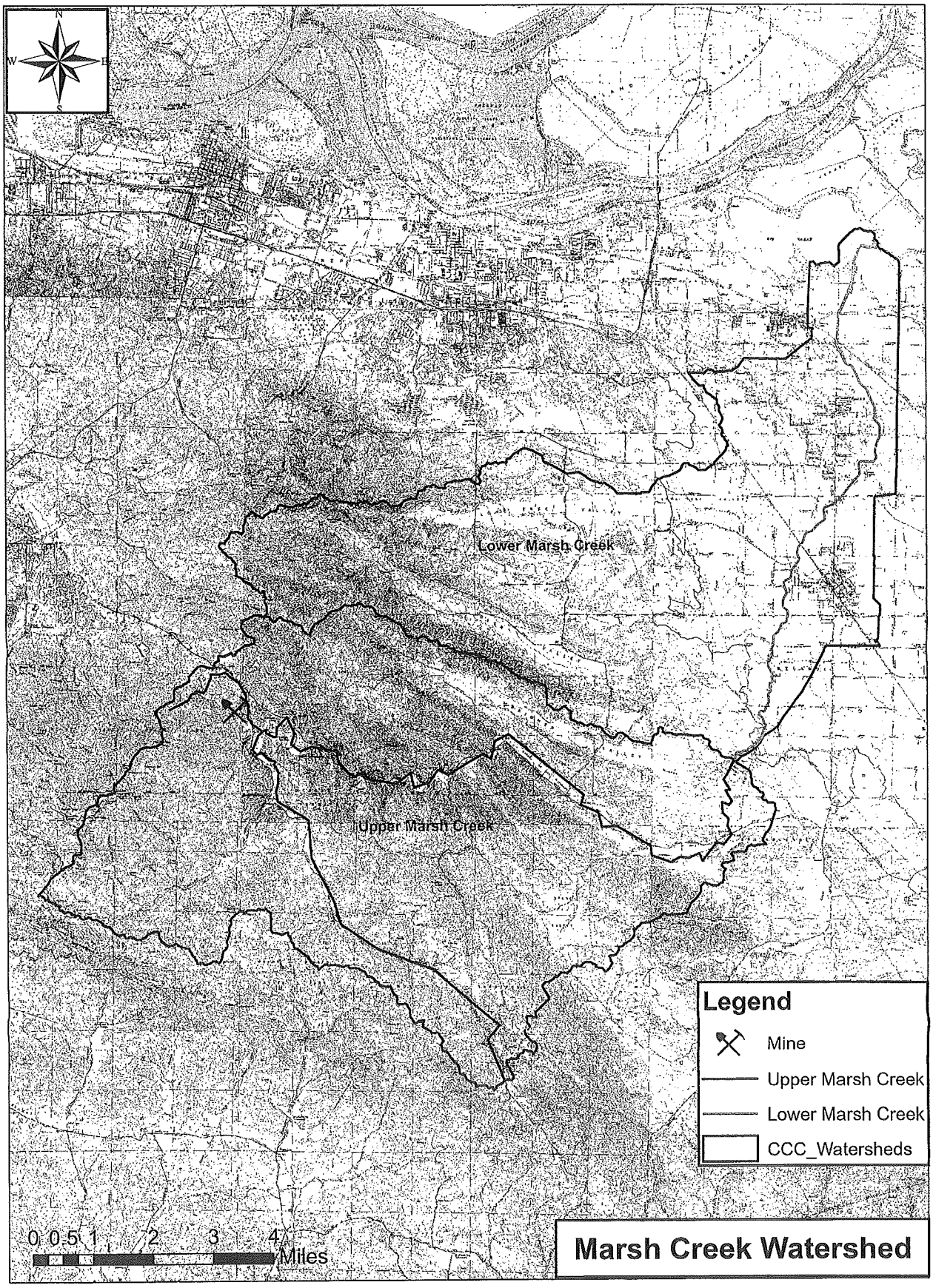
N
W
E
S
Lower Marsh Creek
Upper Marsh Creek
Legend
Mine
Upper Marsh Creek
Lower Marsh Creek
CCC_Watersheds
0 0.5 1 2 3 4
Miles
Marsh Creek Watershed

Figure 1

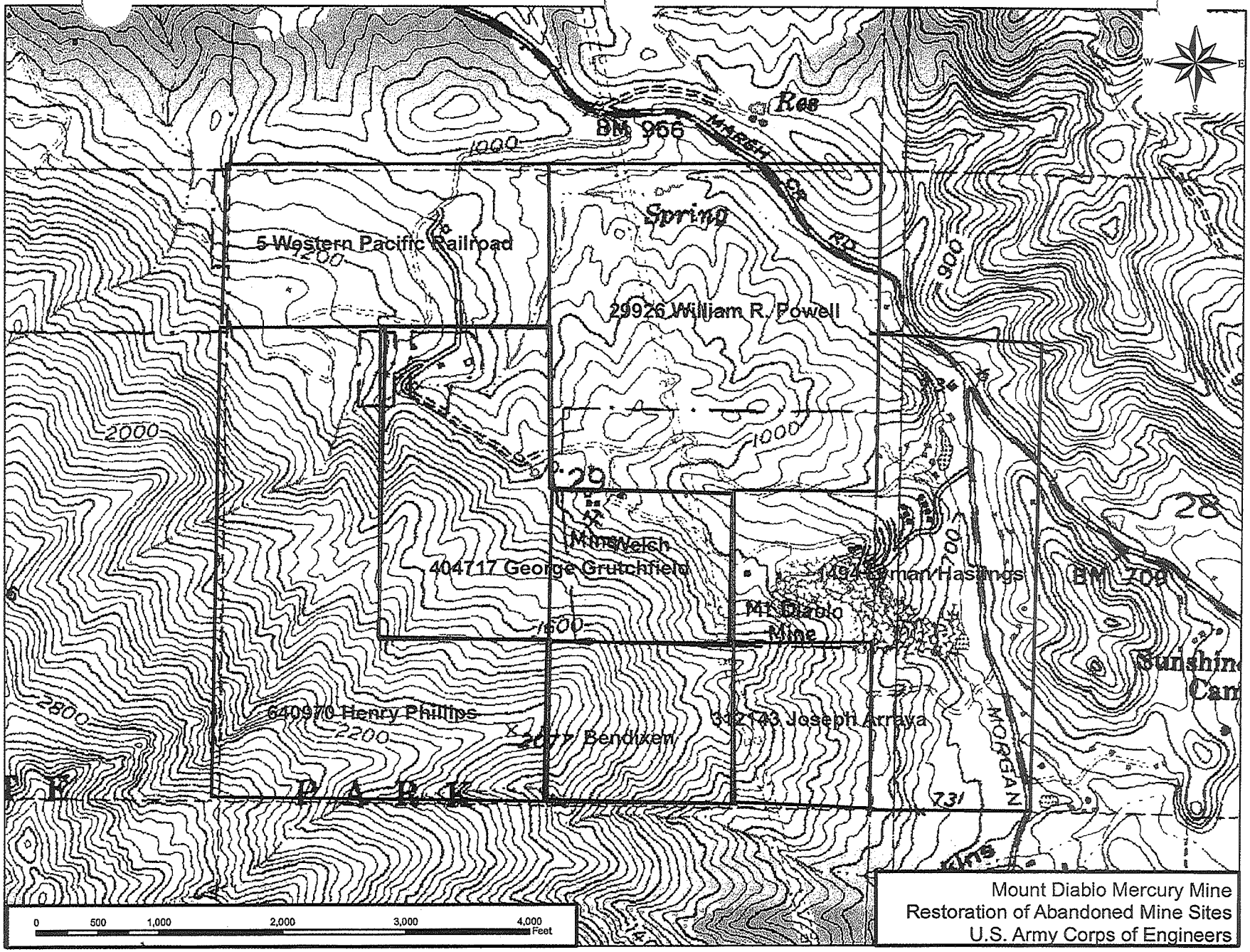
BM 966
Ras
Spring
5 Western Pacific Railroad
29926 William R. Powell
Mine/Welch
404717 George Grutchfield
Mt Diablo
Mine
640970 Henry Phillips
312143 Joseph Arraya
Bendixen
BM 709
Sunshine
Cam
MORGAN
PARK
0 500 1,000 2,000 3,000 4,000 Feet
Mount Diablo Mercury Mine
Restoration of Abandoned Mine Sites
U.S. Army Corps of Engineers

Figure 2

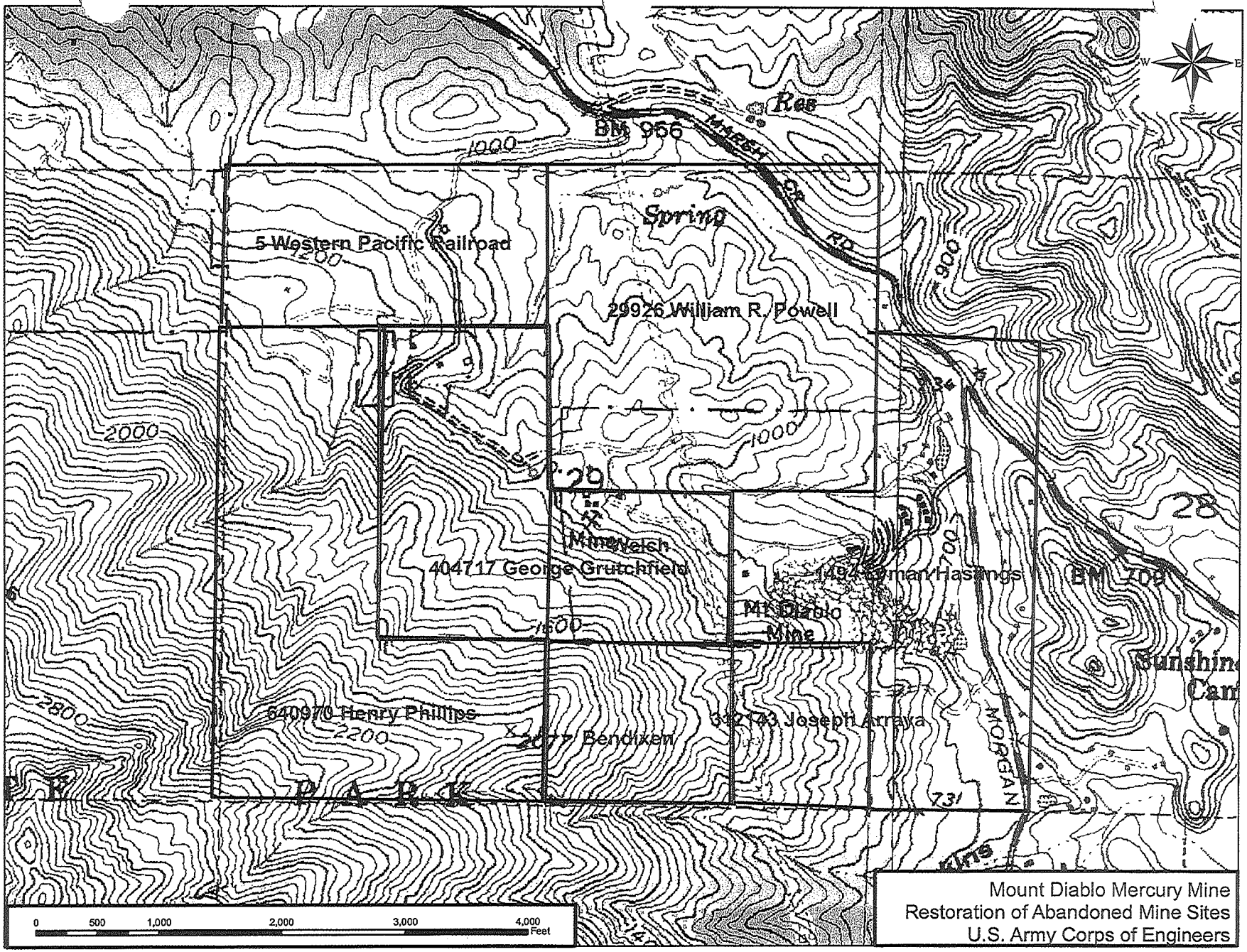
BM 966
Ros
MARSH CR RD
Spring
5 Western Pacific Railroad
29926 William R. Powell
2000
1000
900
1200
28
Mine Welch
404717 George Grutchfield
1494 Lyman Hastings
BM 1009
Mt Diablo Mine
1600
640970 Henry Phillips
2800
2200
312143 Joseph Arraya
MORGAN
731
0 500 1,000 2,000 3,000 4,000 Feet
Mount Diablo Mercury Mine
Restoration of Abandoned Mine Sites
U.S. Army Corps of Engineers

Figure 2

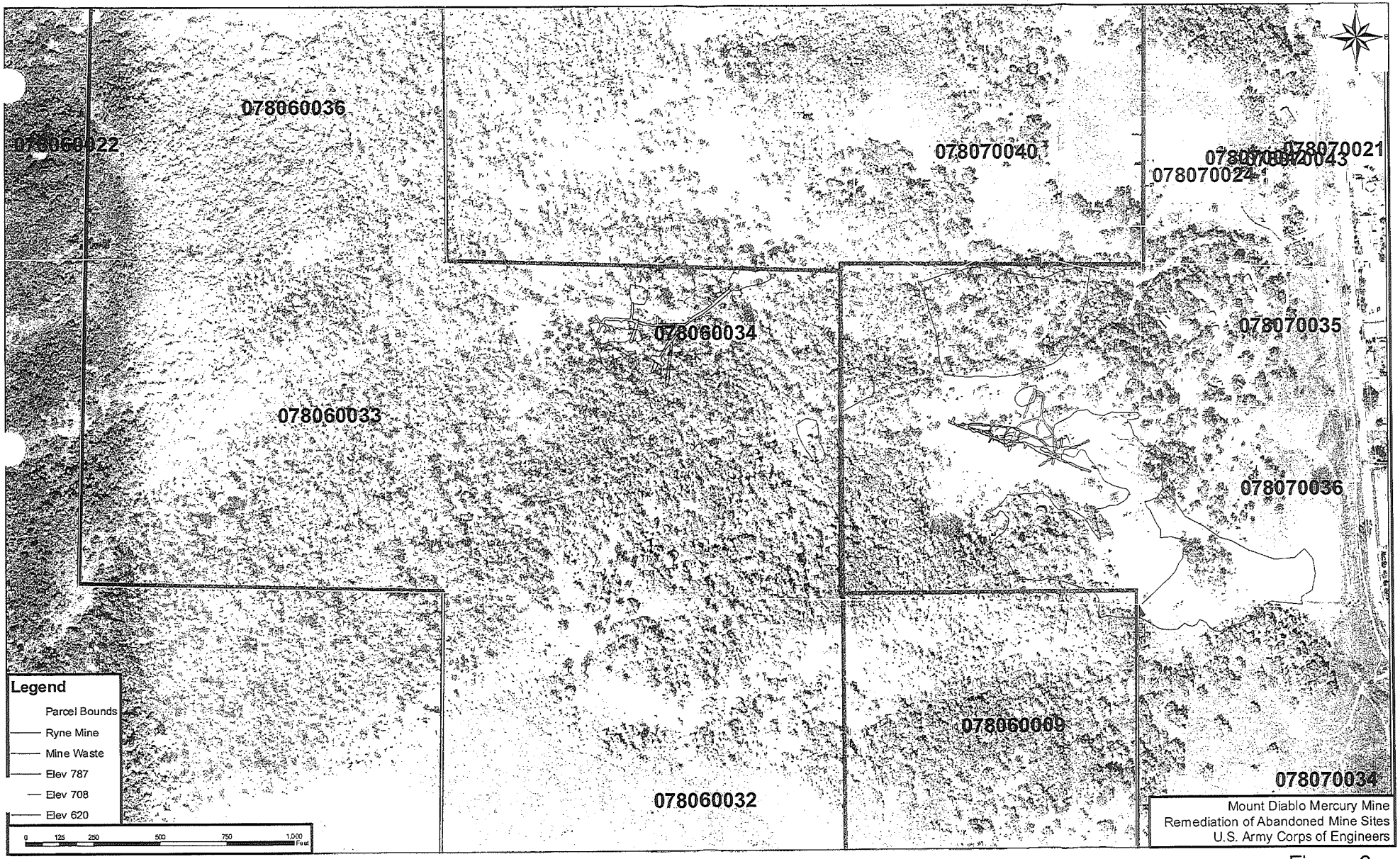
078060036
078060022
078070040
078070021
078070043
078070024-1
078060034
078070035
078060033
078070036
078060009
078070034
078060032
Legend
Parcel Bounds
Ryne Mine
Mine Waste
Elev 787
Elev 708
Elev 620
0 125 250 500 750 1,000 Feet
Mount Diablo Mercury Mine
Remediation of Abandoned Mine Sites
U.S. Army Corps of Engineers

Figure 3

APPENDIX A

TIMELINE

TIMELINE: MOUNT DIABL[illegible]ICKSILVER MINE (8/6/2008)

Date	APN 078-060-034 (West)	APN 078-070-034 (East)	APN 078-070-036	APN 078-070-034
January 24, 1848	Gold discovered in California			
April 29, 1849	William Ryder Powell files first placer mining claim on Dunn Creek incl. part of -034			Need 3 dates, patent, sale and Park purchase
September 9, 1850	California becomes a State			
1850	Francis Such discovers gold, quicksilver and copper near Mount Diablo (Clayton Historical Society) – placer deposits?			
1857	City of Clayton founded			
April 12,1861	War Between the States begins, demand for mercury fulminate skyrockets			
April 15, 1863	John Welch discovers cinnabar mineral deposit, files mining claim with Contra Costa County, mining operation commences			
April 26, 1865	Civil War ends, mercury demand plummets			
July 26, 1866	US Chaffee Mining Law passes			
May 15, 1869		Lyman Hastings receives federal mineral patent		
May 21, 1870	US Placer mining law passed			
May 10, 1872	US General Mining Act passed			
April 17, 1875	J. Welch receives federal land patent			
June 17, 1874		Lyman H Hastings dies		
1875?		Widow Frances C Hastings Hunsaker discovers metacinnabar		
1875-1877	First production record with US Bureau of Mines, Ryne Mining Co. operates the (western?) mine	Mining must have occurred		
1877	Litigation closes the mines, likely a dispute between the two mining properties			
1878	US Timber & Stone Act passed			
April 4, 1898	US GLO recognizes Powell's placer mining claim (APN 078-070-033, -040, part of -034)			
July 27, 1905	E.A. Howard buys part of property from Powell.			
October 25, 1907		E.A. Howard buys property (Howard Lumber Co.)		
December 10, 1912	US GLO revokes Welch mineral patent			
May 11, 1914	George Grutchfield purchases land from GLO			
July 1914	World War I begins			
April 27, 1915	Agnes Grutchfield granted sole title (widow)			
November 11, 1918	World War I end			
January 14, 1930	Joseph Tonge leases interest to Blomberg, Hardy & Moni?			
March 8,1930	Hardy leases interest to Blomberg & Moni			
April 24, 1930	Joseph Tonge purchases land from Agnes Grutchfield			
1931	Japan invades Manchuria			
1931	Mount Diablo State Park, created in 1921, begins acquiring land			
1933-1936	C.W. Erickson operates the mine			
February 11, 1934		Mt Diablo Quicksilver Mining Co buys property from E.A. Howard (Howard Lumber Co.)		
January 17, 1936	Title transfer from Blomberg & Moni to Mt Diablo Quicksilver Mining Co.			
1936	Bradley Mining Co. operates the mine			
September 3, 1939	World War II begins			
September 2, 1945	World War II ends, Cold War begins			
1946	Public Health Service Drinking Water Standard Amendments			
1947	Bradley Mining Co. ceases operation at the mine			
October 1, 1949	California Dickey Water Pollution Control Act			
June 25, 1950	Korean War begins			
1951	Ronnie B Smith, Producers Refining & Franklin Supply Co. partnership operate mine			
1953	US DoI Defense Minerals Exploration Administration loan contract signed			
February 27, 1953	RWQCB Resolution No. 53-21 (water pollution abatement order)			
July 27, 1953	Korean ceasefire			
1954	Jonas & Johnson operate mine, miner killed, mining operation halted, DMEA contract ends			
1955	Cordero Mining Co. operates mine (Sunoco)			
1956	Nevada Scheelite operates mine (Kennametal)			
1958	John E. Johnson operates mine, Johnson dies, mining halts			
1960	PG&E sues for easement/right-of-way through mine property			
1962	Public Health Service Drinking Water Standard Amendments			
May 11, 1962	Victoria Resources purchases mine from Vic Blomberg			
March 8, 1965	9th Marine Expeditionary Brigade lands at Da Nang, Republic of Vietnam. US involvement escalates through 1968			
1965-1970	Welty & Randall operate mine, rework the calcine mine tailings			
1969	California Porter-Cologne Water Quality Control Act passed			
December 9, 1969	Guadalupe Mining Co. purchases mine from Victoria Resources			
1971	Pace of land purchase by Mount Diablo State Park increases, park boundary approaches mine property			
1974	Safe Drinking Water Act			
July 2, 1974	John and Carolyn Wessman purchase mine property from Guadalupe Mining Co.			
1975	California Surface Mining & Reclamation Act (SMARA)			
February 2, 1976				Mt Diablo State Park purchases from Morgan Territory Investment Co.
August 3, 1977	US Surface Mining Control & Reclamation Act			
September 8, 1978		CRWQCB WDR 78-114		
November 20, 1978		CRWQCB CAO		
August 1, 1979		CRWQCB MRP 78-114		
1984	California real estate disclosure law established (Easton v. Strassburger)			
May 10, 2005	Title transferred to Wessman Family Trust			
December 30, 2005			Title transferred to Mt. Diablo Springs Improvement Society	

APPENDIX B

REFERENCES CD

APPENDIX C

PERMITS & ORDERS

RECEIVED

JUN 9 1952

Mt. Diablo Mine

Resolution No. 1435 ... Department

Resolved that the following requirements govern the nature of the discharge from the Mt. Diablo Mine to Marsh Creek by way of Dunn Creek:

1. Maximum quantity of settleable solids in the pond effluent shall not exceed 0.5 ml/liter after one hour of quiescent settling in a standard Imhoff cone.

2. The pond effluent shall not produce noticeable color or precipitate after 15 minutes aeration.

3. The pond effluent shall not produce noticeable color or precipitates when pH is adjusted to neutrality (7.0).

4. The pond effluent leaving the mine property shall have a pH between 6.5-8.5.

5. The pond effluent shall not produce excessive color in Marsh Creek.

6. The pond effluent shall not contain any toxic materials in such quantity or of such character as to be hazardous to the public health or to plant or animal life.

If, in the future, there is a change in the conditions or use of the disposal area or in Marsh Creek, it may be necessary for the Central Valley Regional Water Pollution Control Board to revise the requirements to conform to the new conditions or use.

Regional Water Pollution Control Board — Central Valley Region — State of California

Carl M. Hoskinson
Chairman

Attest:

Joseph S. Gorlinski
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 78-114

WASTE DISCHARGE REQUIREMENTS
FOR
MOUNT DIABLO QUICKSILVER MINE
CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board), finds that:

1. The Board on 27 February 1953 adopted Resolution No. 53-21 which prescribed requirements for a discharge from Mount Diablo Quicksilver Mine to Dunn Creek.

2. Surface and mineral rights of the mine are presently owned by Jack and Carolyn Wessman.

3. Present waste discharge requirements established by Resolution No. 53-21 are not adequate nor consistent with present plans and policies of the Board.

4. Mount Diablo Quicksilver Mine discharges mine drainage from the mine tailings and overburden to Dunn Creek near its confluence with Marsh Creek a tributary of the San Joaquin River a water of the State.

5. Mount Diablo Quicksilver Mine is located in the NE 1/4, SE 1/4 of Section 29, T1N, R1E, MDB&M (assors parcel #78060008-6) with surface water drainage to Dunn Creek.

6. The beneficial uses of Marsh Creek and Marsh Creek reservoir are: water-contact recreation, non-water contact recreation, freshwater habitat, wildlife habitat, and the preservation of rare and endangered species.

7. The beneficial uses of the groundwater are: domestic supply, irrigation, and stockwatering.

8. The Board, on 25 July 1975, adopted a Water Quality Control Plan for the Sacramento-San Joaquin Delta Basin.

9. Mining operations ceased in 1971, however, the mine area continues to discharge mineralized water and sediment to Dunn Creek.

10. The action to revise waste discharge requirements for this facility is exempt from an environmental review in accordance with Sections 15101, 15107, and 15108 of the CEQA regulations.

11. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge.

12. The Board in a public meeting heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, that Resolution No. 53-21, be rescinded and Jack and Carolyn Wessman shall comply with the following:

A. Discharge Prohibitions:

1. The direct discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Previously deposited sediment in the reservoir shall not be discharged.

B. Discharge Specifications:

1. The discharge shall not cause a pollution or nuisance as defined by the California Water Code.

2. The discharge shall not cause degradation of any water supply.

3. The discharge shall remain within the designated disposal area at all times.

4. The discharger shall implement erosion control practices to minimize erosion of mine overburden and worked areas.

C. Provisions:

1. The discharger may be required to submit technical or monitoring reports as directed by the Executive Officer.

2. The discharger shall follow the following time schedule to comply with discharge prohibition A1:

Action	Compliance Date	Compliance Report Due
Conceptual Plan	1 Nov 1978	15 Nov 1978
Complete Construction Plan	1 Jan 1979	15 Jan 1979
Begin Construction	1 Apr 1979	15 Apr 1979
Progress Construction Report	1 Jun 1979	15 Jun 1979
Full Compliance	1 Jul 1979	15 Jul 1979

3. The discharger shall follow the following time schedule to comply with Provision A.2:

	Due:
Submit Conceptual Plan	15 Sept 1978
Complete Construction	1 Nov 1978

4. The discharger shall report promptly to the Board any material change or proposed change in the character, location, or volume of the discharge.

5. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the discharger, the discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this office.

6. Any diversion from or bypass of facilities necessary to maintain compliance with the terms and conditions of this Order is prohibited, except (a) where unavoidable to prevent loss of life or severe property damage, or (b) where excessive storm drainage or runoff from any event having a return frequency greater than one in twenty-five years ($\geq$ 3.9 inches/day [9.9 cm/day]) would damage any facilities necessary for compliance with effluent limitations and prohibitions of this Order. The discharger shall notify the Board in writing within two weeks of each such diversion or bypass including documentation of the storm intensity.

7. The Board will review this Order periodically and may revise requirements when necessary.

I, JAMES A. ROBERTSON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 8 September 1978

Original signed by
James A. Robertson

JAMES A. ROBERTSON, Executive Officer

CH/ap 7/25/78

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 78-114
FOR
MOUNT DIABLO QUICKSILVER MINE
CONTRA COSTA COUNTY

RESERVOIR MONITORING

A grab sample of the impounded water shall be collected during November of each year. The sample shall be collected at a point where a representative sample can be obtained. The sample shall be analyzed for the following:

Constituents	Units
Specific Conductivity	µmhos/cm
pH	units
Copper	mg/l
Iron	mg/l
Manganese	mg/l
Zinc	mg/l

In addition, a monthly report shall be submitted for the months November through March inclusive detailing:

1. The distance from the water surface to the spillway (freeboard).
2. The condition of the containment dikes.
3. The condition of the up watershed diversion berms.

REPORTING

In reporting the monitoring data, the discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly the compliance with waste discharge requirements. Monitoring shall commence not later than 30 November 1979, unless otherwise specified.

Monthly monitoring reports shall be submitted to the Regional Board by the 15th day of the following months: December through April.

MONITORING AND REPORTING PROGRAM
MOUNT DIABLO QUICKSILVER MINE
CONTRA COSTA COUNTY

If the discharger monitors any pollutant at the locations designated herein more frequently than is required by this order, he shall include the results of such monitoring in the calculation and reporting of the values required in the Discharge Monitoring Report Form. Such increased frequency shall be indicated on the Discharge Monitoring Report Form.

Ordered by W. H. Crabb for
JAMES A. ROBERTSON, Executive Officer

1 August 1979
(Date)

CAH/gs 2/23/79