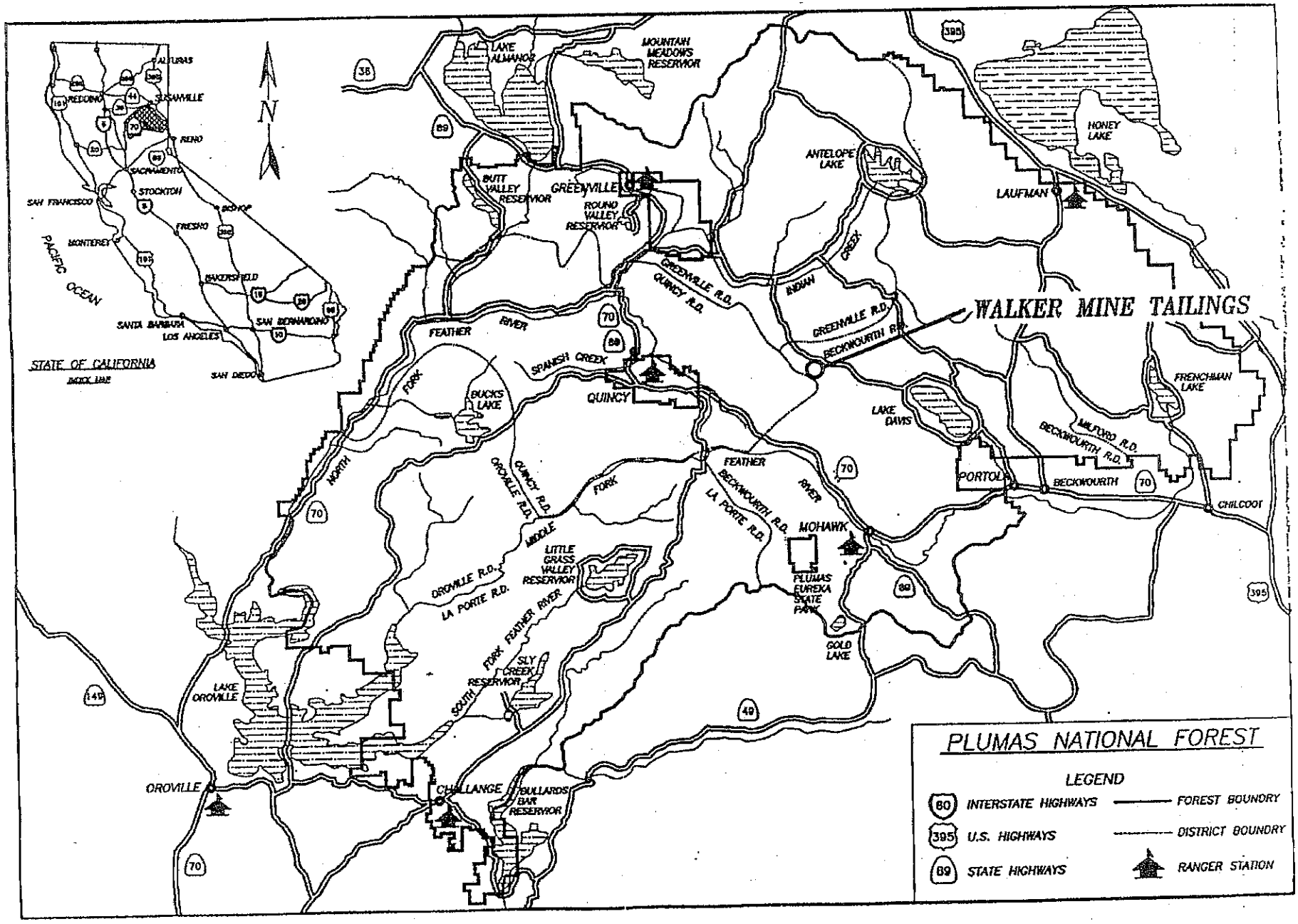
Figure 2-1
(Map depicting the location of the Walker Mine Tailings)

FIGURE 2-1


N
LAKE ALMANOR
MOUNTAIN MEADOWS RESERVOIR
BUTT VALLEY RESERVOIR
GREENVILLE
ROUND VALLEY RESERVOIR
ANTELOPE LAKE
HONEY LAKE
LAUFMAN
WALKER MINE TAILINGS
GREENVILLE R.D.
QUINCY R.D.
INDIAN CREEK
FEATHER RIVER
SPANISH CREEK
NORTH FORK
BUCKS LAKE
QUINCY
LAKE DAVIS
FRENCHMAN LAKE
MILFORD R.D.
BECKWOURTH R.D.
PORTOLA
BECKWOURTH
CHILCOOT
OROVILLE R.D.
MIDDLE FORK
LA PORTE R.D.
MOHAWK
LITTLE GRASS VALLEY RESERVOIR
PLUMAS EUREKA STATE PARK
GOLD LAKE
FORK FEATHER RIVER
SLY CREEK RESERVOIR
SOUTH
LAKE OROVILLE
OROVILLE
CHALLANGE
BULLARDS BAR RESERVOIR
STATE OF CALIFORNIA
INDEX MAP
ALTURAS
SUSANVILLE
REDDING
RENO
SACRAMENTO
STOCKTON
SAN FRANCISCO
FRESNO
MONTEREY
BAKERSFIELD
SANTA BARBARA
LOS ANGELES
SAN BERNARDINO
SAN DIEGO
PACIFIC OCEAN
PLUMAS NATIONAL FOREST
LEGEND
INTERSTATE HIGHWAYS
U.S. HIGHWAYS
STATE HIGHWAYS
FOREST BOUNDRY
DISTRICT BOUNDRY
RANGER STATION

FIGURES

FIGURES

ROD Amendment
Walker Mine Tailings, Plumas National Forest

Figure 2-1
(Map depicting the location of the Walker Mine Tailings)

Figure 3-1
(Map depicting the location of the Walker Valley Facility)

Figure 2-2
(Map showing the project areas for the Walker Mine Tailings)

Figure 2-2

(Map showing the project area for the Walk-in Twins Trailhead)

FIGU[illegible] 2-2

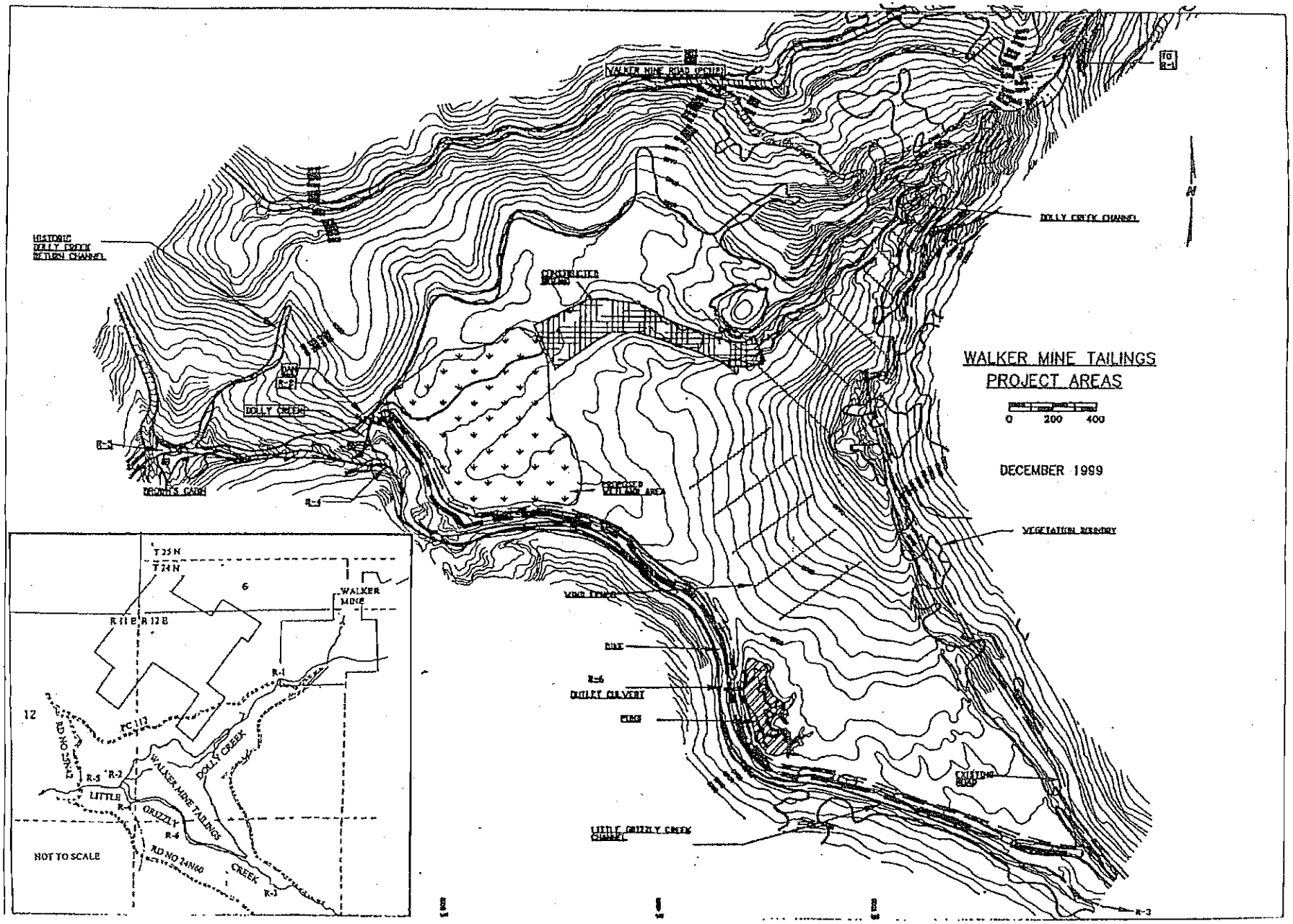
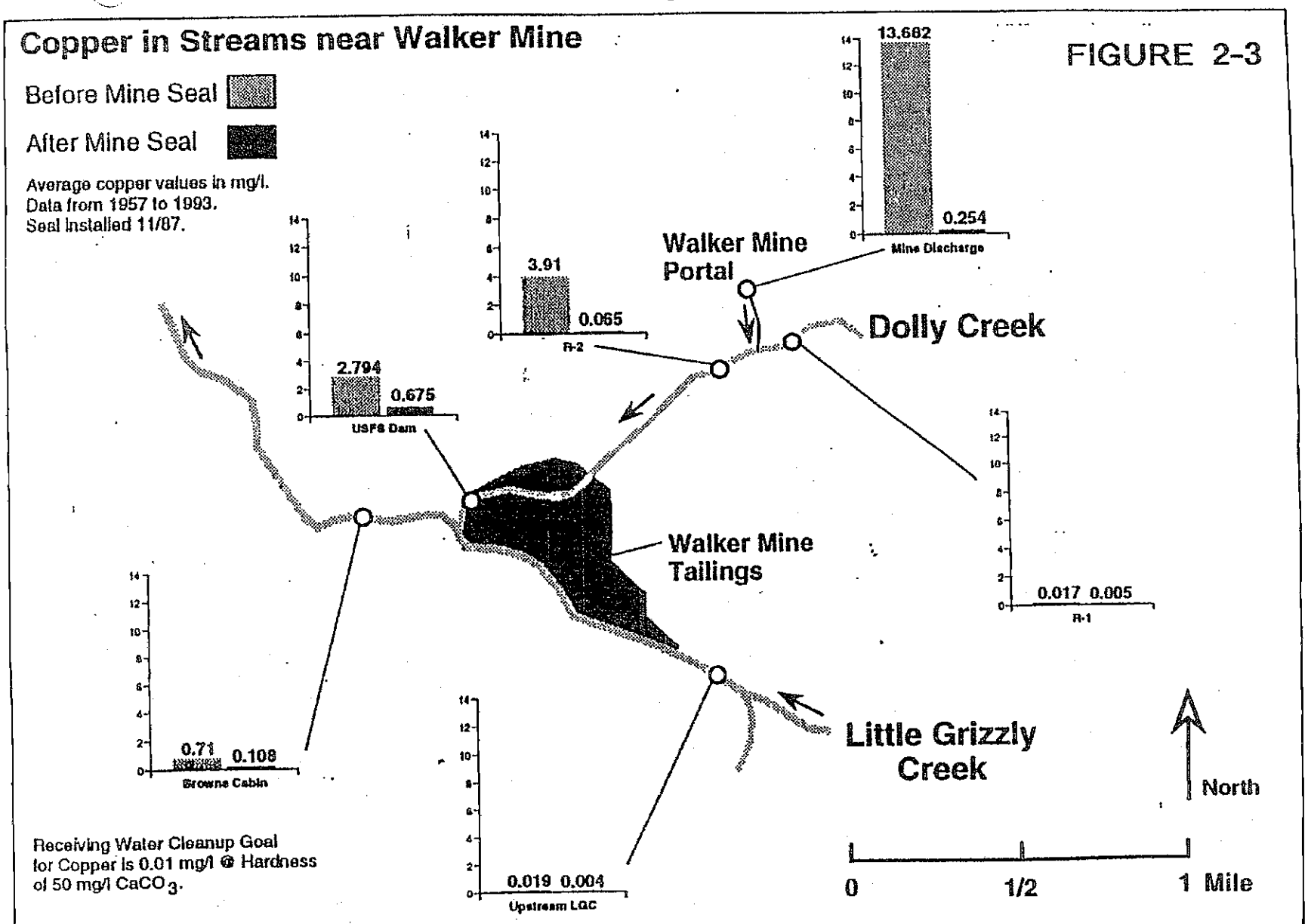

WALKER MINE TAILINGS
PROJECT AREAS
0 200 400
DECEMBER 1999
VEGETATION BOUNDRY
DIKE
DOLLY CULVERT
DOLLY CREEK CHANNEL
HISTORIC DOLLY CREEK RETURN CHANNEL
BROWN'S CABIN
LITTLE GRIZZLY CREEK CHANNEL
T25N
T24N
R11E R12E
6
12
WALKER MINE
DOLLY CREEK
WALKER MINE TAILINGS
LITTLE GRIZZLY CREEK
NOT TO SCALE

Figure 2-3
(Copper in Streams near the Walker Mine before and after the mine seal was installed in 1987)

Copper in Streams near Walker Mine

FIGURE 2-3



Receiving Water Cleanup Goal for Copper is 0.01 mg/l @ Hardness of 50 mg/l $CaCO_3$.

Figure 2-4
(Comparison of high and low flows at compliance station (R-1)
for Dolly Creek above the tailings, 1986-1989)

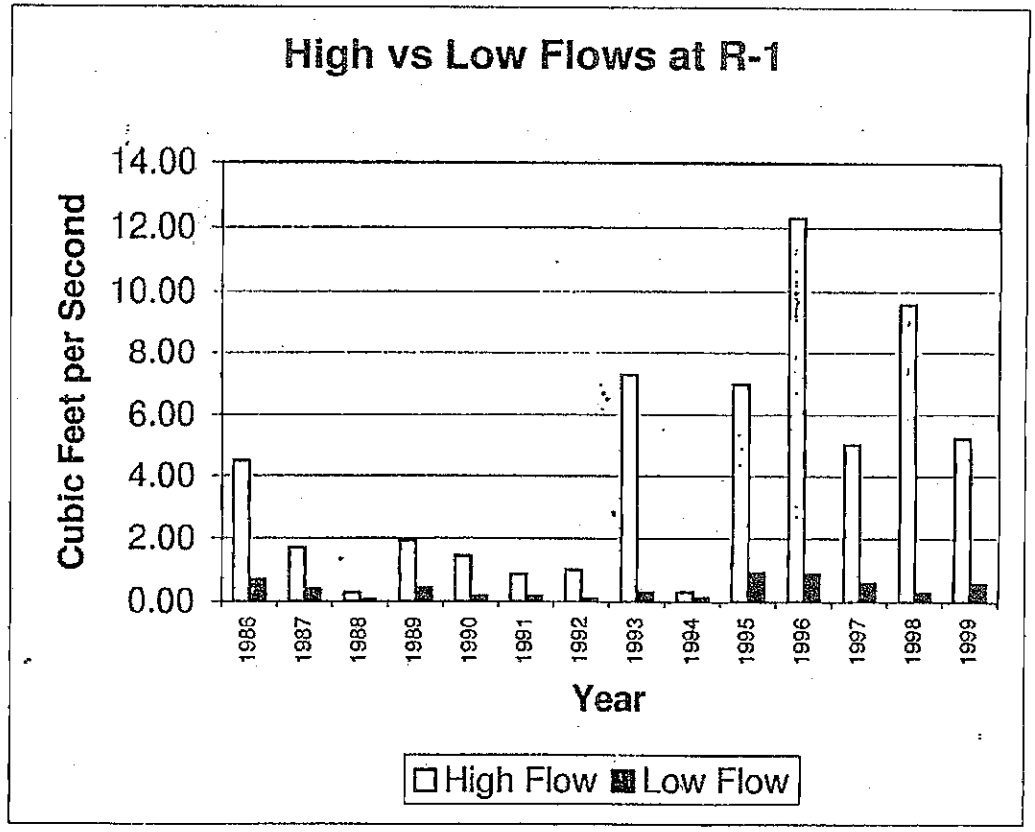
Figure 2-4
Comparison of Big Sand Low Flow Alternatives (CY-1)
for Daily Check Above Diversion (CY-1DAY)

ACC Amendment
Water Mine Tailings, Pinnacle Nation II Forest

FIGURE 2-4

COMPARISON OF HIGH AND LOW FLOWS AT R-1
DOLLY CREEK ABOVE TAILINGS
1986-1999

Year	High Flow (cfs)	Low Flow (cfs)
1986	4.50	0.69
1987	1.70	0.39
1988	0.29	0.06
1989	1.92	0.45
1990	1.44	0.19
1991	0.88	0.18
1992	1.01	0.11
1993	7.28	0.32
1994	0.31	0.14
1995	6.97	0.93
1996	12.30	0.90
1997	5.05	0.60
1998	9.60	0.30
1999	5.24	0.59
Average=	4.18	0.42



APPENDICES

APPENDICES

Appendix 1

Appendix A

ANALYSIS OF SURFACE WATER QUALITY

AT THE WALKER MINE TAILINGS

USDA FOREST SERVICE, PLUMAS NATIONAL FOREST

BECKWOURTH RANGE DISTRICT

1986 – 1999

Prepared By: Terry Benoit, Hydrologist and Walker Tailings OSC
Terrie Veliotes, Watershed Engineer
Rachael Tobener, Assistant

Date: January 7, 2000

ANALYSIS OF SURFACE WATER QUALITY AT THE WALKER MINE TAILINGS USDA FOREST SERVICE, PLUMAS NATIONAL FOREST BECKWOURTH RANGER DISTRICT

1986 – 1999

January 7, 2000

Findings Summary

Despite recent remediation work, the tailings area continues to release copper, zinc, and iron to Dolly and Little Grizzly Creeks. Although zinc and iron concentrations are below established limitations, copper continues to exceed these limitations most of the time and there's no apparent change in the trend, either up or down. Copper, zinc, and iron continue to be released from the Walker Mine area to Dolly Creek and the tailings area, although the concentrations in Dolly Creek above the tailings are much less than those below the tailings. Before adding more wetland acres to treat the Dolly Creek flow, the flow entering the tailings area from Dolly Creek need to be controlled so that high winter and spring flows are reduced and all the low summer and fall flows can be used to maximize the amount of wetlands achievable. Controlling the flow over the tailings is also needed to reduce the amount of water to be treated and to increase the treatment time in the wetland.

Introduction

The Walker Mine Tailings are located in the central portion of the Plumas National Forest, approximately 20 miles east of Quincy and 20 miles north of Portola in Section 12, T24N, R11E and Sections 7 and 18, T24N, R12E, MDB&M (Map 1). The 100-acre tailings area is at the confluence of Little Grizzly Creek and Dolly Creek. Dolly Creek flows over the tailings area and is the primary transportation source of contaminants to Little Grizzly Creek, which flows along the edge of the tailings.

The Walker Mine, patented land located approximately three-quarters of a mile upstream of the tailings on Dolly Creek, is a non-operational copper mine with a long history of acid rock drainage, heavy metals pollution (primarily copper), and noncompliance with Waste Discharge Requirements (WDRs) established by the California Water Quality Control Board, Central Valley Region (CVRWQCB). Installation of a mine seal in 1987 reduced contaminant levels leaving the mine by over 90% and revealed that the tailings area is the primary source of much of the remaining contamination.

The primary contaminants entering the receiving waters (Dolly Creek and Little Grizzly Creek) from the tailings area include fine sediments and heavy metals (copper, iron, and zinc). Also affected is the water temperature of Dolly Creek as it flows across the exposed tailings area.

The CVRWQCB also established WDRs for the release of contaminants from the tailings area. These requirements establish limitations for copper, iron, zinc, sediments, and other water quality constituents affecting the beneficial uses of the receiving waters. A monitoring and reporting program is an integral part of the WDR, establishing monitoring stations, sampling frequency, water quality constituents and parameters, and reporting requirements. This report displays the results of the analysis, looking back to the start of the monitoring program, 1986, and ending with the most recent data, 1999.

From 1986-1990, sampling and testing was conducted by Forest Service personnel in a uncertified laboratory. The 1991 WDRs required the use of certified laboratories for testing and more stringent reporting units (ug/L instead of mg/L). Since 1991 all water samples have been sent to the Henrici Water Laboratory in Quincy. The Henrici Water Laboratory has used two other water laboratories to test for the metal constituents. In 1991, they used CH2M Hill in Redding and from 1992 through 1999 they used North Coast Laboratories, Ltd, in Arcata.

Treatments identified in the Record of Decision (ROD) for the Remediation of the Walker Mine Tailings were initiated immediately after signing in June 1994 and have included the construction of 4 acres of wetland, rehabilitation of 1300 feet of stream channel, installation of 50 acres of wind fences, and vegetation plantings over 80 acres of the area. Continued vegetation plantings, wetland construction, and stream channel treatments would occur under the existing ROD.

Purpose

The purpose for this analysis is two fold. The analysis helps meet the requirements established in WDR Order No. 91-017 for monitoring and reporting. It also helps meet the requirements established in the 1994 ROD, page 20; "...the Forest Service, in cooperation with the CVRWQCB, will review the remedial action no less often than every five years after initiation of the selected remedial action [(40CFR300.430, paragraph (f)(4)(ii) and (f)(5)(iii)(c)]."

Findings

Tables 1 – 11 display all data collected at each station from 1986 through 1999. The location of the sampling sites is shown on Map 2 and are as follows:

SURFACE WATER MONITORING SITES

Station Identification	Location
R-1	Dolly Creek Above Tailings: Immediately upstream of County Road 112 crossing
R-2	Dolly Creek Below Tailings: Immediately below the Forest Service dam
R-3	Little Grizzly Creek Above Tailings: About 1000 feet below Road 24N60
R-4	Little Grizzly Creek Below Tailings: About 50 feet above confluence with Dolly Creek
R-5	Little Grizzly Creek Below Confluence with Dolly Creek: Immediately above Road 25N42 and the spring discharge from the west bank at Brown's Cabin
R-6	Settling Pond Culvert Outlet: Adjacent to Little Grizzly Creek

Stations R-5 and R-6 were added in 1991. R-5 is the compliance station and is given special analysis. The analysis was conducted for Dolly Creek and Little Grizzly Creek separately and downstream from where the two streams come together as follows:

1. Above and below the tailings on Dolly Creek, R-1 and R-2.
2. Above and below the tailings on Little Grizzly Creek, R-3 and R-4.
3. Below the confluence of Little Grizzly Creek and Dolly Creek, R-5.
4. The settling pond outlet, R-6.

Dolly Creek Above (R-1) and Below (R-2) the Tailings Area

COPPER (Tables 1 and 2; Charts 1 and 2): Copper loading from Walker Mine to Walker Mine Tailings continues to occur, exceeding receiving water limitations most months sampled (R-1 on Charts 1 and 2). The amount of copper released from the tailings at R-2 can be 15 to 20 times greater (includes that coming from Walker Mine). There's no doubt that copper is released from the tailings area to Dolly and Little Grizzly Creeks and

the concentration exceeds the WDRs. It is also obvious that copper continues to be transported to the tailings area from Walker Mine.

There is appearance of a downward trend in copper concentrations from 1991 to 1999 from both the mine site and the tailings area. As will be shown in the analysis of R-5, this appearance is deceiving as is actually directly related to the amount of water flowing in the streams, in other words, there's an apparent relationship between the wetness of the year and the amount of copper released from the sites. The wetter the year, the greater the flows, the less copper found in solution (as an average annual concentration).

Another apparent phenomenon is that the concentrations of copper at R-1 and R-2 are higher during high flow months than low flow months. This is believed to occur because of the increased flow from springs, seeps, and overland flow from the mine site during high flow months and the increased groundwater contribution along Dolly Creek as it flows across the tailings area.

ZINC (Tables 1 and 2; Charts 3 and 4): There appears to be a slight increase in the zinc concentration as Dolly Creek flows across the tailings area, but, except for a single sampling month (November 1995), since 1990, the concentrations are well below the WDR limitations, when testing requirements became more stringent.

The effects of copper on fish and other aquatic organisms increase in the presence of zinc, where the two metals act synergistically. The concentration of copper plus zinc in the tables looks at that bond as an additive arrangement. It should be noted that it's the much higher concentration of copper that predominates (compare the three columns *Copper*, *Zinc*, and *Cu+Zn*).

IRON (Tables 1 and 2; Chart 5): Iron was added to the list of primary water quality constituents after 1990. The concentration at R-1 has always tested well below the limitation of 1.0 mg/L while that at R-2 usually approaches or exceeds the limitation during the low flow months of the year.

SUMMARY: It is apparent that copper, zinc, and iron are released from the tailings to Dolly Creek, then to Little Grizzly Creek, and the concentrations are dependent on flows, both the average seasonal flows (related to the wetness of the year) and the average monthly flows. All three constituents are present in the R-1 samples, indicating contamination sources upstream of the tailings, most likely the mine site. It is also apparent that none of the treatments implemented to date have had an effect on these concentrations.

Little Grizzly Creek Above (R-3) and Below (R-4) the Tailings Area

COPPER and ZINC (Tables 3 and 4; Charts 6 through 9): Prior to 1991, the Forest Service conducted all water testing in an uncertified water-testing laboratory. For this reason, the results can only be looked at for trends and none are apparent. After 1990, several spikes appear in the data. These sampling sites, especially R-3, should be nearly

free of copper and zinc, except what may be occurring naturally. Wind erosion of the tailings area is evident most months of the year, but especially during the dry months. Air-born tailings material has been observed to reach as far as R-3. This may or may not explain some of the spiking observed in the data. No other explanation is apparent at this time.

IRON (Tables 3 and 4; Chart 10): Iron emanates along the base of the dike separating the tailings area from Little Grizzly Creek (Map 2). The average iron concentration at R-3, above the tailings, is 0.19 mg/L and that below the tailings is 0.35 mg/L, an increase of 0.16 mg/L (46%) in 5000 feet of channel. Much of the main channel upstream of R-3 flows through a meadow in which the volcanic parent material is high in iron. Iron precipitates, as flocculants, are readily apparent along the entire length of the dike and stream channel. Samples collected during several years approach the water quality limitation of 1.00 mg/L and only one year actually exceeded the limitation.

Little Grizzly Creek Below the Confluence with Dolly Creek at the Compliance Station, R-5

Since R-5 is the compliance station where the WDR limitations are measured against the contaminant releases, more in-depth analyses were conducted on the three main water quality constituents, copper, zinc, and iron. Station R-5 was added to the monitoring program in 1991. No water quality data was collected at the site prior to that year under this program.

COPPER (Table 5; Chart 11-15): Dolly Creek water mixes with Little Grizzly Creek water prior to reaching the R-5 station. Both water hardness and volume influence the effects and concentration of the copper and zinc constituents. During the high flow months of May and June, the flows at R-2 (Dolly Creek near its confluence with Little Grizzly Creek) are 8-12% of the flow volume at R-4 (Little Grizzly Creek immediately above the confluence with Dolly Creek). Even though the copper concentrations from R-2 are higher these months (Chart 2), the dilution at R-5 is significant; reducing copper concentrations to the lowest levels recorded each year (Chart 12).

During the lowest flow month of September, flows at R-2 can be a low as 4% of R-4 to greater than 100% of R-4. Again, this depends on the wetness of the year, but it also depends on the flow from the many springs in the area of Walker Mine that contributes greatly to the flow in Dolly Creek. Even though copper concentrations in Dolly Creek are the lowest during the low flow months, the copper concentration at R-5 are the highest these months (Charts 2 and 11). Dilution effects are much less this time of year.

Hardness values at R-5 also vary significantly between the high flow months and the low flow months (Chart 13). The lowest flow months show the highest hardness values while the inverse is true for the high flow months. Since water hardness affects metallic pollutants, rendering them less available to cause deleterious effects on aquatic life in harder water, the water quality limitations are higher (less restrictive) in hard water than

in soft water. The following table displays average values of hardness and the adjusted water quality limitations associated with those values:

Receiving Water Limitations at R-5 Based on Average Monthly and Annual Hardness Values

Month	Average Monthly Hardness (mg/L)	Ave Monthly Limit Copper (ug/L)	Ave Monthly Limit Zinc (ug/L)
April	25	2.7	36.5
May	27	2.9	39.0
June	40	4.1	54.4
July	64	6.1	80.9
August	75	7.0	92.6
September	72	6.8	89.4
October	74	6.9	91.5
November	64	6.1	80.9
December	66	6.3	83.1
Average Seasonal	60	5.8	76.6

Average annual copper concentrations were evaluated against flows to determine whether or not the decreasing trend in those concentrations from 1991 to 1999 were independent of flows or not. They are not. Chart 14 displays the two parameters jointly and demonstrates the influence flows at R-5 have on the copper concentrations. During the lower flow years of 1991 through 1994, copper concentrations were relatively high, while during the higher flow years of 1995 through 1999, copper concentrations were relatively low; giving the impression of a decreasing trend in copper contaminations.

The bottom line to date is that copper concentrations at R-5, the compliance station, continue to be greater than the WDR limitations (Chart 15) and there appears to be no change in trends, either up or down.

ZINC (Table 5; Charts 16-18): Zinc by itself has been below the WDR limitations at R-5 each sampling month of each year (Chart 16). The average monthly zinc concentration at R-5 is well below the average monthly limitation value, as demonstrated in Chart 17. In combination with copper (Cu+Zn), the two have been well above the copper limitations almost all months of each sampling year (Chart 18). Because of the synergism between copper and zinc, zinc will remain a problem.

IRON (Table 5; Chart 19 and 20): Iron has not exceeded the water quality limitation (1.0 mg/L) in any month in any year. Chart 19 shows no obvious monthly trends in iron concentrations, but does show that, generally, there's no change through the years. A monthly trend is obvious when we look at average monthly values (Chart 20). Again, during the high flow months, iron concentrations are lower than during low flow months.

Settling Pond Outlet at Little Grizzly Creek (Map 2)

Three samples have been analyzed in the 9 years since R-6 was added to the monitoring program (Table 6). Of those three years, the culvert was discharging to Little Grizzly Creek only once. The other two years showed evidence of recent discharge, but were not discharging at the time of sampling, so samples were taken from the pond and not the culvert outlet. No discharge occurs during low flow months and dry years.

Copper concentrations exceed receiving water limitations in all three samples, while zinc and iron did not. This does provide evidence that these metals are being released from the main body of the tailings, even though the pH is near 7 through the area. This is not the same where Dolly Creek flows across the tailings. Low pH areas can be found along the length of the channel with copper oxides and iron precipitates forming during the summer months.

Annual Testing for a Large Array of Constituents at the Receiving Water Stations

A larger list of water quality constituents, including additional heavy metals, was tested for from each year's first set of samples and for each sampling station (Tables 7-12). The tests were for indicator parameters and metal constituents. All metal constituents were non-detectable (ND), at concentrations below the detection limits of the equipment used, or at very low levels.

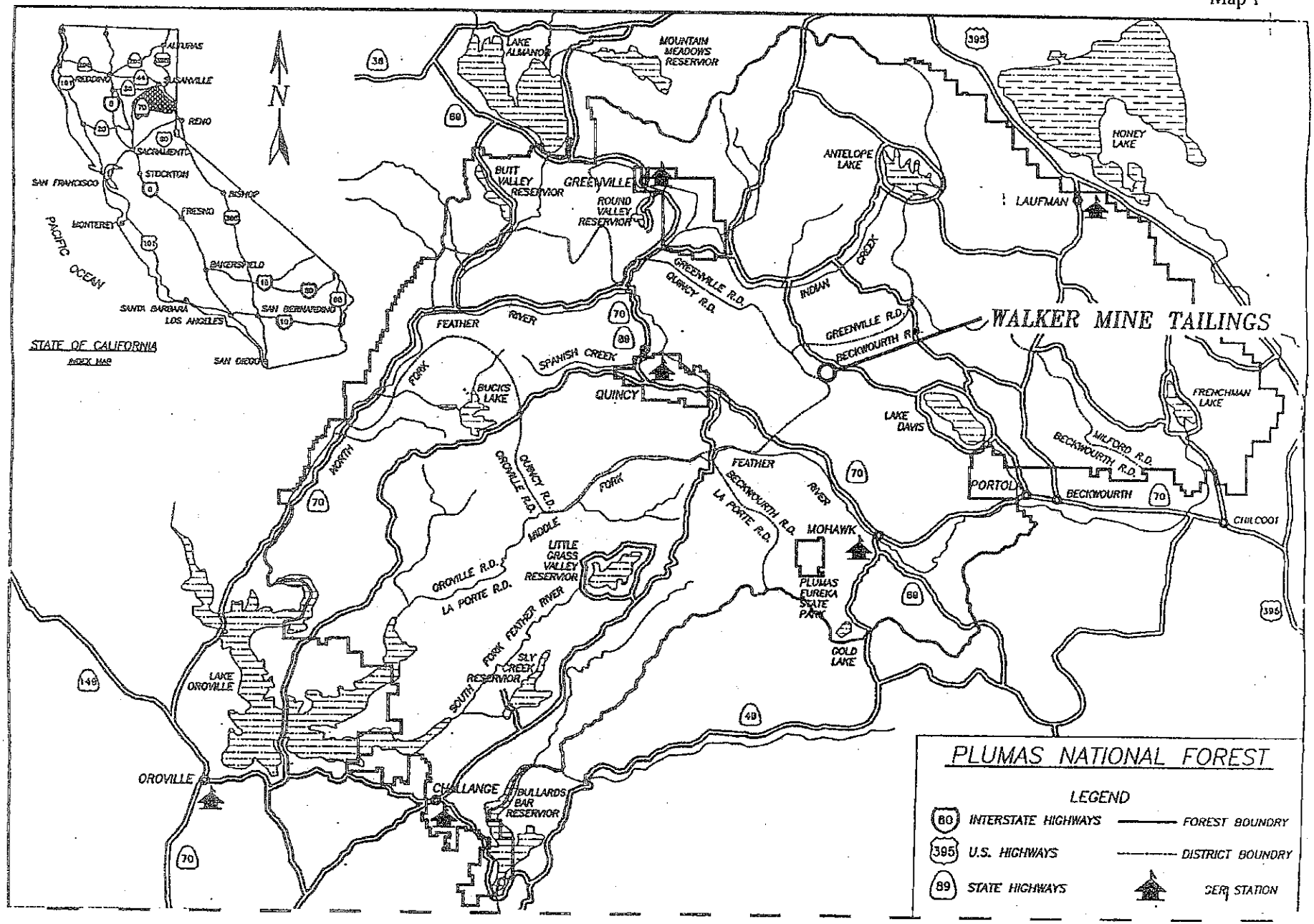
Critical Observations

Soon after construction of the first phase wetland area and the upper stream channel relocation and rehabilitation work in 1994, the site experienced a series of wetter than average years (1995-1999). The results destabilized portions of the gully banks, moved sections of the relocated channel back against those gully banks, and eroded much of the work area, washing the material into the stream and transporting it downstream into the newly constructed wetland. The wetland aggraded and changed from the needed anaerobic type with no definable channel to an aerobic type with several, definable channels.

It became apparent that the primary treatment system, an anaerobic wetland, would need its water input controlled to reduce erosion of the upper section of the Dolly Creek channel flowing across the tailings area, to reduce the aggradation of future wetland areas, and to increase residence time (treatment time) during the high flow months. To maintain maximum wetland size, all flows are needed during the low flow months.

MAPS

Map 1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STATE OF CALIFORNIA
INDEX MAP
PACIFIC OCEAN
LAKE ALMANOR
MOUNTAIN MEADOWS RESERVOIR
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INTERSTATE HIGHWAYS
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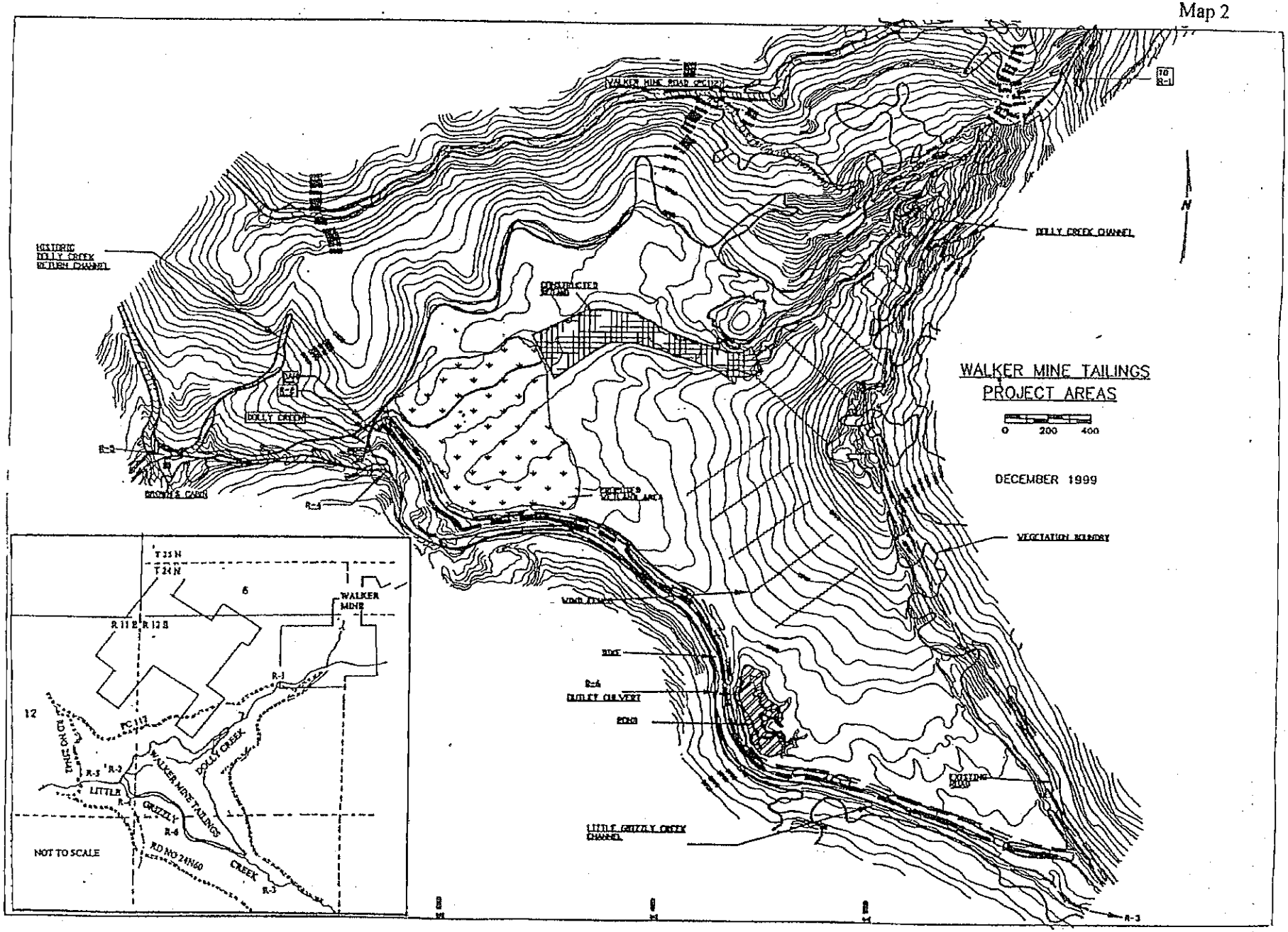
RS STATION

Map 2


WALKER MINE TAILINGS
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6
12
WALKER MINE
DOLLY CREEK
WALKER MINE TAILINGS
LITTLE GRIZZLY CREEK
NOT TO SCALE

TABLES

R-1 WATER QUALITY DATA
DOLLY CREEK ABOVE WALKER MINE TAILINGS
1986-1999

Table 1

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	sum cu+zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CaCO3) mg/L	Alkalinity (CaCO3) mg/L	Acidity to pH 8.3= (CaCO3) mg/L
Jun 86	4.50	0.127	250	7.2	-	19.60	<0.1	8.90	-	-	-	-	21	15	-	-	-
Jul 86	1.87	0.053	240	7.3	-	10.60	<0.1	8.80	-	-	0.0000	-	19	10	-	-	-
Aug 86	1.89	0.054	260	6.9	-	10.00	<0.1	5.67	0.3600	0.3500	0.7100	-	13	10	-	-	-
Sep 86	1.97	0.056	250	6.8	-	7.00	<0.1	6.90	0.4800	0.2000	0.6800	-	6	5	-	-	-
Oct 86	0.69	0.020	210	8.3	-	1.20	<0.1	1.45	0.1500	0.0200	0.1700	-	11	7	-	-	-
May 87	1.70	0.048	320	6.9	-	30.60	<0.1	19.90	3.5000	0.1200	3.6200	-	26	15	-	-	-
Jun 87	0.72	0.020	250	6.5	-	26.80	-	-	1.2100	0.1800	1.3900	-	22	9	-	-	-
Jul 87	0.50	0.014	260	7.5	-	16.80	<0.1	18.80	1.0500	1.0600	2.1100	-	18	14	-	-	-
Aug 87	0.40	0.011	160	8.0	-	3.20	<0.1	6.10	0.5200	0.2500	0.7700	-	30	17	-	-	-
Sep 87	0.39	0.011	130	7.9	-	3.00	<0.1	8.00	0.2300	0.1000	0.3300	-	23	13	-	-	-
Oct 87	0.46	0.013	110	7.5	-	33.80	<0.1	7.50	0.2300	0.1800	0.4100	-	22	7	-	-	-
May 88	0.29	0.008	140	7.4	-	3.60	<0.1	3.00	0.0500	0.0600	0.1100	-	19	11	-	-	-
Jun 88	0.14	0.004	150	7.4	-	8.00	<0.1	1.70	0.0400	0.0700	0.1100	-	16	12	-	-	-
Jul 88	0.14	0.004	190	8.4	-	2.33	<0.1	1.80	0.0900	0.2800	0.3700	-	26	21	-	-	-
Aug 88	0.10	0.003	150	7.0	-	1.20	<0.1	1.20	0.0800	0.5000	0.5800	-	20	10	-	-	-
Sep 88	0.06	0.002	150	7.8	-	7.60	<0.1	1.60	0.0600	0.2500	0.3100	0.600	19	10	-	-	-
Oct 88	0.21	0.006	170	7.4	-	0.80	<0.1	-	0.1100	0.2600	0.3700	-	24	9	-	-	-
May 89	1.92	0.054	100	7.6	-	0.90	<0.1	-	0.1900	0.1800	0.3700	-	18	13	-	-	-
Jun 89	1.05	0.030	110	7.0	-	0.80	<0.1	-	0.1700	0.1100	0.2800	-	11	10	-	-	-
Jul 89	0.45	0.013	90	7.0	-	0.40	<0.1	-	0.0600	0.0900	0.1500	-	19	10	-	-	-
Aug 89	0.59	0.017	140	7.2	-	<0.1	<0.1	-	0.0500	0.1300	0.1800	-	19	9	-	-	-
Sep 89	0.98	0.028	170	8.3	-	0.80	<0.1	-	<0.05	0.2300	0.2300	-	20	11	-	-	-
Oct 89	0.91	0.026	130	7.1	-	2.00	<0.1	-	0.3100	<0.05	0.3100	-	10	3	-	-	-
May 90	1.44	0.041	85	5.8	-	8.10	0.10	-	0.2500	0.2100	0.4600	-	5	5	-	-	-
Jun 90	0.44	0.012	130	7.1	-	24.40	<0.01	-	0.2500	0.2100	0.4600	-	20	14	-	-	-
Jul 90	0.72	0.020	142	7.5	-	2.40	<0.01	-	0.7000	0.8000	1.5000	-	20	10	-	-	-
Aug 90	0.32	0.009	130	7.8	-	1.60	<0.01	-	<0.05	0.1500	0.1500	-	18	8	-	-	-
Sep 90	0.35	0.010	100	7.4	-	2.40	<0.01	-	<0.05	0.2700	0.2700	-	23	11	-	-	-
Oct 90	0.19	0.005	160	8.7	-	2.40	<0.01	-	<0.05	0.2200	0.2200	-	14	7	-	-	-
May 91	0.88	0.025	130	7.5	87.00	0.40	<0.1	0.80	0.1100	0.0130	0.1230	0.263	19	16	54	46	1
Jun 91	0.63	0.018	200	7.9	-	0.80	<0.1	-	0.0810	0.0110	0.0920	0.308	12	8	53	51	8
Jul 91	0.52	0.015	140	7.5	-	2.00	<0.1	-	0.0440	0.0090	0.0530	0.383	22	14	72	55	1
Aug 91	0.32	0.009	175	7.8	-	4.60	<0.1	-	0.0320	0.0100	0.0420	0.348	27	15	42	65	0.8
Sep 91	0.60	0.017	130	7.9	-	3.60	<0.1	-	0.0230	0.0100	0.0330	0.320	24	9	36	61	-
Oct 91	0.18	0.005	125	7.9	-	2.00	<0.1	-	0.0230	0.0220	0.0450	0.315	18	7	63	78	2
Nov 91	0.20	0.006	110	7.9	-	10.60	<0.1	-	0.0350	0.0250	0.0600	0.280	8	1	54	71	2
Dec 91	0.27	0.008	150	7.5	-	1.40	<0.1	-	0.0380	0.0240	0.0620	0.376	4	1	59	65	1
Apr 92	1.01	0.029	90	8.0	-	4.80	<0.1	-	0.1100	0.0150	0.1250	0.290	9	5	49	52	-
May 92	0.18	0.005	120	8.0	89.00	2.80	<0.1	0.50	0.0340	0.0120	0.0460	0.330	20	9	67	84	5
Jun 92	0.14	0.004	80	8.2	-	5.20	<0.1	-	0.0350	0.0040	0.0390	0.330	21	18	70	71	1
Jul 92	0.14	0.004	80	8.0	-	4.40	<0.1	-	0.0330	0.0060	0.0390	0.390	24	14	72	80	3
Aug 92	0.14	0.004	100	8.2	-	1.20	<0.1	-	0.0260	0.0120	0.0380	0.330	23	15	70	75	4
Sep 92	0.11	0.003	130	8.1	-	2.80	<0.1	-	0.0240	0.0280	0.0520	0.280	19	10	72	81	4
Oct 92	0.13	0.004	150	7.9	-	6.00	<0.1	-	0.0370	0.0120	0.0490	0.340	15	8	65	70	2
Nov 92	0.11	0.003	180	7.8	-	1.20	<0.1	-	0.0250	0.0140	0.0390	0.290	4	1	61	63	0.5
May 93	7.28	0.206	60	7.6	42.00	9.20	<0.1	0.10	0.1100	0.0080	0.1180	0.090	12	9	25	32	1
Jun 93	3.99	0.113	40	7.8	-	18.20	<0.1	-	0.0700	0.0140	0.0840	0.081	22	14	35	37	1
Jul 93	1.31	0.037	85	8.2	-	6.00	<0.1	-	0.0470	0.0063	0.0533	0.130	12	10	58	21	5
Aug 93	1.62	0.052	110	8.2	-	5.00	<0.1	-	0.0270	0.0025	0.0295	0.150	15	9	49	22	2
Sep 93	0.73	0.021	110	8.0	-	2.00	<0.1	-	0.0210	0.0058	0.0268	0.160	17	8	61	11	2
Oct 93	0.51	0.014	100	8.3	-	8.00	<0.1	-	0.0230	0.0068	0.0298	0.240	13	5	62	9	2
Nov 93	0.32	0.009	120	8.0	-	5.00	<0.1	-	0.0160	0.0069	0.0229	0.160	8	3	57	10	2

R-1 WATER QUALITY DATA

DOLLY CREEK ABOVE WALKER MINE TAILINGS (con't)

1986-1999

Table 1

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	sum cu+zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CaCO3) mg/L	Alkalinity (CaCO3) mg/L	Acidity to pH 8.3= (CaCO3) mg/L
May 94	0.31	0.009	120	8.2	104.00	1.60	<0.1	0.80	0.0740	0.0330	0.1070	0.320	7	7	50	70	6
Jun 94	0.21	0.006	120	7.7	-	0.60	<0.1	-	0.0290	0.0077	0.0367	0.310	29	14	65	65	6
Jul 94	0.14	0.004	70	7.8	-	10.00	<0.1	-	0.0290	ND	0.0290	0.450	33	20	61	71	5
Aug 94	0.16	0.005	110	8.4	-	12.00	<0.1	-	0.0190	ND	0.0190	0.300	27	10	69	59	3
Sep 94	0.14	0.004	120	8.2	-	13.00	<0.1	-	0.0210	ND	0.0210	0.350	20	13	69	72	5
Oct 94	0.14	0.004	130	7.4	-	0.80	<0.1	-	0.0130	ND	0.0130	0.310	11	5	66	63	4
Jun 95	6.97	0.197	50	8.2	37.00	1.20	<0.1	1.00	0.0860	ND	0.0860	ND	25	12	25	34	5
Jul 95	2.48	0.070	90	8.2	-	0.80	<0.1	-	0.0550	ND	0.0550	0.230	26	13	46	51	6
Aug 95	1.21	0.034	120	8.2	-	2.80	<0.1	-	0.0350	0.0022	0.0372	0.180	14	8	56	51	3
Sep 95	1.05	0.030	120	8.3	-	2.40	<0.1	-	0.0420	ND	0.0420	0.270	15	11	58	62	3
Oct 95	0.93	0.026	130	8.1	-	6.00	<0.1	-	0.0380	0.0120	0.0500	0.330	2	4	60	67	3
Nov 95	1.26	0.036	150	8.6	-	15.60	<0.1	-	0.0800	0.0430	0.1230	0.180	4	3	62	69	3
May 96	12.30	0.348	50	7.7	33.00	4.60	<0.1	2.00	0.0650	0.0072	0.0722	0.120	10	9	25	30	4
June 96	2.40	0.068	90	8.0	-	2.00	<0.1	-	0.0460	0.0057	0.0517	0.190	24	15	45	42	6
July 96	1.10	0.031	110	7.1	-	1.40	<0.1	-	0.0170	0.0110	0.0280	0.190	22	11	66	51	6
Aug 96	0.90	0.025	110	8.3	-	2.50	<0.1	-	0.0140	0.0140	0.0280	0.250	17	10	61	58	6
Sep 96	0.90	0.025	80	8.2	-	1.20	<0.1	-	0.0140	0.0070	0.0210	0.280	14	8	65	62	8
May 97	5.05	0.143	50	7.9	43.00	3.40	<0.1	1.00	0.0020	0.0100	0.0120	0.130	25	12	32	48	2
June 97	1.34	0.038	110	7.8	-	2.60	<0.1	-	0.0190	0.0055	0.0245	0.200	24	15	95	55	3
July 97	1.24	0.035	100	8.2	-	1.20	<0.1	-	0.0110	ND	0.0110	0.220	23	13	112	63	3
Aug 97	0.80	0.023	110	7.5	-	2.40	<0.1	-	0.0130	ND	0.0130	0.320	19	12	57	66	4
Sep 97	0.66	0.019	120	8.2	-	2.00	<0.1	-	0.0130	ND	0.0130	0.310	13	10	60	62	6
Oct 97	0.60	0.017	120	8.1	-	1.20	<0.1	-	0.0230	0.0071	0.0301	0.230	9	6	60	69	6
June 98	9.60	0.272	60	8.6	54.00	2.40	<0.1	0.20	0.0500	0.0200	0.0700	0.100	15	12	27	45	6
July 98	1.80	0.051	120	8.3	-	3.20	<0.1	-	0.0150	0.0059	0.0209	0.150	23	13	48	50	11
Aug 98	2.40	0.068	150	8.2	-	4.40	<0.1	-	0.0099	0.0098	0.0197	0.180	18	9	47	71	13
Sep 98	1.00	0.028	176	8.2	-	4.00	<0.1	-	0.0110	ND	0.0110	0.210	15	9	57	79	11
Oct 98	0.30	0.008	160	8.5	-	4.20	<0.1	-	0.0460	ND	0.0460	0.250	7	5	59	78	13
June 99	5.24	0.148	90	7.8	63.00	4.40	<0.1	1.00	0.0160	0.0056	0.0216	0.100	21	14	31	51	10
July 99	1.30	0.037	123	8.0	-	10.80	<0.1	-	0.0140	ND	0.0140	0.170	20	13	51	54	12
Aug 99	0.81	0.023	146	8.0	-	20.00	<0.1	-	0.0160	ND	0.0160	0.240	20	10	73	72	19
Sept 99	0.78	0.022	140	8.0	-	14.40	<0.1	-	0.0170	0.0070	0.0240	0.290	19	13	65	84	14
Oct 99	0.59	0.017	154	8.0	-	3.40	<0.1	-	0.0210	ND	0.0210	0.300	21	8	65	72	14
x	1.30	0.037	130	7.66	61.33	5.70	0.00	4.52	0.138	0.082	0.222	0.245	17.15	9.91	55.07	54.68	4.99
n	87	87.000	87	86	9	88	88	24	88	85	86	59	87	87	58	59	56
s	2.04	0.058	55	0.98	24.51	6.90	0.01	5.33	0.410	0.166	0.497	0.110	7.04	4.28	18.66	22.24	4.12
max	12.30	0.348	320	8.55	104.00	33.80	0.10	19.90	3.500	1.060	3.620	0.600	33.00	21.00	112.00	84.00	19.00
min	0.00	0.000	0	0.00	33.00	0.00	0.00	0.10	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.00

R-2 WATER QUALITY DATA
DOLLY CREEK BELOW WALKER MINE TAILINGS
1986 - 1999

Table 2

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	sum cu+zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CaCO3) mg/L	Alkalinity (CaCO3) mg/L	Acidity to pH 8.3= (CaCO3) mg/L
Jun 86	3.90	0.11	265	7.80	-	26.60	<0.1	12.00	-	-	0.000	-	22	19	-	-	-
Jul 86	1.74	0.05	260	8.10	-	18.00	<0.1	5.50	-	-	0.000	-	21	20	-	-	-
Aug 86	1.72	0.05	280	7.50	-	11.20	<0.1	3.56	0.410	0.270	0.680	-	15	10	-	-	-
Sep 86	1.48	0.04	270	6.80	-	11.20	<0.1	6.50	0.380	0.200	0.580	-	7	7	-	-	-
Oct 86	0.79	0.02	220	7.70	-	1.60	<0.1	1.70	0.410	0.080	0.490	-	12	8	-	-	-
May 87	1.70	0.05	290	6.80	-	43.40	<0.1	23.30	2.500	0.140	2.640	-	24	24	-	-	-
Jun 87	0.82	0.02	270	7.20	-	36.00	-	-	0.340	0.200	0.540	-	22	20	-	-	-
Jul 87	0.40	0.01	275	7.70	-	16.80	<0.1	20.30	0.730	0.060	0.790	-	24	27	-	-	-
Aug 87	0.30	0.01	220	8.00	-	21.80	<0.1	7.90	0.230	0.130	0.360	-	25	22	-	-	-
Sep 87	0.12	0.00	180	8.20	-	8.40	<0.1	10.60	0.390	0.100	0.490	-	25	21	-	-	-
Oct 87	0.48	0.01	120	8.10	-	37.60	<0.1	12.50	0.390	0.120	0.510	-	19	12	-	-	-
May 88	0.47	0.01	240	8.10	-	6.70	<0.1	6.70	0.800	0.080	0.880	-	25	26	-	-	-
Jun 88	0.31	0.01	210	7.80	-	0.00	<0.1	4.80	0.450	0.060	0.510	-	11	21	-	-	-
Jul 88	0.01	0.00	260	8.60	-	<0.10	<0.1	1.30	0.160	0.220	0.380	-	24	24	-	-	-
Aug 88	0.04	0.00	200	7.90	-	2.60	<0.1	2.50	0.320	0.160	0.480	-	19	16	-	-	-
Sep 88	0.06	0.00	185	7.90	-	26.40	<0.1	8.90	0.500	0.180	0.680	0.850	18	11	-	-	-
Oct 88	0.02	0.00	220	8.40	-	0.80	<0.1	-	0.550	0.300	0.850	-	23	16	-	-	-
May 89	1.94	0.05	170	7.80	-	6.00	<0.1	-	0.390	0.180	0.570	-	22	20	-	-	-
Jun 89	1.03	0.03	160	7.90	-	6.00	<0.1	-	0.890	0.130	1.020	-	13	16	-	-	-
Jul 89	0.31	0.01	140	8.30	-	2.00	<0.1	-	0.520	0.070	0.590	-	22	22	-	-	-
Aug 89	0.46	0.01	200	8.20	-	2.00	<0.1	-	0.470	0.150	0.620	-	21	21	-	-	-
Sep 89	0.67	0.02	250	8.80	-	14.40	<0.1	-	0.340	0.240	0.580	-	19	23	-	-	-
Oct 89	1.39	0.04	110	8.80	-	27.20	<0.1	-	0.70*	0.070	0.078	-	6	0	-	-	-
May 90	3.22	0.09	70	8.40	-	14.00	<0.1	-	0.650	0.090	0.740	-	5	5	-	-	-
Jun 90	0.30	0.01	220	6.90	-	0.40	<0.01	-	0.260	0.160	0.420	-	21	26	-	-	-
Aug 90	0.39	0.01	161	8.10	-	1.60	<0.01	-	0.520	0.090	0.610	-	26	30	-	-	-
Sep 90	0.17	0.00	180	8.69	-	2.80	<0.01	-	0.500	0.160	0.660	-	15	18	-	-	-
Oct 90	0.20	0.01	170	7.96	-	2.80	<0.01	-	0.460	0.300	0.760	-	16	12	-	-	-
Oct 90	0.15	0.00	260	8.21	-	0.40	<0.01	-	0.310	0.170	0.480	-	14	7	-	-	-
May 91	1.28	0.04	210	7.85	51.00	1.60	<0.1	1.00	0.572	0.025	0.597	0.705	17	21	47	45	8
Jun 91	0.61	0.02	260	8.01	-	2.40	<0.1	-	0.310	0.023	0.333	0.251	8	13	43	47	9
Jul 91	0.31	0.01	230	8.17	-	1.60	<0.1	-	0.256	0.018	0.274	0.544	24	25	76	55	1
Aug 91	0.17	0.00	220	8.00	-	4.00	<0.1	-	0.388	0.019	0.407	0.534	30	25	72	62	0.9
Sep 91	0.26	0.01	130	7.98	-	3.20	<0.1	-	0.362	0.018	0.380	0.739	24	16	39	73	-
Oct 91	0.15	0.00	130	7.95	-	1.60	<0.1	-	0.321	0.033	0.354	0.845	21	12	38	74	1
Nov 91	0.40	0.01	140	7.77	-	23.00	<0.1	-	0.207	0.042	0.249	0.628	3	1	53	68	3
Dec 91	0.14	0.00	170	7.40	-	10.00	<0.1	-	0.207	0.042	0.249	0.946	3	0	62	67	1
Apr 92	0.85	0.02	110	8.20	-	11.20	<0.1	-	0.320	0.020	0.340	0.550	12	14	52	51	-
May 92	0.12	0.00	150	8.30	95.00	9.20	<0.1	3.00	0.250	0.015	0.265	0.420	21	18	71	72	1
Jun 92	0.35	0.01	120	8.40	-	3.20	<0.1	-	0.300	0.013	0.313	0.560	19	24	60	62	1
Jul 92	0.06	0.00	100	8.50	-	2.20	<0.1	-	0.360	ND	0.360	0.700	24	23	72	78	1
Aug 92	0.00	0.00	170	8.70	-	2.40	<0.1	-	0.140	0.019	0.159	0.230	29	23	82	86	1
Sep 92	0.02	0.00	150	8.50	-	0.80	<0.1	-	0.240	0.034	0.274	0.400	19	14	77	82	1
Oct 92	0.10	0.00	170	8.30	-	2.40	<0.1	-	0.250	0.025	0.275	0.630	17	11	70	65	0.5
Nov 92	0.13	0.00	200	8.60	-	33.60	<0.1	-	0.180	0.019	0.199	0.630	9	4	69	69	4.5
May 93	7.28	0.21	80	7.80	66.00	84.00	<0.1	0.25	0.370	0.024	0.394	0.590	10	14	28	30	1
Jun 93	3.98	0.11	80	8.00	-	17.60	<0.1	-	0.390	0.024	0.414	0.670	20	18	24	26	2
Jul 93	1.25	0.04	125	8.30	-	4.00	<0.1	-	0.450	0.030	0.480	1.200	18	21	62	19	5
Aug 93	0.95	0.03	130	8.20	-	30.00	<0.1	-	0.340	0.017	0.357	0.920	17	16	56	21	2
Sep 93	0.57	0.02	130	8.60	-	3.00	<0.1	-	0.230	0.013	0.243	0.780	18	20	63	18	1
Oct 93	0.67	0.02	130	8.40	-	3.00	<0.1	-	0.200	0.025	0.225	0.930	4	3	64	19	3
Nov 93	0.43	0.01	100	8.10	-	12.00	<0.1	-	0.140	0.017	0.157	0.660	6	3	54	7	2
May 94	0.72	0.02	130	8.20	122.00	2.80	<0.1	3.50	0.500	0.027	0.527	0.990	5	8	80	57	1
Jun 94	-	0.00	150	8.00	-	5.60	<0.1	-	0.240	0.008	0.248	0.250	27	29	67	52	2
Jul 94	0.15	0.00	80	7.80	-	7.00	<0.1	-	0.210	ND	0.210	1.400	27	22	68	55	3
Aug 94	0.06	0.00	110	8.50	-	6.00	<0.1	-	0.090	ND	0.090	0.810	29	21	74	75	3
Sep 94	0.01	0.00	160	8.70	-	15.00	<0.1	-	0.088	ND	0.088	1.600	27	22	80	82	4
Oct 94	0.14	0.00	140	7.50	-	2.00	<0.1	-	0.057	ND	0.057	1.000	20	9	76	76	2

R-2 WATER QUALITY DATA

DOLLY CREEK BELOW WALKER MINE TAILINGS (con't)

Table 2

1986 - 1999

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	sum cu+zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CaCO3) mg/L	Alkalinity (CaCO3) mg/L	Acidity to pH 8.3= (CaCO3) mg/L
Jun 95	8.22	0.23	60	8.00	40.00	25.60	<0.1	5.00	0.190	ND	0.190	0.420	30	22	25	31	5
Jul 95	2.38	0.07	100	8.40	-	14.60	<0.1	-	0.220	0.005	0.225	0.850	25	25	48	46	4
Aug 95	1.33	0.04	140	8.30	-	6.00	<0.1	-	0.170	0.008	0.178	1.000	20	17	57	65	1
Sep 95	2.01	0.06	120	8.90	-	2.40	<0.1	-	0.100	ND	0.100	0.700	15	18	58	63	3
Oct 95	1.03	0.03	130	8.20	-	283.00	<0.1	-	0.330	0.022	0.352	3.700	18	10	62	64	4
Nov 95	1.28	0.04	120	7.60	-	6.40	<0.1	-	0.091	0.130	0.221	0.540	6	7	63	67	4
May 96	15.60	0.44	60	7.60	42.00	44.80	<0.1	4.50	0.150	0.008	0.158	0.350	8	13	25	33	3
June 96	2.80	0.08	110	8.00	-	4.60	<0.1	-	0.330	0.015	0.345	1.100	19	19	45	35	5
July 96	1.30	0.04	140	8.20	-	1.80	<0.1	-	0.180	0.015	0.195	0.720	25	24	61	42	5
Aug 96	1.10	0.03	22	8.50	-	0.80	<0.1	-	0.120	0.013	0.133	0.730	22	22	61	46	6
Sep 96	1.00	0.03	80	8.40	-	1.60	<0.1	-	0.056	0.008	0.074	0.640	20	19	62	60	6
May 97	5.69	0.16	70	7.90	47.00	8.00	<0.1	0.85	0.092	0.007	0.099	0.280	20	23	32	60	2
June 97	2.19	0.06	110	7.90	-	2.80	<0.1	-	0.095	ND	0.095	0.500	25	26	94	65	2
July 97	1.18	0.03	140	8.20	-	2.40	<0.1	-	0.082	ND	0.082	0.530	25	26	112	65	4
Aug 97	0.89	0.03	130	8.00	-	0.80	<0.1	-	0.073	0.016	0.089	0.680	19	21	56	72	5
Sep 97	0.86	0.02	150	8.40	-	1.60	<0.1	-	0.060	ND	0.060	0.650	17	21	57	61	5
Oct 97	0.70	0.02	150	7.68	-	0.80	<0.01	-	0.042	ND	0.042	0.490	14	13	59	63	5
June 98	10.20	0.29	80	8.49	51.00	9.20	<0.1	0.15	0.150	0.011	0.161	0.290	10	15	24	43	10
July 98	2.00	0.06	130	8.08	-	4.80	<0.1	-	0.180	0.011	0.191	0.180	21	20	49	59	13
Aug 98	1.20	0.03	160	8.24	-	3.20	<0.1	-	0.140	0.010	0.150	0.630	23	22	49	70	15
Sep 98	0.80	0.03	158	8.70	-	1.60	<0.1	-	0.080	ND	0.080	0.570	12	12	58	69	18
Oct 98	0.40	0.01	166	8.44	-	2.80	<0.1	-	0.097	ND	0.097	0.730	5	10	62	72	17
June99	5.74	0.16	92	7.79	85.00	8.00	<0.1	1.00	0.017	0.008	0.025	0.380	15	15	32	73	15
July 99	1.13	0.03	132	7.98	-	0.80	<0.1	-	0.180	0.008	0.188	0.710	22	22	50	83	16
Aug 99	0.91	0.03	144	8.46	-	<1	<0.1	-	0.120	ND	0.120	0.750	25	22	77	75	14
Sep 99	0.72	0.02	151	8.35	-	<1	<0.1	-	0.071	0.008	0.079	0.730	21	20	64	76	18
Oct 99	0.64	0.02	152	8.25	-	2.40	<0.1	-	0.057	ND	0.057	0.730	19	11	63	73	17
x	1.37	0.04	154	7.96	63.22	12.46	0.00	6.14	0.298	0.056	0.352	0.703	17.76	16.66	56.62	54.34	5.12
n	87	87	87	86	9	88	88	24	85	88	88	59	87	87	58	59	56
s	2.36	0.07	64	0.98	25.97	31.86	0.00	5.91	0.303	0.076	0.340	0.490	7.35	7.40	20.21	22.66	5.20
max	15.60	0.44	280	8.90	122.00	283.00	0.00	23.30	2.500	0.300	2.640	3.700	30.00	30.00	112.00	86.00	18.00
min	0.00	0.00	0	0.00	40.00	0.00	0.00	0.15	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.00

R-3 WATER QUALITY DATA

LITTLE GRIZZLY CREEK UPSTREAM OF WALKER MINE TAILINGS

1986 - 1999

Table 3

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	sum cu+zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CaCO3) mg/L	Alkalinity (CaCO3) mg/L	Acidity to pH 8.3= (CaCO3) mg/L
Jun 86	4.70	0.133	142	7.70	-	1.40	<0.1	1.1	-	-	0.0000	-	23	12	-	-	-
Jul 86	0.80	0.023	180	7.90	-	1.40	<0.1	1.4	-	-	0.0000	-	20	17	-	-	-
Aug 86	0.36	0.010	200	7.80	-	0.80	<0.1	0.7	0.0500	0.1300	0.1800	-	15	12	-	-	-
Sep 86	1.63	0.046	170	7.10	-	0.40	<0.1	1.8	0.0100	0.0800	0.0900	-	7	6	-	-	-
Oct 86	0.92	0.026	162	7.40	-	0.80	<0.1	0.7	0.0200	0.0600	0.0800	-	11	6	-	-	-
May 87	7.30	0.207	100	7.60	-	-	<0.1	1.5	0.2800	0.0200	0.3000	-	26	16	-	-	-
Jun 87	1.57	0.044	145	7.30	-	0.40	-	-	0.0400	0.0500	0.0900	-	22	16	-	-	-
Jul 87	0.20	0.006	185	7.60	-	3.40	<0.1	3.7	0.0100	0.0300	0.0400	-	29	24	-	-	-
Aug 87	0.20	0.006	120	7.80	-	1.60	<0.1	2.4	0.0200	0.1200	0.1400	-	30	22	-	-	-
Sep 87	0.20	0.006	100	7.60	-	2.80	<0.1	2.0	0.0000	0.0800	0.0800	-	23	15	-	-	-
Oct 87	0.29	0.008	80	7.70	-	24.20	<0.1	8.0	0.0100	0.1000	0.1100	-	22	8	-	-	-
May 88	2.57	0.073	95	7.20	-	0.04	<0.1	1.1	0.0100	0.0900	0.1000	-	19	11	-	-	-
Jun 88	1.21	0.034	100	7.20	-	1.00	<0.1	1.1	0.0200	0.0800	0.1000	-	16	15	-	-	-
Jul 88	0.06	0.002	180	7.60	-	2.67	<0.1	3.5	0.0300	0.2600	0.2900	-	24	24	-	-	-
Aug 88	0.09	0.003	140	7.70	-	4.40	<0.1	1.9	0.0100	0.1200	0.1300	-	23	21	-	-	-
Sep 88	0.12	0.003	110	7.10	-	0.00	<0.1	1.2	0.0200	0.2400	0.2600	0.2500	18	9	-	-	-
Oct 88	0.11	0.003	130	7.60	-	0.00	<0.1	-	0.0630	0.2700	0.3330	-	24	12	-	-	-
May 89	20.03	0.567	50	7.60	-	1.10	<0.1	-	0.0300	0.1900	0.2200	-	18	12	-	-	-
Jun 89	4.25	0.120	80	7.50	-	3.20	<0.1	-	0.0300	0.1600	0.1900	-	17	13	-	-	-
Jul 89	0.32	0.009	100	7.70	-	1.60	<0.1	-	0.0100	0.0600	0.0700	-	24	20	-	-	-
Aug 89	1.20	0.034	150	7.80	-	4.40	<0.1	-	0.0200	0.1800	0.2000	-	20	18	-	-	-
Sep 89	0.73	0.021	155	8.30	-	2.00	<0.1	-	<0.05	0.2200	0.2200	-	20	16	-	-	-
Oct 89	2.53	0.072	80	6.80	-	2.00	<0.1	-	<0.05	<0.05	0.0000	-	12	1	-	-	-
May 90	21.19	0.600	45	8.40	-	7.20	0.3	-	0.0100	0.1600	0.1700	-	5	5	-	-	-
Jun 90	1.44	0.041	100	6.90	-	1.20	<0.01	-	0.0000	0.1400	0.1400	-	21	19	-	-	-
Jul 90	1.22	0.035	108	5.90	-	1.20	<0.01	-	<0.05	0.1200	0.1200	-	24	24	-	-	-
Aug 90	0.26	0.007	120	8.13	-	1.20	<0.01	-	<0.05	0.0900	0.0900	-	18	18	-	-	-
Sep 90	0.27	0.008	120	7.38	-	2.40	<0.01	-	<0.05	0.2700	0.2700	-	16	11	-	-	-
Oct 90	0.22	0.006	140	6.80	-	1.60	<0.01	-	<0.05	0.1800	0.1800	-	14	10	-	-	-
May 91	12.35	0.350	85	7.38	96	1.20	<0.1	0.7	<0.002	0.0040	0.0040	0.0700	19	7	44	44	9
Jun 91	2.37	0.067	140	7.66	-	1.60	<0.1	-	<0.002	0.0120	0.0120	0.1400	8	10	29	41	6
Jul 91	0.44	0.012	120	7.55	-	2.40	<0.1	-	<0.002	0.0090	0.0090	0.2100	27	21	42	47	2
Aug 91	0.17	0.005	190	7.60	-	2.80	<0.1	-	<0.002	0.0090	0.0090	0.2400	27	22	28	58	0.8
Sep 91	0.31	0.009	115	7.93	-	3.20	<0.1	-	<0.002	0.0040	0.0040	0.2300	25	15	32	72	100
Oct 91	0.15	0.004	110	7.58	-	3.20	<0.1	-	<0.002	0.0290	0.0290	0.2400	23	11	50	65	4
Nov 91	0.53	0.015	130	7.84	-	4.80	<0.1	-	<0.002	0.0140	0.0140	0.2000	0.5	-0.5	43	62	3
Dec 91	0.5	0.014	110	7.38	-	3.60	<0.1	-	<0.002	0.0320	0.0320	0.1500	3	0	49	67	2
Apr 92	6.5	0.184	40	8.00	-	0.40	<0.1	-	ND	0.0060	0.0060	0.1100	13	6	23	29	33
May 92	0.57	0.016	70	8.00	58	5.20	<0.1	0.55	ND	0.0084	0.0084	0.2100	19	15	37	57	4
Jun 92	0.26	0.007	70	7.80	-	6.00	<0.1	-	0.0039	0.0082	0.0121	0.0860	19	23	42	60	2
Jul 92	0.12	0.003	75	8.00	-	8.00	<0.1	-	ND	0.0550	0.0550	0.2800	27	23	36	67	3
Aug 92	0.06	0.002	110	8.10	-	2.80	<0.1	-	0.0036	ND	0.0036	0.2200	26	23	71	78	4
Sep 92	0.11	0.003	110	7.80	-	2.60	<0.1	-	0.1200	0.0280	0.1480	0.2500	18	16	53	70	6
Oct 92	0.17	0.005	130	7.80	-	5.20	<0.1	-	ND	0.0100	0.0100	0.1500	15	9	49	59	0.5
Nov 92	0.26	0.007	140	7.90	-	8.80	<0.1	-	ND	0.0046	0.0046	0.1600	5	4	49	54	1
May 93	39.6	1.121	40	7.40	32	0.80	<0.1	0.05	ND	0.0063	0.0063	0.0600	8	7	18	24	1
Jun 93	20.5	0.581	39	7.30	-	18.00	<0.1	-	0.0028	0.0076	0.0104	0.1100	20	10	23	30	2
Jul 93	2.26	0.064	70	7.80	-	9.60	<0.1	-	0.0024	0.0053	0.0077	0.1900	11	13	39	15	7
Aug 93	0.77	0.022	100	7.90	-	8.00	<0.1	-	ND	ND	0.0000	0.2000	17	12	40	17	1
Sep 93	0.56	0.016	100	8.00	-	2.00	<0.1	-	ND	ND	0.0000	0.2100	15	9	53	9	2
Oct 93	0.7	0.020	80	7.70	-	5.00	<0.1	-	ND	0.0061	0.0061	0.9300	-1	3	46	12	1
Nov 93	0.52	0.015	90	7.90	-	4.00	<0.1	-	ND	0.0067	0.0067	0.2300	6	2	45	10	2

R-3 WATER QUALITY DATA

LITTLE GRIZZLY CREEK UPSTREAM OF WALKER MINE TAILINGS (con't)

1986 - 1999

Table 3

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	sum cu+zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CaCO3) mg/L	Alkalinity (CaCO3) mg/L	Acidity to pH 8.3 (CaCO3) mg/L
May 94	6.7	0.190	60	7.80	50	8.00	<0.1	0.4	ND	ND	0.0000	0.1200	6	6	37	37	1
Jun 94	-	0.000	90	7.80	-	12.40	<0.1	-	0.0090	0.0256	0.0346	0.2800	26	22	38	50	4
Jul 94	0.09	0.003	60	7.60	-	7.00	<0.1	-	ND	ND	0.0000	0.4100	32	27	44	63	5
Aug 94	0.16	0.005	90	8.00	-	12.00	<0.1	-	ND	ND	0.0000	0.1900	26	17	51	51	5
Sep 94	0.13	0.004	100	8.30	-	6.00	<0.1	-	ND	ND	0.0000	0.3600	26	19	54	64	3
Oct 94	0.2	0.006	110	7.30	-	3.20	<0.1	-	ND	ND	0.0000	0.2700	14	7	53	66	1
Jun 95	74	2.096	40	7.90	29	10.80	<0.1	1.5	ND	ND	0.0000	ND	27	13	11	37	6
Jul 95	4.31	0.122	60	8.20	-	43.20	<0.1	-	ND	ND	0.0000	0.1200	25	15	31	36	5
Aug 95	1.24	0.035	100	8.00	-	1.20	<0.1	-	0.0041	ND	0.0041	0.2400	19	11	43	48	3
Sep 95	0.71	0.020	110	8.30	-	2.40	<0.1	-	ND	ND	0.0000	0.2600	18	16	47	65	2
Oct 95	1.25	0.035	100	7.90	-	4.00	<0.1	-	ND	0.0130	0.0130	0.2100	11	5	50	47	3
Nov 95	0.92	0.026	100	7.60	-	10.40	<0.1	-	ND	0.1600	0.1600	0.1200	4	26	43	54	3
May 96	67.00	1.897	40	7.20	45	14.80	<0.1	1	ND	ND	0.0000	0.0800	7	26	18	27	4
June 96	8.80	0.249	50	7.20	-	4.00	<0.1	-	ND	ND	0.0000	0.1200	17	12	27	32	3
July 96	1.30	0.037	90	7.10	-	3.60	<0.1	-	0.0029	0.0028	0.0057	0.1100	27	20	43	40	4
Aug 96	0.60	0.017	100	8.20	-	2.80	<0.1	-	0.0022	0.0053	0.0075	0.1800	20	15	48	41	4
Sept 96	0.50	0.014	70	7.90	-	1.60	<0.1	-	ND	ND	0.0000	0.1800	16	10	57	62	5
May 97	43.64	1.236	40	7.70	23	6.00	<0.1	0.6	ND	0.0210	0.0210	0.0460	20	12	20	28	2
June 97	5.40	0.153	70	7.20	-	1.60	<0.1	-	ND	ND	0.0000	0.1000	21	18	60	35	3
July 97	1.35	0.038	90	7.90	-	1.20	<0.1	-	ND	ND	0.0000	0.1200	23	18	78	46	3
Aug 97	0.55	0.016	110	7.50	-	1.60	<0.1	-	ND	0.0087	0.0087	0.2000	25	18	46	59	4
Sept 97	0.51	0.014	120	8.00	-	2.40	<0.1	-	ND	ND	0.0000	0.2100	14	13	50	56	4
Oct 97	0.70	0.020	90	8.10	-	4.00	<0.1	-	ND	ND	0.0000	0.1200	8	7	49	59	4
June 98	92.10	2.608	40	8.71	41	5.20	<0.1	0.3	ND	ND	0.0000	0.0480	8	7	18	-	-
July 98	4.24	0.120	80	8.00	-	3.60	<0.1	-	0.0110	0.0079	0.0189	0.1800	22	19	31	38	20
Aug 98	0.90	0.025	120	8.00	-	3.20	<0.1	-	0.0046	0.0019	0.0065	0.2000	22	18	34	61	23
Sept 98	0.70	0.020	130	8.32	-	0.08	<0.1	-	ND	ND	0.0000	0.2200	12	12	37	52	14
Oct 98	0.40	0.011	129	8.28	-	3.00	<0.1	-	0.0130	ND	0.0130	0.3000	5	5	41	54	19
Jun 99	28.41	0.805	58	7.49	41	7.60	<0.1	0.6	ND	ND	0.0000	0.0520	18	13	18	46	12
Jul 99	1.92	0.054	91	6.96	-	0.80	<0.1	-	ND	ND	0.0000	0.1200	20	20	32	64	14
Aug 99	0.63	0.018	116	8.01	-	4.00	<0.1	-	ND	ND	0.0000	0.2000	25	15	59	70	19
Sept 99	0.35	0.010	144	7.82	-	<1.00	<0.1	-	ND	ND	0.0000	0.2100	19	16	56	72	11
Oct 99	0.45	0.013	149	7.99	-	<1.00	<0.1	-	ND	ND	0.0000	0.2400	20	9	52	69	25
x	5.93	0.168	100.34	7.69	46.11	4.26	0.00	1.57	0.01	0.05	0.06	0.19	17.40	13	39.95	46.14	7.62
n	87	87	87	86	9	88	86	24	98	85	86	59	87	87	58	58	57
s	15.71	0.445	40.36	0.93	20.34	5.86	0.03	1.61	0.03	0.07	0.08	0.13	7.78	7	15.17	20.13	14.10
max	92.10	2.608	200.00	8.71	96.00	43.20	0.30	8.00	0.28	0.27	0.33	0.93	32.00	27	78.00	78.00	100.00
min	0.00	0.00	0.00	0.00	23.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	-1.00	0.00	0.00	0.00	0.00

R-4 WATER QUALITY DATA
LITTLE GRIZZLY CREEK BELOW WALKER MINE TAILINGS
1986-1999

Table 4

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	sum cu+zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CaCO3) mg/L	Alkalinity (CaCO3) mg/L	Acidity to pH 8.3= (CaCO3) mg/L
Jun 86	9.90	0.280	164	7.7	-	1.00	<0.1	0.9	-	-	0.0000	-	21	9	-	-	-
Jul 86	1.78	0.050	225	8.0	-	0.60	<0.1	1.1	-	-	0.0000	-	22	15	-	-	-
Aug 86	0.58	0.016	280	7.7	-	1.40	<0.1	0.9	0.0500	0.1500	0.2000	-	15	12	-	-	-
Sep 86	1.85	0.052	220	6.8	-	1.40	<0.1	2.1	0.0200	0.0500	0.0700	-	7	5	-	-	-
Oct 86	1.30	0.037	210	7.5	-	10.00	0.1	1.2	0.0100	0.0400	0.0500	-	12	5	-	-	-
May 87	9.20	0.261	111	7.4	-	2.00	<0.1	1.5	0.2500	0.0100	0.2600	-	23	19	-	-	-
Jun 87	1.32	0.037	180	7.3	-	1.60	-	-	0.0600	0.0300	0.0900	-	25	13	-	-	-
Jul 87	0.50	0.014	270	7.9	-	1.60	<0.1	1.7	0.0200	0.0800	0.1000	-	24	22	-	-	-
Aug 87	0.20	0.006	210	7.7	-	2.00	<0.1	3.5	0.0200	0.0600	0.0800	-	25	22	-	-	-
Sep 87	0.19	0.005	170	7.8	-	2.00	<0.1	2.2	0.0100	0.0500	0.0600	-	23	13	-	-	-
Oct 87	0.38	0.011	120	7.7	-	40.20	<0.1	9.0	0.0200	0.1200	0.1400	-	19	5	-	-	-
May 88	2.73	0.077	95	7.6	-	<0.04	<0.1	1.2	0.0100	0.0700	0.0800	-	23	15	-	-	-
Jun 88	1.07	0.030	110	7.8	-	2.00	<0.1	1.1	0.0000	0.0900	0.0900	-	15	12	-	-	-
Jul 88	0.32	0.009	320	8.0	-	2.00	<0.1	2.2	0.0200	0.2800	0.3000	-	26	22	-	-	-
Aug 88	0.16	0.005	285	7.4	-	3.60	<0.1	1.0	0.0100	0.0700	0.0800	-	23	15	-	-	-
Sep 88	0.43	0.012	260	7.3	-	275.20	<0.1	2.5	0.0100	0.2000	0.2100	0.27	19	9	-	-	-
Oct 88	0.20	0.006	240	7.4	-	186.00	<0.1	-	0.0200	0.2200	0.2400	-	21	8	-	-	-
May 89	24.46	0.693	50	7.5	-	4.20	<0.1	-	0.0300	0.1200	0.1500	-	22	12	-	-	-
Jun 89	5.79	0.164	90	7.5	-	3.20	<0.1	-	0.0400	0.1200	0.1600	-	19	12	-	-	-
Jul 89	0.71	0.020	130	7.7	-	4.00	<0.1	-	0.0100	0.0600	0.0700	-	28	18	-	-	-
Aug 89	2.83	0.080	190	7.6	-	1.60	<0.1	-	0.0060	0.1200	0.1260	-	18	14	-	-	-
Sep 89	2.71	0.077	205	8.1	-	1.20	<0.1	-	<0.05	0.2100	0.2100	-	19	11	-	-	-
Oct 89	2.83	0.074	110	8.8	-	2.60	<0.1	-	<0.05	<0.05	0.0000	-	2	0	-	-	-
May 90	23.35	0.661	50	8.0	-	8.60	0.3	-	0.0100	0.1300	0.1400	-	5	5	-	-	-
Jun 90	2.19	0.062	120	7.1	-	1.6	<0.01	-	0.0000	0.1200	0.1200	-	19	17	-	-	-
Jul 90	3.02	0.086	147	7.2	-	2	<0.01	-	<0.05	0.1600	0.1600	-	26	22	-	-	-
Aug 90	0.33	0.009	170	8.02	-	1.6	<0.01	-	<0.05	0.1500	0.1500	-	18	13	-	-	-
Sep 90	0.73	0.021	210	7.35	-	1.8	<0.01	-	<0.05	0.3000	0.3000	-	17	8	-	-	-
Oct 90	0.3	0.008	330	7.51	-	2	<0.01	-	<0.05	0.1600	0.1600	-	14	7	-	-	-
May 91	17.66	0.500	60	7.82	47	5.2	<0.1	0.25	0.0020	0.0060	0.0080	0.101	17	11	17	28	7
Jun 91	2.58	0.072	140	7.55	-	2	<0.1	-	<0.002	0.0120	0.0120	0.263	10	10	43	44	9
Jul 91	0.53	0.015	170	7.54	-	0.4	<0.1	-	<0.002	0.0100	0.0100	0.544	24	19	64	56	1
Aug 91	0.4	0.011	300	7.56	-	4.8	<0.1	-	0.0030	0.0080	0.0110	0.829	24	19	90	67	0.9
Sep 91	0.51	0.014	210	7.74	-	6.4	<0.1	-	<0.002	0.0110	0.0110	0.394	25	12	135	90	125
Oct 91	0.26	0.007	190	7.46	-	3.6	<0.1	-	<0.002	0.0130	0.0130	0.514	20	8	100	81	3
Nov 91	0.85	0.024	190	7.68	-	2.4	<0.1	-	<0.002	0.0280	0.0280	0.29	1	0	62	61	5
Dec 91	0.56	0.016	200	7.24	-	0.1	<0.1	-	0.0030	0.0200	0.0230	0.28	3	0	71	68	2
Apr 92	11.48	0.325	45	8	-	5.2	<0.1	-	ND	0.0030	0.0030	0.13	12	8	24	27	30
May 92	0.97	0.027	100	8	92	1.6	<0.1	0.65	0.0390	0.0045	0.0435	0.37	23	17	57	65	5
Jun 92	0.43	0.012	130	7.9	-	0.8	<0.1	-	ND	ND	0.0000	0.68	19	19	65	73	3
Jul 92	0.35	0.010	150	7.8	-	0.4	<0.1	-	ND	ND	0.0000	0.75	30	22	92	86	4
Aug 92	0.24	0.007	280	8	-	4.4	<0.1	-	ND	ND	0.0000	0.27	28	20	141	91	10
Sep 92	0.21	0.006	290	7.9	-	0.8	<0.1	-	0.1200	0.0610	0.1810	0.4	18	14	130	97	9
Oct 92	0.39	0.011	230	7.8	-	7.2	<0.1	-	0.0024	0.0150	0.0174	0.28	15	10	94	73	1
Nov 92	0.45	0.013	280	8	-	5.2	<0.1	-	ND	0.0160	0.0160	0.36	2	2	89	62	4.5
May 93	44.7	1.266	4	7.7	29	3.2	<0.1	0.15	ND	0.0026	0.0026	0.06	14	9	18	22	1
Jun 93	23.1	0.654	30	7.4	-	80	<0.1	-	ND	ND	0.0000	0.11	20	14	35	39	2
Jul 93	2.62	0.074	90	8	-	11.6	<0.1	-	0.0070	0.0069	0.0139	0.3	21	14	42	16	10
Aug 93	1.32	0.037	120	7.8	-	7	<0.1	-	ND	ND	0.0000	0.41	19	12	49	23	2
Sep 93	0.72	0.020	120	8.1	-	2	<0.1	-	0.0083	0.0078	0.0161	0.19	16	11	74	12	4
Oct 93	1.03	0.029	130	8	-	7	<0.1	-	ND	0.0120	0.0120	0.49	5	4	64	11	2
Nov 93	1.12	0.032	130	7.9	-	3	<0.1	-	0.0040	0.0081	0.0121	0.23	3	1	68	9	3

R-4 WATER QUALITY DATA
LITTLE GRIZZLY CREEK BELOW WALKER MINE TAILINGS (con't)
1986-1999

Table 4

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	sum cu+zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CaCO3) mg/L	Alkalinity (CaCO3) mg/L	Acidity to pH 8.3= (CaCO3) mg/L
May 94	7.2	0.204	70	8.1	52	2.4	<0.1	0.6	ND	ND	0.0000	0.2	5	6	26	32	1
Jun 94	-	0.000	100	7.6	-	6	<0.1	-	0.0057	ND	0.0057	0.54	30	19	60	60	1
Jul 94	0.36	0.010	110	7.5	-	6	<0.1	-	ND	ND	0.0000	1.4	31	20	98	79	6
Aug 94	0.29	0.008	160	7.9	-	16	<0.1	-	ND	ND	0.0000	0.27	27	17	104	78	6
Sep 94	0.23	0.007	180	8.1	-	7	<0.1	-	ND	ND	0.0000	0.51	21	14	93	69	5
Oct 94	0.38	0.011	210	7.4	-	0.8	<0.1	-	ND	ND	0.0000	0.39	13	7	93	78	1
Jun 95	89	2.520	30	7.9	<0.5	7.6	<0.1	1.5	ND	ND	0.0000	0.1	21	13	11	32	3
Jul 95	4.79	0.136	60	8.1	-	7.2	<0.1	-	ND	ND	0.0000	0.24	24	18	34	31	7
Aug 95	1.55	0.044	120	8.1	-	1.2	<0.1	-	ND	ND	0.0000	0.51	21	12	53	56	3
Sep 95	1	0.028	120	8.2	-	3.6	<0.1	-	ND	ND	0.0000	0.51	17	11	65	68	2
Oct 95	1.16	0.033	120	8	-	0.8	<0.1	-	ND	0.0380	0.0380	0.38	10	4	69	67	2
Nov 95	1.03	0.029	140	7.5	-	0.8	<0.1	-	0.0023	0.0092	0.0115	0.14	5	26	61	68	3
May 96	77	2.181	40	7.6	34	9.2	<0.1	2.5	ND	ND	0.0000	0.068	17	9	17	28	3
Jun 96	11.4	0.323	60	7.9	-	2.4	<0.1	-	ND	ND	0.0000	0.19	20	14	29	30	4
Jul 96	1.7	0.048	110	7.9	-	2.8	<0.1	-	ND	0.0051	0.0051	0.34	28	18	54	48	4
Aug 96	1	0.028	140	8.3	-	2.6	<0.1	-	ND	0.0020	0.0020	0.49	23	16	64	50	4
Sep 96	0.7	0.020	100	7.9	-	0.4	<0.1	-	ND	ND	0.0000	0.4	21	11	71	60	4
May 97	54.41	1.541	30	7.8	24	5.6	<0.1	0.7	ND	ND	0.0000	0.069	22	14	18	42	1
Jun 97	5.02	0.142	80	8.1	-	4	<0.1	-	ND	ND	0.0000	0.2	26	18	63	46	2
Jul 97	1.9	0.054	110	7.9	-	2	<0.1	-	ND	ND	0.0000	0.24	25	19	102	52	1
Aug 97	0.66	0.019	150	7.5	-	1.6	<0.1	-	ND	ND	0.0000	0.39	23	13	61	66	4
Sep 97	0.7	0.020	170	8.2	-	2.4	<0.1	-	ND	ND	0.0000	0.43	15	14	61	63	5
Oct 97	0.9	0.025	110	8	-	9.6	<0.1	-	ND	ND	0.0000	0.073	16	4	65	67	5
Jun 98	110	3.115	30	8.7	38	6	<0.1	0.35	ND	ND	0.0000	0.049	16	9	16	32	5
Jul 98	4.4	0.125	100	8	-	1.2	<0.1	-	0.0034	0.0070	0.0104	0.26	22	18	30	41	10
Aug 98	1.2	0.034	150	8.1	-	2.8	<0.1	-	0.0015	0.0034	0.0049	0.27	21	15	44	60	13
Sep 98	0.9	0.025	181	8.6	-	3.8	<0.1	-	ND	ND	0.0000	0.34	12	11	46	72	13
Oct 98	0.1	0.003	168	8.4	-	3.8	<0.1	-	0.0088	ND	0.0088	0.38	0	3	53	79	15
Jun 99	32.98	0.934	62	7.5	48	6	<0.1	0.45	ND	ND	0.0000	0.069	19	11	19	53	13
Jul 99	2.42	0.069	108	7.9	-	14	<0.1	-	ND	ND	0.0000	0.29	21	17	36	78	14
Aug 99	0.96	0.027	158	8.4	-	1.2	<0.1	-	ND	ND	0.0000	0.48	26	16	82	77	17
Sep 99	0.59	0.016	180	8	-	2.4	<0.1	-	ND	ND	0.0000	0.54	18	16	67	81	22
Oct 99	0.83	0.024	190	7.8	-	<1	<0.1	-	ND	ND	0.0000	0.42	16	6	75	82	17
x	7.25	0.21	146.20	7.88	40.44	9.92	0.00	1.63	0.01	0.04	0.05	0.33	17.80	12.10	59.69	53.29	7.92
n	87	87	87	86	9	88	88	24	65	88	86	59	87	87	58	59	58
s	18.61	0.53	76.78	0.99	23.51	35.72	0.03	1.74	0.03	0.07	0.08	0.23	7.66	6.02	32.04	25.38	16.55
max	110.00	3.12	330.00	8.70	92.00	275.20	0.30	9.00	0.25	0.30	0.30	1.40	31.00	26.00	141.00	97.00	125.00
min	0	0	0	0	0	0	0	0.15	0.0000	0.0000	0.0000	0	0	0	0	0	0

R-5 WATER QUALITY DATA
LITTLE GRIZZLY CREEK AT COMPLIANCE STATION
1991 - 1999

Table 5

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	Cu + Zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CaCO3) mg/L	Alkalinity (CaCO3) mg/L	Acidity to pH 8.3= (CaCO3) mg/L
May 91	19.62	0.556	70	7.5	96	2.8	<0.1	0.3	0.0400	0.0100	0.0500	0.146	22	13	22	27	4
Jun 91	3.54	0.100	160	7.6	-	1.2	<0.1	-	0.0690	0.0120	0.0810	0.235	13	10	42	41	8
Jul 91	0.84	0.024	230	7.9	-	1.2	<0.1	-	0.0600	0.0100	0.0700	0.383	21	14	49	58	5
Aug 91	0.61	0.017	200	7.9	-	3.6	<0.1	-	0.1230	0.0110	0.1340	0.401	25	15	87	65	0
Sep 91	1.35	0.038	170	8.0	-	6.0	<0.1	-	0.1020	0.0080	0.1100	0.404	19	8	81	87	-
Oct 91	0.48	0.014	190	7.5	-	2.0	<0.1	-	0.0970	0.0300	0.1170	0.452	13	5	92	80	4
Nov 91	1.92	0.054	200	7.9	-	0.4	<0.1	-	0.1080	0.0210	0.1290	0.512	1	-0.5	44	77	4
Dec 91	0.94	0.027	190	7.7	-	8.0	<0.1	-	0.0560	0.0370	0.0930	0.437	4	0	66	53	1
Apr 92	10.63	0.301	50	8.0	-	0.8	<0.1	-	ND	ND	0.0000	0.170	14	10	25	31	-
May 92	1.06	0.030	130	8.1	90	2.4	<0.1	0.8	ND	0.0044	0.0044	0.480	15	13	56	71	3
Jun 92	0.65	0.018	120	8.3	-	1.2	<0.1	-	0.0730	0.0061	0.0791	0.400	21	19	78	76	1
Jul 92	0.43	0.012	140	8.4	-	0.4	<0.1	-	0.0660	0.0150	0.0810	0.550	21	19	92	86	4
Aug 92	0.20	0.006	230	8.4	-	0.8	<0.1	-	0.0076	ND	0.0076	0.078	22	17	130	93	5
Sep 92	0.22	0.006	270	8.2	-	0.8	<0.1	-	ND	0.0062	0.0062	0.120	14	12	126	100	5
Nov 92	0.62	0.018	270	8.2	-	5.6	<0.1	-	0.0320	0.0130	0.0450	0.400	0	1	82	90	5
Oct 92	0.34	0.010	250	8.0	-	3.6	<0.1	-	0.0420	0.0170	0.0590	0.330	12	7	94	83	2
May 93	46.10	1.306	40	7.6	37	15.8	<0.1	0.4	0.0360	0.0044	0.0404	0.110	11	10	17	22	3
Jun 93	26.00	0.736	40	7.8	-	11.2	<0.1	-	0.0630	0.0066	0.0696	0.210	23	17	25	29	1
Jul 93	3.53	0.100	90	8.1	-	5.6	<0.1	-	0.1400	0.0130	0.1530	0.470	12	12	56	21	10
Aug 93	2.29	0.065	120	8.2	-	8.0	<0.1	-	0.1300	0.0078	0.1378	0.520	13	12	52	21	1
Sep 93	1.10	0.031	130	8.4	-	4.0	<0.1	-	0.0990	0.0077	0.1067	0.440	16	10	56	12	1
Oct 93	1.42	0.040	110	8.4	-	2.0	<0.1	-	0.0750	0.0100	0.0850	0.630	8	8	65	15	2
Nov 93	1.88	0.053	140	8.1	-	2.5	<0.1	-	0.0630	0.0220	0.0850	0.460	4	6	68	10	2
May 94	7.30	0.207	70	8.2	64	5.4	<0.1	0.8	0.0500	ND	0.0500	0.260	9	7	26	33	3
Jun 94	1.60	0.045	120	7.4	-	10.0	<0.1	-	0.0670	ND	0.0670	0.460	20	15	54	54	2
Jul 94	0.45	0.013	110	8.0	-	20.0	<0.1	-	0.0510	ND	0.0510	1.000	32	25	87	74	4
Aug 94	0.53	0.015	180	8.3	-	7.5	<0.1	-	0.0200	ND	0.0200	0.510	19	10	98	72	5
Sep 94	0.44	0.012	170	8.3	-	9.0	<0.1	-	0.0170	ND	0.0170	0.630	25	12	95	63	3
Oct 94	0.36	0.010	190	7.5	-	0.4	<0.1	-	0.0140	ND	0.0140	0.460	8	5	85	74	1
Jun 95	97.20	2.753	40	8.1	27	8.2	<0.1	1.2	0.0240	ND	0.0240	0.110	24	14	12	32	5
Jul 95	7.46	0.211	80	7.7	-	7.2	<0.1	-	0.0700	ND	0.0700	0.470	18	11	39	45	2
Aug 95	2.74	0.078	120	8.6	-	1.8	<0.1	-	0.0720	0.0027	0.0747	0.720	9	9	57	54	2
Sep 95	1.88	0.053	140	8.3	-	0.8	<0.1	-	0.0530	ND	0.0530	0.640	14	12	60	66	2
Oct 95	1.34	0.038	140	8.0	-	26.8	<0.1	-	0.1300	0.0300	0.1600	0.930	-3	2	65	58	2
Nov 95	5.07	0.144	160	7.1	-	12.8	<0.1	-	0.0600	0.0190	0.0790	0.320	5	3	64	61	2
May 96	80.90	2.291	40	7.7	44	16.0	<0.1	2.5	0.0320	ND	0.0320	0.210	11	10	18	29	3
June 96	13.00	0.368	70	8.1	-	3.2	<0.1	-	0.0780	0.0023	0.0803	0.410	22	18	33	41	5
July 96	3.40	0.096	120	8.1	-	1.8	<0.1	-	0.0760	0.0120	0.0880	0.630	20	16	63	37	4
Aug 96	2.00	0.057	140	8.3	-	1.2	<0.1	-	0.0580	0.0072	0.0652	0.670	11	11	73	40	5
Sept 96	1.70	0.048	100	8.1	-	1.2	<0.1	-	0.0310	0.0039	0.0349	0.590	10	8	59	63	5
May 97	54.09	1.532	40	8.0	-	4.8	<0.1	-	0.0150	ND	0.0150	0.099	19	9	20	38	2
June 97	7.24	0.205	80	7.5	31	3.2	<0.1	0.7	0.0310	ND	0.0310	0.330	22	18	74	45	3
July 97	1.43	0.040	120	8.3	-	0.8	<0.1	-	0.0360	ND	0.0360	0.430	22	17	107	52	6
Aug 97	1.57	0.044	130	7.7	-	2.8	<0.1	-	0.0300	ND	0.0300	0.510	20	17	57	58	2
Sept 97	1.34	0.038	104	8.2	-	2.0	<0.1	-	0.0290	ND	0.0290	0.590	12	13	71	62	4
Oct 97	1.90	0.054	140	7.8	-	0.8	<0.1	-	0.0130	0.0067	0.0197	0.290	8	6	64	65	5
June 98	120.00	3.398	40	8.6	49	2.4	<0.1	0.5	0.0120	0.0060	0.0180	0.072	15	12	19	45	6
July 98	7.10	0.201	100	8.0	-	2.6	<0.1	-	0.0550	0.0380	0.0930	0.360	21	16	36	42	6
Aug 98	2.50	0.071	140	7.9	-	3.0	<0.1	-	-	-	-	-	18	25	43	61	8
Sept 98	2.10	0.059	167	8.5	-	0.4	<0.1	-	0.0400	ND	0.0400	0.500	15	11	50	64	18
Oct 98	3.10	0.088	182	8.6	-	2.8	<0.1	-	0.0370	ND	0.0370	0.500	4	5	57	63	9

R-5 WATER QUALITY DATA
LITTLE GRIZZLY CREEK AT COMPLIANCE STATION (con't)
1991 - 1999

Table 5

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	Cu + Zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CaCO3) mg/L	Alkalinity (CaCO3) mg/L	Acidity to pH 8.3= (CaCO3) mg/L
Jun 99	34.97	0.990	62	7.6	46	0.8	<0.1	0.7	0.0024	ND	0.0024	0.130	20	14	22	62	12
Jul 99	3.74	0.106	122	8.1	-	2.0	<0.1	-	0.0680	ND	0.0680	0.460	19	15	43	71	15
Aug 99	1.91	0.054	162	7.8	-	1.4	<0.1	-	0.0590	ND	0.0590	0.630	15	12	75	79	12
Sept 99	1.35	0.038	158	8.1	-	<1	<0.1	-	0.0280	ND	0.0280	0.540	19	16	67	81	22
Oct 99	1.93	0.055	162	8.2	-	<1	<0.1	-	0.0210	ND	0.0210	0.500	17	9	70	81	21
														10			
x	19.33	0.29	127.91	7.88	53.78	4.31	0.00	0.83	0.05	0.01	0.06	0.40	14.55	11.02	57.69	52.76	4.94
n	58	58	58	57	9	59	59	9	57	60	57	58	58	58	58	59	56
s	23.56	0.67	61.89	1.10	23.32	5.28	0.00	0.66	0.04	0.01	0.04	0.22	7.44	5.74	28.45	24.82	4.77
max	120.00	3.40	270.00	8.60	96.00	26.80	0.00	2.50	0.14	0.04	0.16	1.00	32.00	25.00	130.00	100.00	22.00
min	0.00	0.00	0.00	0.00	27.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	-3.00	0.00	0.00	0.00	0

R-6 WATER QUALITY DATA
SETTLING POND OUTLET
1991 - 1999

Table 6

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	Cu + Zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CACO3) mg/L	Alkalinity (CACO3) mg/L	Acidity to pH 8.3 (CACO3) mg/L
May 91	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun 91	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jul 91	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug 91	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep 91	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct 91	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov 91	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec 91	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr 92	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 92	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun 92	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jul 92	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug 92	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep 92	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct 92	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 93	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun 93	POND	0.00	90	7.0	-	17.8	<0.1	-	0.024	0.026	0.0500	0.080	21	24	43	7	1
Jul 93	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug 93	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep 93	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct 93	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov 93	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 94	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun 94	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jul 94	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug 94	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep 94	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct 94	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jun 95	POND	0.00	110	7.4	58	34.0	<0.1	15.0	0.039	0.032	0.0710	ND	21	24	29	27	5
Jul 95	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug 95	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep 95	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct 95	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov 95	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 96	0.0008	0.00002	80	7.1	32	86.0	<0.1	1.0	0.092	0.047	0.139	0.700	8	26	30	29	5
June 96	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 96	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug 96	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sept 96	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
May 97	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 97	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 97	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug 97	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sept 97	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct 97	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
June 98	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
July 98	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug 98	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sept 98	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct 98	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

R-6 WATER QUALITY DATA

SETTLING POND OUTLET (con't)

1991 - 1999

Table 6

Date	Discharge cfs	Discharge cms	EC umhos/cm	pH	Dissolved Solids mg/L	Suspended Solids mg/L	Settleable Solids ml/L/hr	Turbidity NTU	Copper mg/L	Zinc mg/L	Cu + Zn mg/L	Iron mg/L	Air Temp Celsius	Water Temp Celsius	Hardness (CACO3) mg/L	Alkalinity (CACO3) mg/L	Acidity to pH 8.3 (CACO3) mg/L
Jun 99	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jul 99	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug 99	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sept 99	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct 99	0.00	0.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
x	0.00	0.00	93.33	7.17	30.00	49.27	0.00	5.33	0.05	0.04	0.09	0.26	16.67	24.67	34.00	21.00	3.67
n	57.00	57.00	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

Annual Water Quality Constituents
Dolly Creek above Tailings R-1
1991-1999

Table 7

Receiving Water Constituent	1991	1992	1993	1994	1995	1996	1997	1998	1999	Water Quality Limitations
Bicarbonate mg/L	56	102	39	85	41	36	58	55	62	
Carbonate mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium mg/L	3.6	15	5.1	12.9	5.7	5.4	7.6	6.5	7	
Magnesium mg/L	11	7.2	2.9	5.7	2.6	2.7	3.2	2.7	3.4	
Sulfates mg/L	ND	1.5	0.5	ND	ND	0.05	ND	ND	ND	
Hardness	54	61	25	50	25	25	32	27	31	
Alkalinity	46	63	32	70	34	30	48	50	51	
Acidity	1	0.5	1	6	5	4	2	11	10	
Chlorides mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Potassium mg/L	1	1.7	0.8	1	0..7	0.9	0.6	0.8	0.6	
Nitrate mg/L	1.3	ND	ND	ND	ND	0.6	0.2	ND	0.4	
Sodium mg/L	2.7	1.8	1.9	3.7	1.8	3.1	1.9	2	1.6	
Chromium III mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.143
Arsenic mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Mercury mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Selenium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aluminum mg/L	0.09	ND	ND	ND	ND	0.14	0.11	0.11	0.08	
Antimony mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0022
Chromium VI mg/L	ND	ND	0.11	ND	ND	ND	ND	ND	ND	
Lead mg/L	ND	0.006	ND	ND	ND	ND	ND	ND	ND	0.043
Manganese mg/L	0.04	0.087	ND	0.062	0.013	0.013	0.0087	0.0099	0.0067	
Nickel mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.921
Silver mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Thallium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Dissolved Organic Carbon mg/L	0.0018	ND	2.2	2.2	1.9	6.5	1.2	1.7	1.28	

01/06/00

Annual Water Quality Constituents
Dolly Creek below Tailings R-2
1991-1999

Table 8

Receiving Water Constituent	1991	1992	1993	1994	1995	1996	1997	1998	1999	Water Quality Limitations
Bicarbonate mg/L	55	87	36	69	38	33	73	52	88	
Carbonate mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium mg/L	4.7	21	6.6	27	6.2	5.9	8	5.2	7.7	
Magnesium mg/L	8.5	7.3	2.8	3.1	2.3	2.5	2.9	2.7	3.1	
Sulfates mg/L	10	20	4	15.4	15.4	0.8	ND	ND	ND	
Hardness	47	71	28	80	25	25	32	24	32	
Alkalinity	45	72	30	57	31	33	60	45	73	
Acidity	8	1	1	1	5	3	2	6	15	
Chlorides mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Potassium mg/L	1.5	3.9	1	1.4	1	1.1	1.1	1	0.6	
Nitrate mg/L	1.2	ND	ND	ND	ND	ND	0.3	ND	0.5	
Sodium mg/L	3.4	2.5	2.1	3.7	2.1	2.5	2.6	2.4	1.4	
Chromium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.143
Arsenic mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Mercury mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Selenium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aluminum mg/L	0.116	ND	0.16	ND	ND	0.25	0.066	0.087	0.052	
Antimony mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0022
Lead mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.043
Manganese mg/L	0.169	0.27	0.11	0.26	0.071	0.058	0.05	0.055	3.1	
Nickel mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.921
Silver mg/L	0.001	ND	ND	ND	ND	ND	ND	ND	ND	
Thallium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Dissolved Organic Carbon mg/L	2.8	ND	2	2	1.2	4.1	- -	2	1.36	

01/06/00

Annual Water Quality Constituents
Little Grizzly Creek above Tailings R-3
1991-1999

Table 9

Receiving Water Constituent	1991	1992	1993	1994	1995	1996	1997	1998	1999	Water Quality Limitations
Bicarbonate mg/L	53	69	29	45	45	27	34	33	56	
Carbonate mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium mg/L	3.5	9.2	4.7	6.4	2.3	4.4	5.9	4.8	4.7	
Magnesium mg/L	8.5	3.5	1.5	5.2	1.3	1.6	1.4	1.4	1.6	
Sulfates mg/L	4	15	ND	ND	ND	ND	ND	ND	ND	
Hardness	44	37	18	37	11	17	20	18	18	
Alkalinity	44	57	24	37	37	28	28	38	46	
Acidity	9	4	1	1	6	3	2	15	12	
Chlorides mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Potassium mg/L	1	2.8	0.6	0.7	0..7	1	0.7	0.8	0.6	
Nitrate mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Sodium mg/L	2.7	2	2.2	3	2.2	3.1	2.7	2.8	2	
Chromium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.143
Arsenic mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Mercury mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Selenium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aluminum mg/L	0.027	ND	ND	ND	ND	0.13	0.38	0.067	ND	
Antimony mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0022
Lead mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.043
Manganese mg/L	0.007	ND	ND	0.019	0.0089	0.0014	0.0016	0.002	ND	
Nickel mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.921
Silver mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Thallium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Dissolved Organic Carbon mg/L	2	ND	2.3	2.3	1.7	2.4	1.9	2.5	1.67	

Annual Water Quality Constituents
Little Grizzly Creek below Tailings R-4
1991-1999

Table 10

Receiving Water Constituent	1991	1992	1993	1994	1995	1996	1997	1998	1999	Water Quality Limitations
Bicarbonate mg/L	34	79	27	39	39	28	51	39	64	
Carbonate mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium mg/L	1.9	16.9	3.8	7.2	2.3	4.3	5	4.1	4.9	
Magnesium mg/L	3	3.6	1.5	1.9	1.2	1.6	1.4	1.4	1.6	
Sulfates mg/L	ND	20	ND	ND	ND	ND	ND	ND	ND	
Hardness	17	57	16	26	11	17	18	16	19	
Alkalinity	28	65	22	32	32	28	42	41	53	
Acidity	7	5	1	1	3	3	1	10	13	
Chlorides mg/L	ND	ND	ND	ND	ND	ND	0.5	ND	ND	
Potassium mg/L	0.7	4	0.7	0.8	0.6	1	0.8	0.9	0.6	
Nitrate mg/L	1.6	ND	ND	ND	ND	ND	ND	ND	ND	
Sodium mg/L	2.6	2.2	2.4	3.1	2	3	3	2.9	1.8	
Chromium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.143
Arsenic mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Mercury mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Selenium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aluminum mg/L	ND	ND	ND	ND	ND	0.095	0.11	0.058	0.08	
Antimony mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0022
Lead mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.043
Manganese mg/L	0.017	0.11	ND	0.044	0.011	0.0059	0.003	0.001	0.0015	
Nickel mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.921
Silver mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Thallium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Dissolved Organic Carbon mg/L	2.1	1.4	2.2	2.2	1.5	3.3	2	2	1.58	

01/06/00

Annual Water Quality Constituents
Little Grizzly Creek at Browns Cabin R-5
1991-1999

Table 11

Receiving Water Constituent	1991	1992	1993	1994	1995	1996	1997	1998	1999	Water Quality Limitations
Bicarbonate mg/L	33	86	27	40	39	29	46	58	75	
Carbonate mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Calcium mg/L	2.1	15	4.2	8	2.6	4.4	5.1	5	5.8	
Magnesium mg/L	4	4.4	1.6	2	1.3	1.7	1.7	1.5	1.8	
Sulfates mg/L	ND	2.5	ND	ND	ND	ND	ND	ND	ND	
Hardness	22	56	17	28	12	18	20	19	22	
Alkalinity	27	71	22	32	32	29	38	48	62	
Acidity	4	3	3	3	5	3	2	3	12	
Chlorides mg/L	ND	ND	ND	ND	ND	ND	1	ND	ND	
Potassium mg/L	0.7	3.9	0.7	0.8	0.7	1	0.7	0.7	0.6	
Nitrate mg/L	ND	ND	ND	ND	ND	0.6	ND	ND	0.1	
Sodium mg/L	2.4	2.2	2.2	3	2.1	3	2.3	1	1.8	
Chromium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.143
Arsenic mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Mercury mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Selenium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Aluminum mg/L	ND	ND	ND	ND	ND	0.16	0.046	0.064	ND	
Antimony mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Cadmium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0022
Lead mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.043
Manganese mg/L	0.023	0.098	ND	0.056	0.013	0.013	0.0095	0.005	0.016	
Nickel mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.921
Silver mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Thallium mg/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Dissolved Organic Carbon mg/L	2.6	1.7	2.4	2.4	1.6	2.4	1.5	1.8	1.56	

Annual Water Quality Constituents
Sediment Basin Outlet R-6
1991-1999

Table 12

Receiving Water Constituent	1991	1992	1993	1994	1995	1996	1997	1998	1999	Water Quality Limitations
Bicarbonate mg/L	-	-	-	-	33	29	-	-	-	
Carbonate mg/L	-	-	-	-	ND	ND	-	-	-	
Calcium mg/L	-	-	-	-	9.9	10.5	-	-	-	
Magnesium mg/L	-	-	-	-	1	0.9	-	-	-	
Sulfates mg/L	-	-	-	-	39	27.2	-	-	-	
Hardness	-	-	-	-	29	30	-	-	-	
Alkalinity	-	-	-	-	27	29	-	-	-	
Acidity	-	-	-	-	5	5	-	-	-	
Chlorides mg/L	-	-	-	-	ND	9	-	-	-	
Potassium mg/L	-	-	-	-	3.2	16.4	-	-	-	
Nitrate mg/L	-	-	-	-	ND	1	-	-	-	
Sodium mg/L	-	-	-	-	0.7	0.7	-	-	-	
Chromium mg/L	-	-	-	-	ND	ND	-	-	-	1.143
Arsenic mg/L	-	-	-	-	ND	ND	-	-	-	
Mercury mg/L	-	-	-	-	ND	ND	-	-	-	
Selenium mg/L	-	-	-	-	ND	ND	-	-	-	
Aluminum mg/L	-	-	-	-	ND	0.42	-	-	-	
Antimony mg/L	-	-	-	-	ND	ND	-	-	-	
Cadmium mg/L	-	-	-	-	ND	ND	-	-	-	0.0022
Lead mg/L	-	-	-	-	ND	ND	-	-	-	0.043
Manganese mg/L	-	-	-	-	0.27	0.21	-	-	-	
Nickel mg/L	-	-	-	-	ND	ND	-	-	-	0.921
Silver mg/L	-	-	-	-	ND	ND	-	-	-	
Thallium mg/L	-	-	-	-	ND	ND	-	-	-	
Dissolved Organic Carbon mg/L	-	-	-	-	ND	1.5	-	-	-	

01/06/00

CHARTS

Chart 1

Copper Contrations at R-1 and R-2

Dolly Creek Above and Below Walker Tailings

1986 - 1999

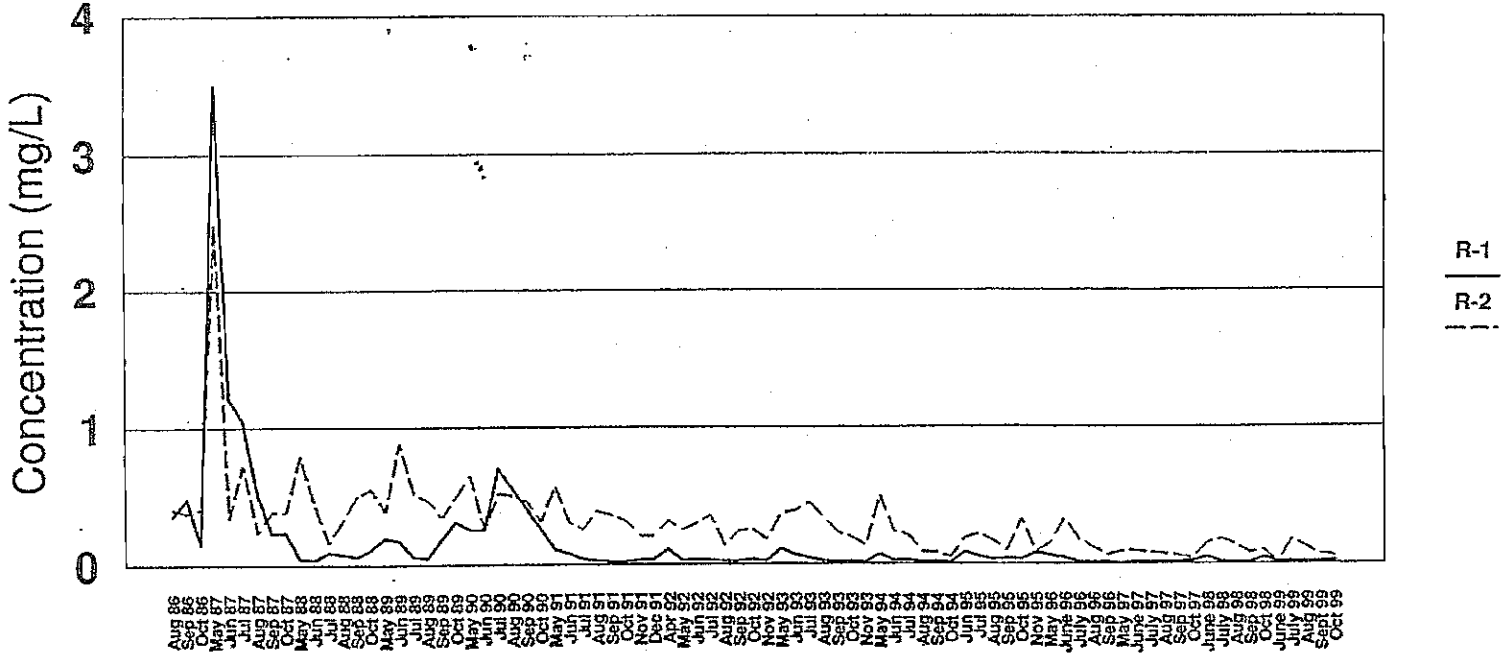


Chart 2

Copper Concentrations at R-1 and R-2

Dolly Creek Above and Below Walker Tailings

1991 - 1999

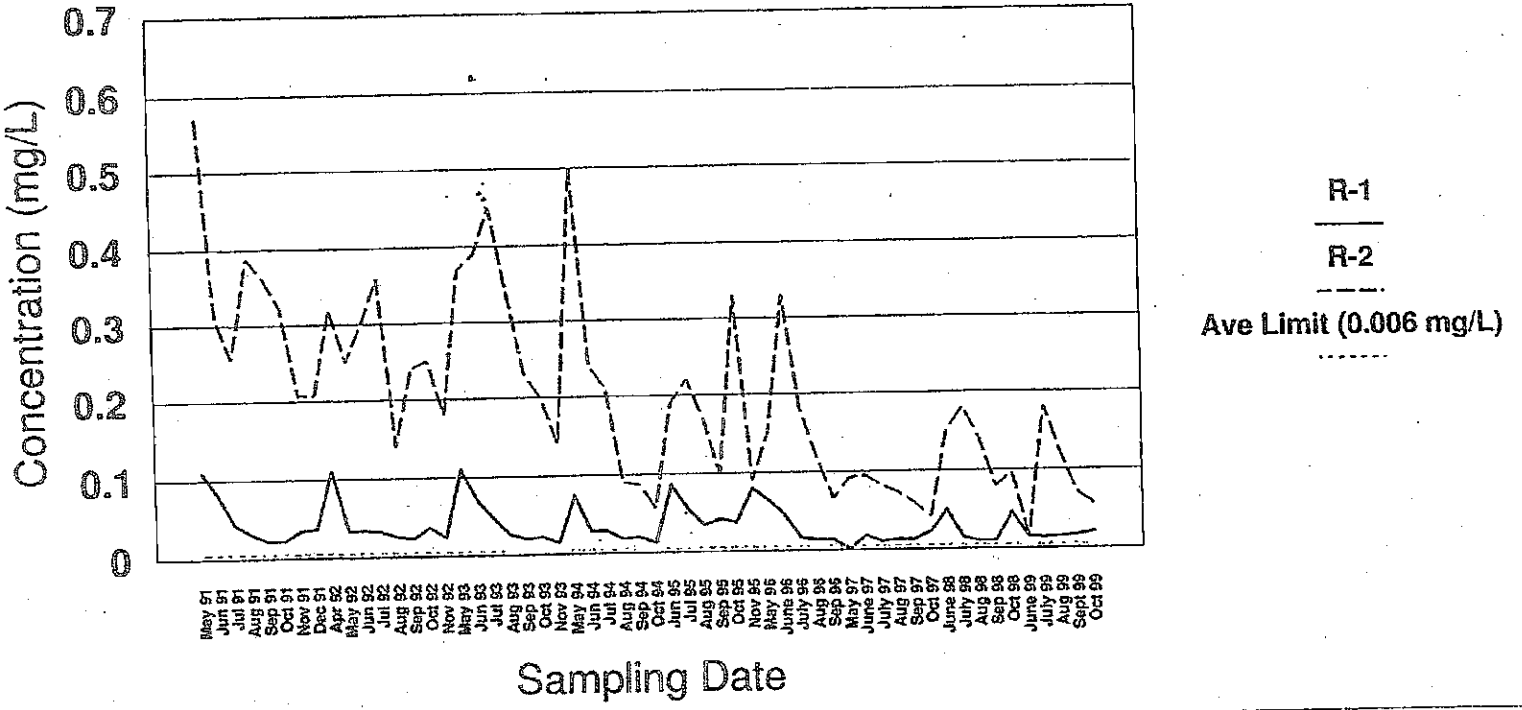


Chart 3

Zinc Concentrations at R-1 and R-2

Dolly Creek Above and Below Walker Tailings

1986 - 1999

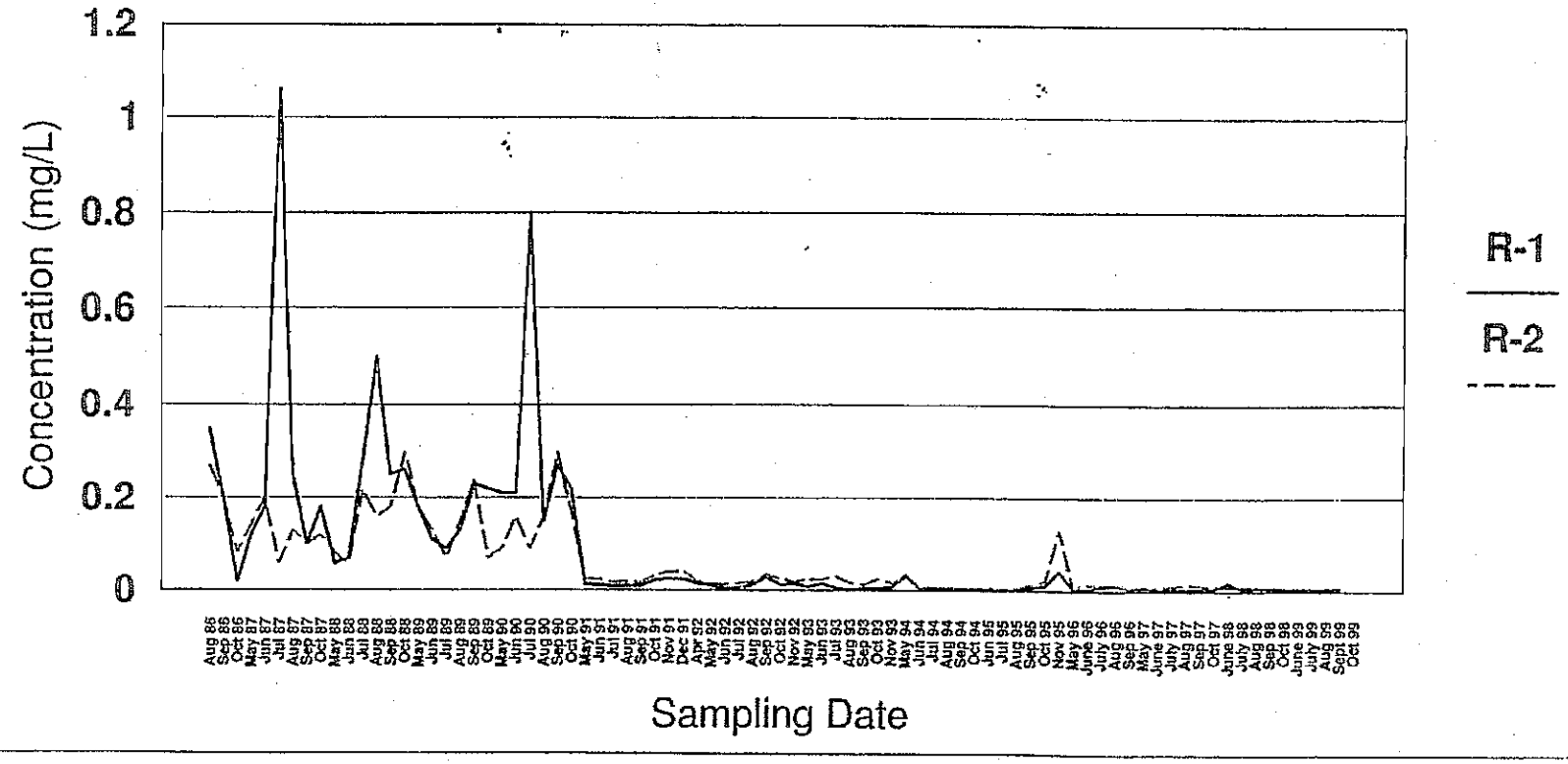


Chart 4

Zinc Concentrations at R-1 and R-2

Dolly Creek Above and Below Walker Tailings

1991 - 1999

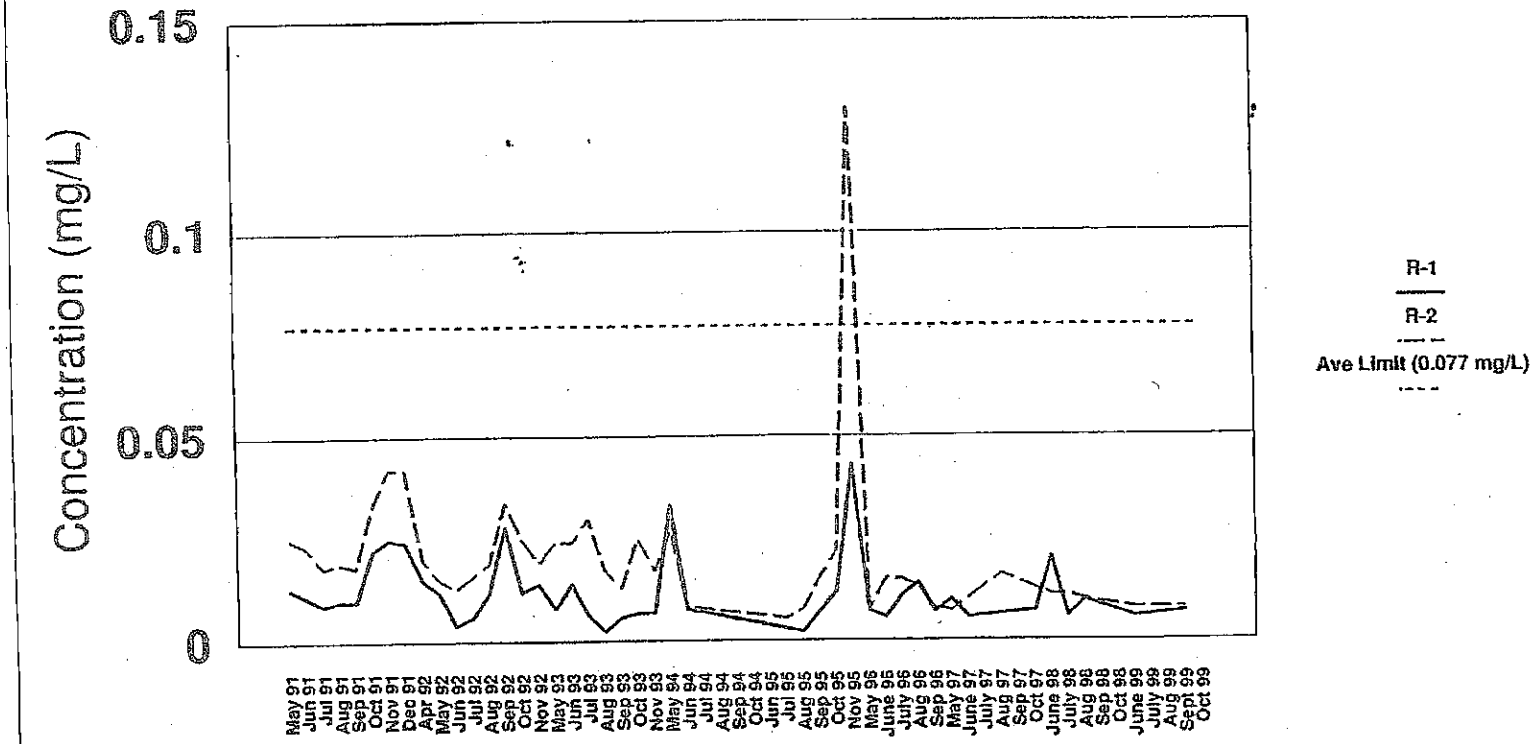


Chart 5

Iron Concentrations at R-1 and R-2

Dolly Creek Above and Below Walker Tailings

1991 - 1999

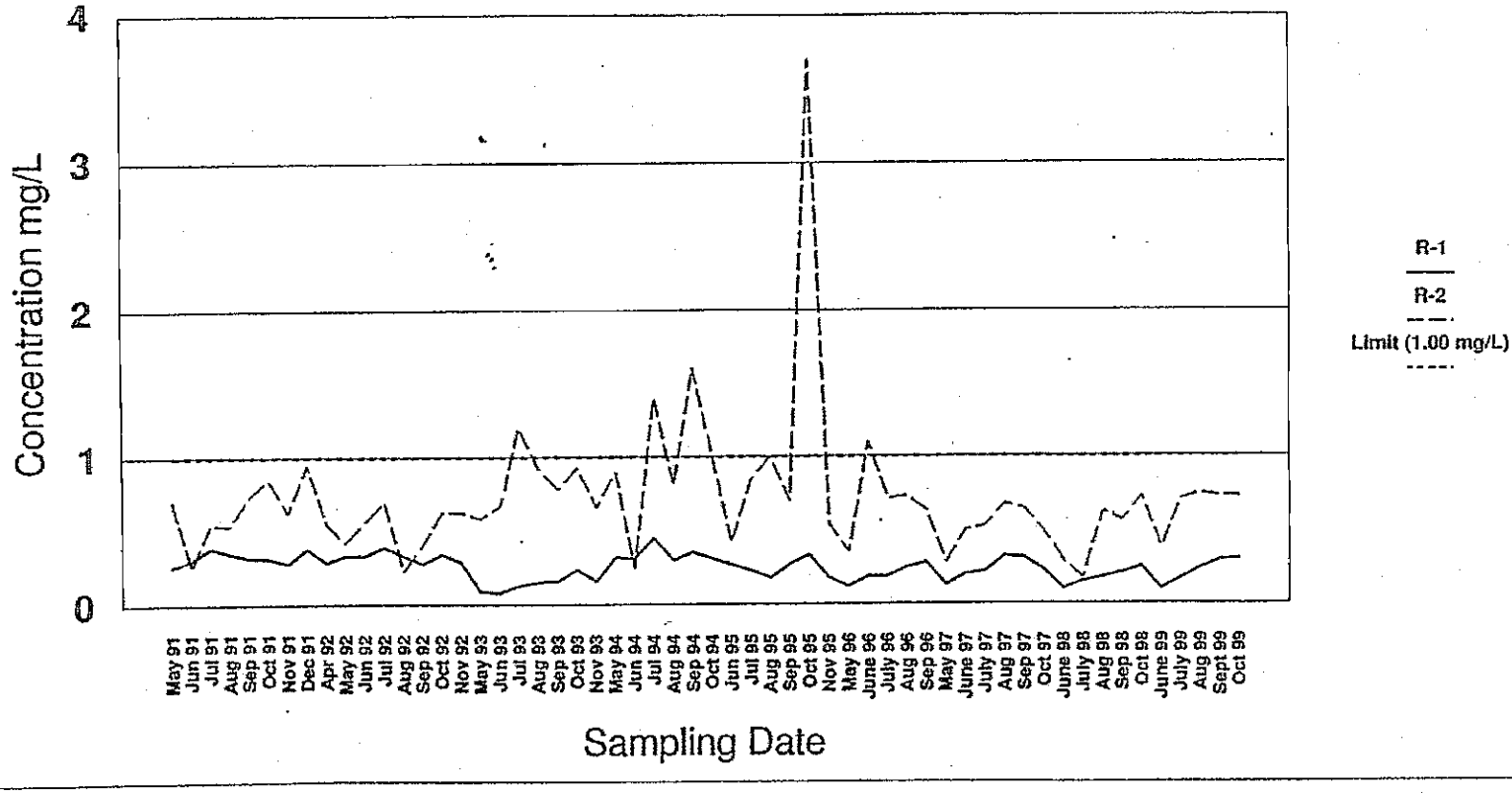


Chart 6

Copper Concentrations at R-3 and R-4

Little Grizzly Creek Above and Below Walker Tailings

1986 - 1999

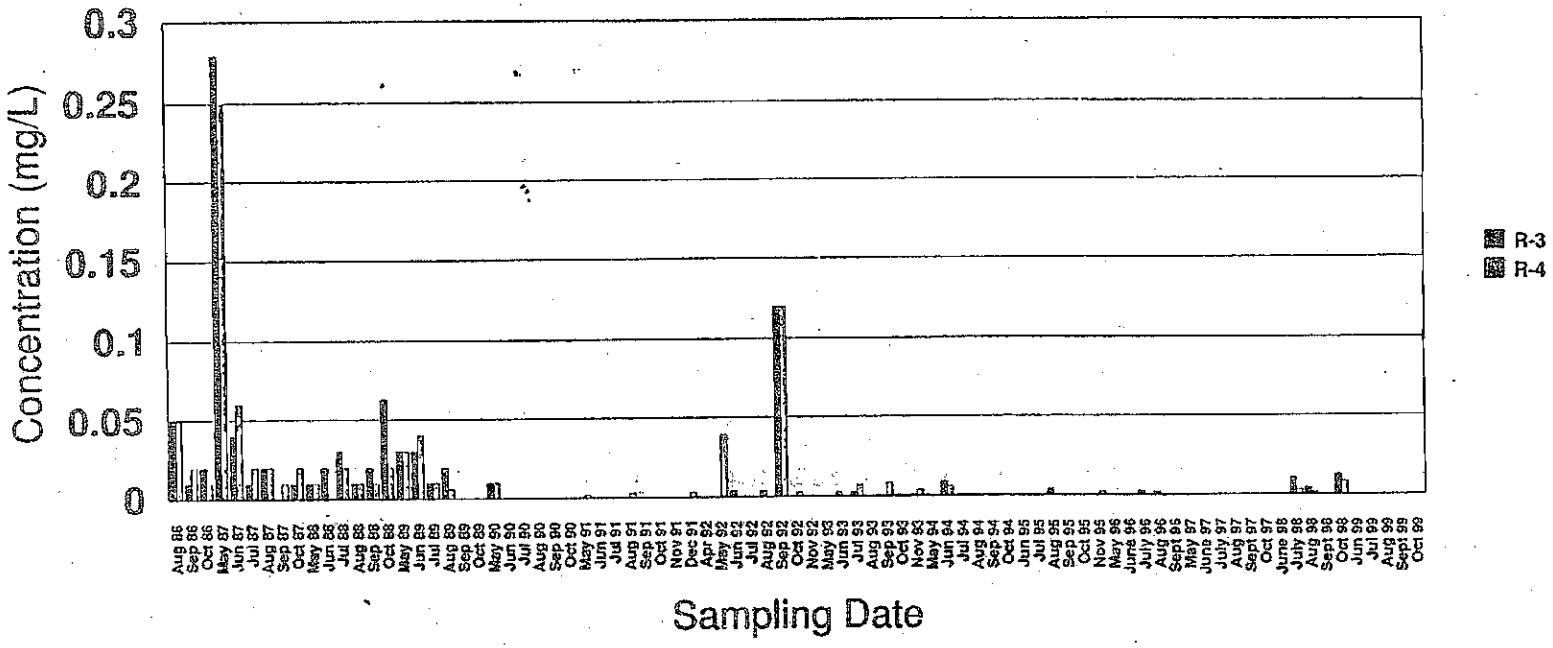


Chart 7

Copper Concentrations at R-3 and R-4

Little Grizzly Creek Above and Below Walker Tailings

1991 1999

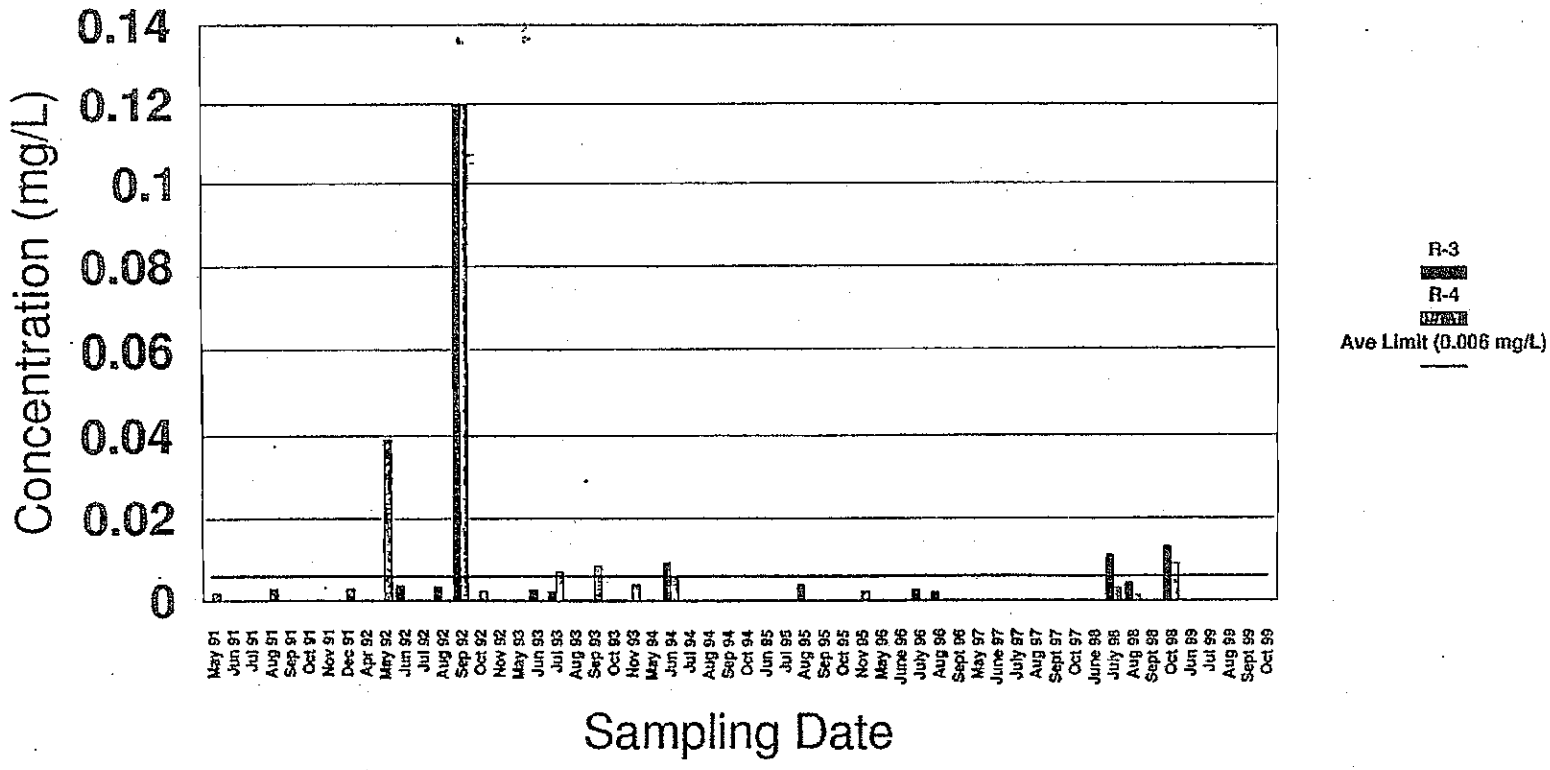


Chart 8

Zinc Concentrations at R-3 and R-4

Little Grizzly Creek Above and Below Walker Tailings

1986 - 1999

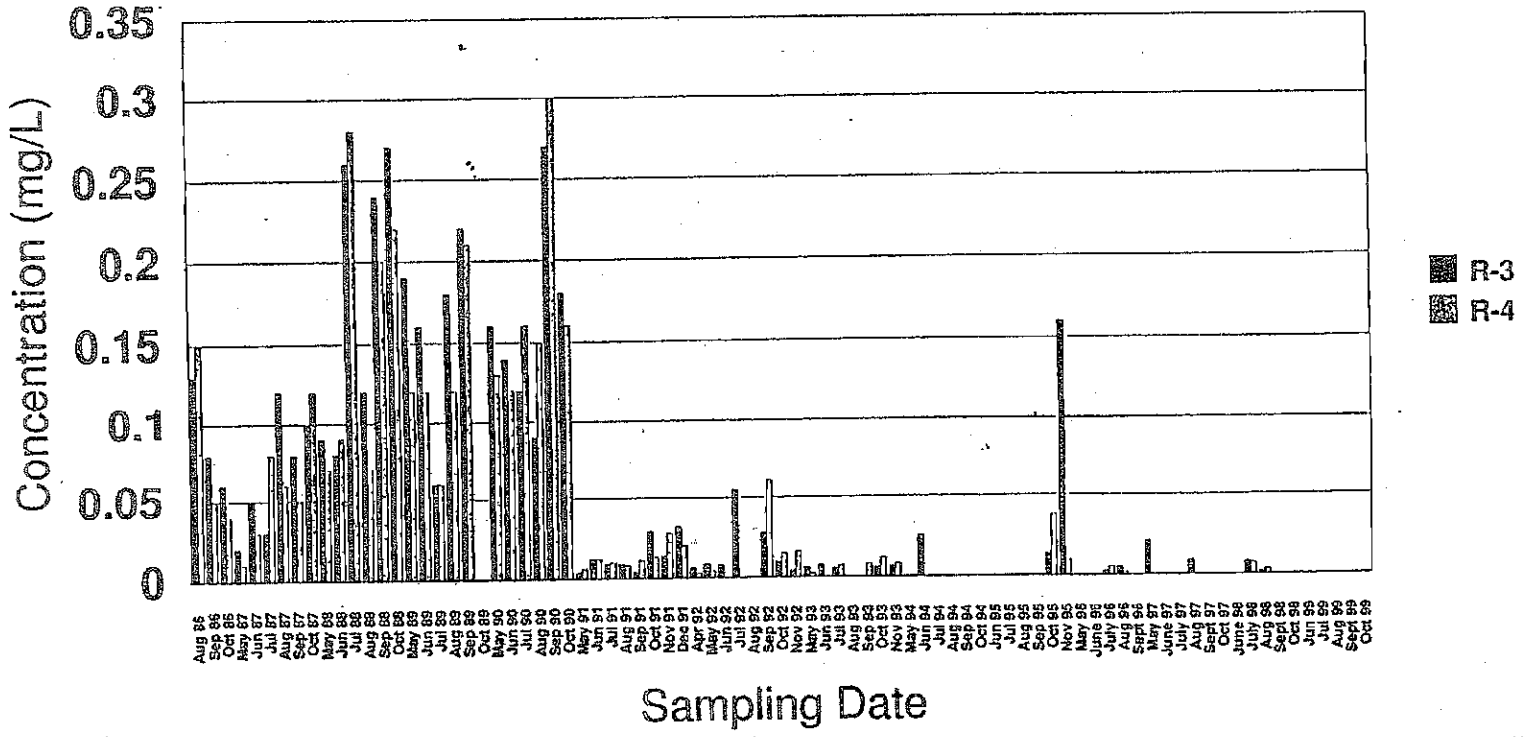


Chart 9

Zinc Concentrations at R-3 and R-4

Little Grizzly Creek Above and Below Walker Tailings

1991 - 1999

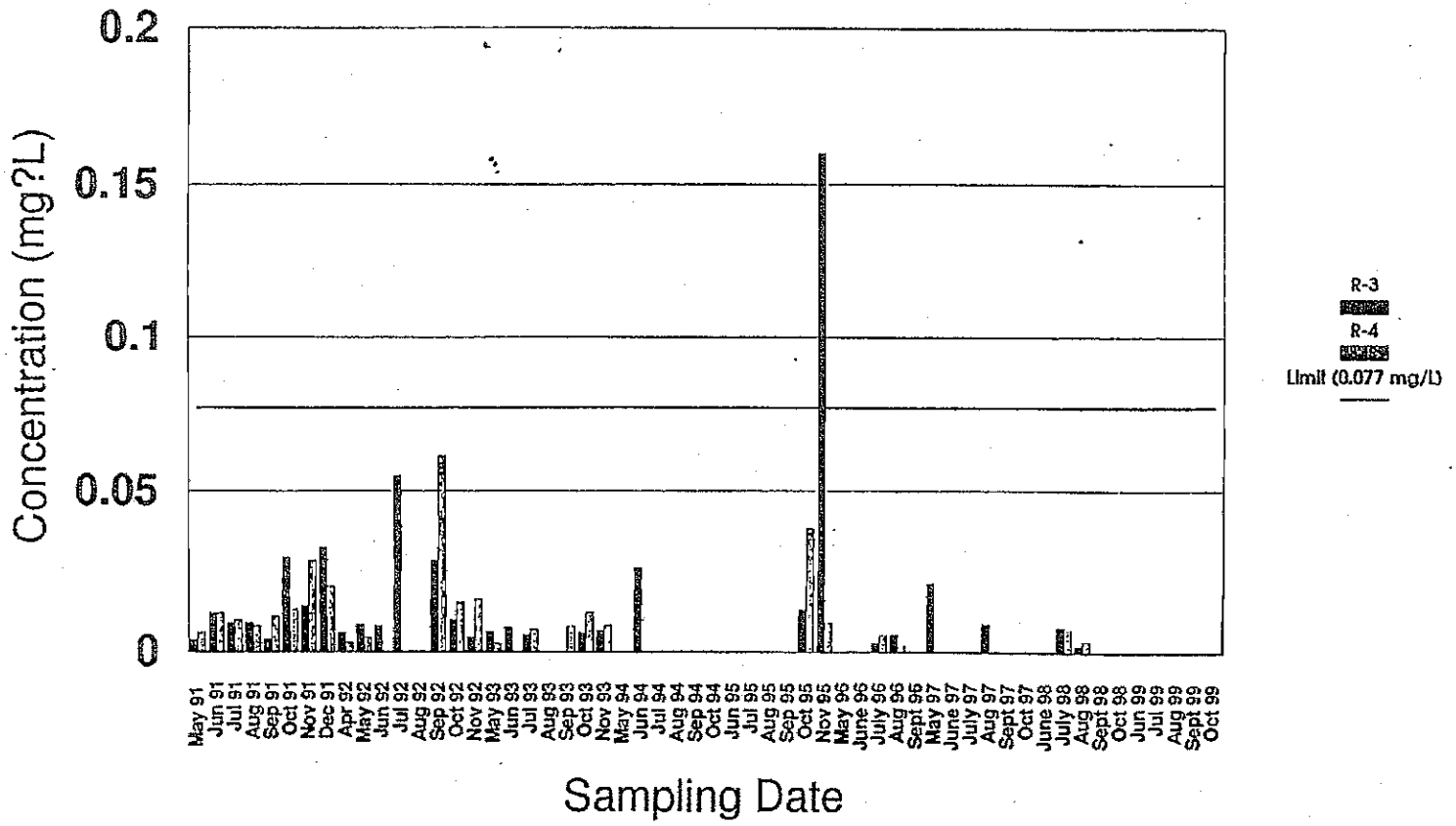


Chart 10

Iron Concentrations at R-3 and R-4

Little Grizzly Creek Above and Below Walker Tailings

1991 - 1999

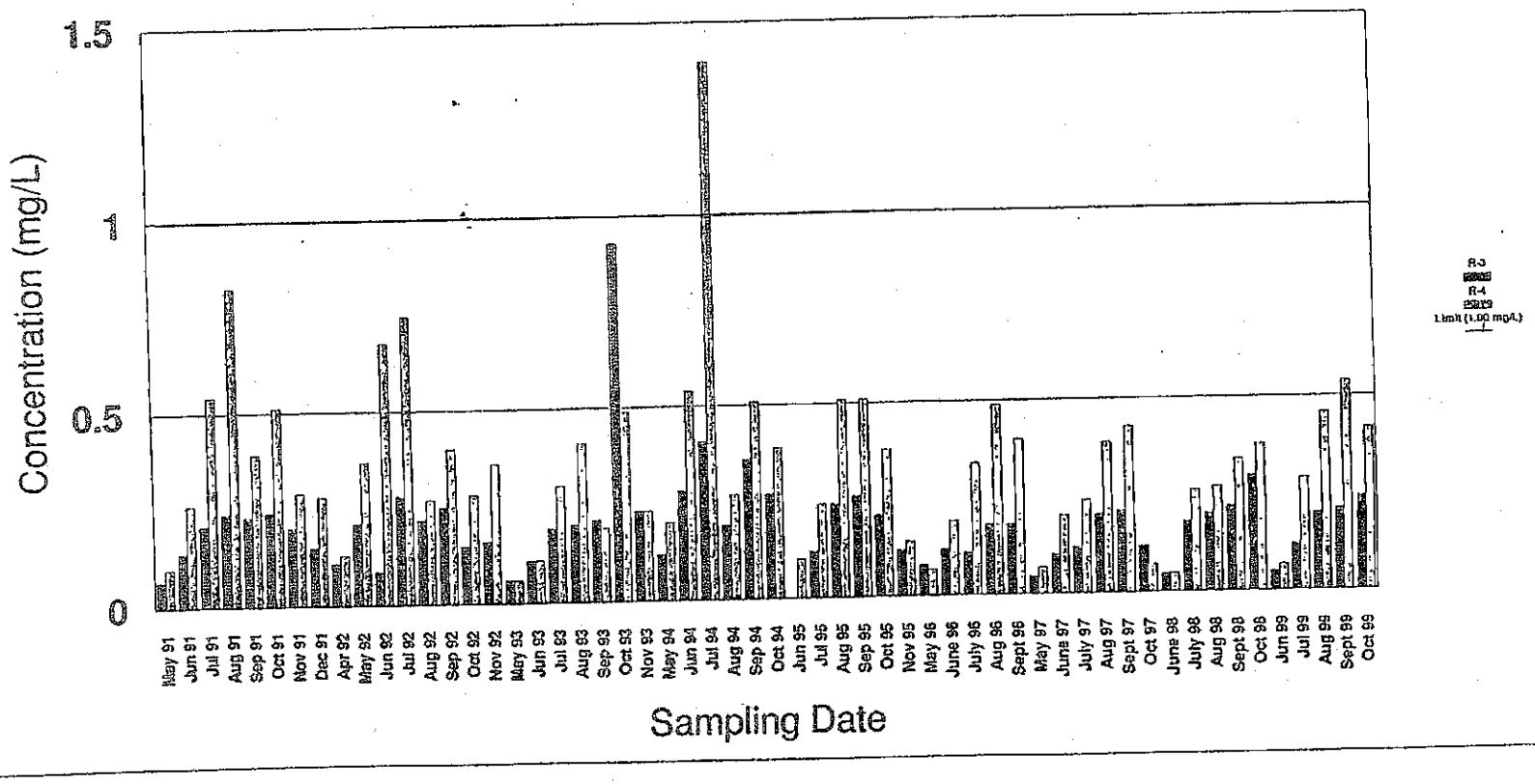


Chart 13

Ave Month Hardness mg/L	Ave Annual Hardness mg/L
25	60
27	60
40	60
64	60
75	60
72	60
74	60
64	60
66	60

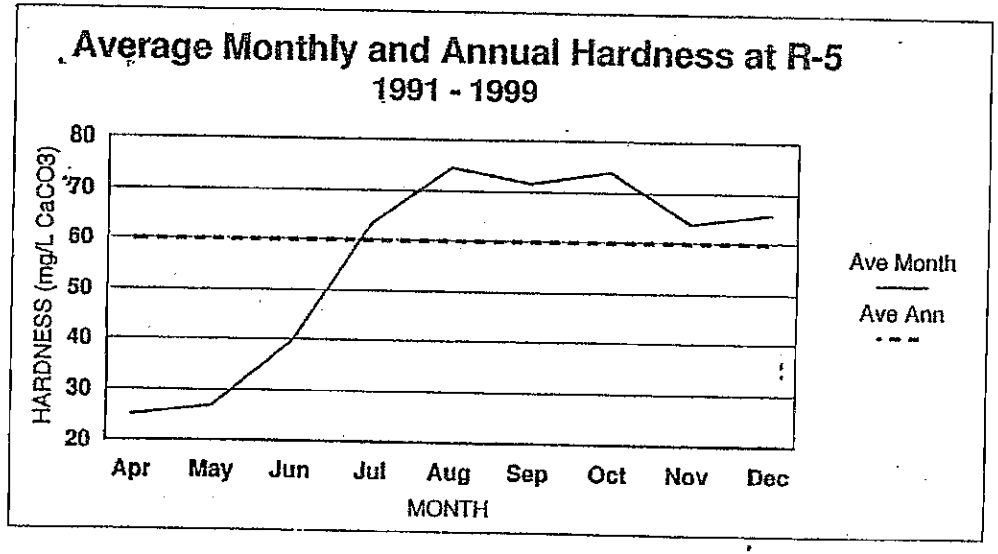


Chart 14

YEAR	R-5 Average Cu Conc. mg/L	R-5 Ave Season Flow cfs
1991	0.081	3.66
1992	0.028	1.77
1993	0.087	11.76
1994	0.037	1.76
1995	0.068	19.28
1996	0.055	20.20
1997	0.026	11.26
1998	0.036	26.96
1999	0.036	8.78

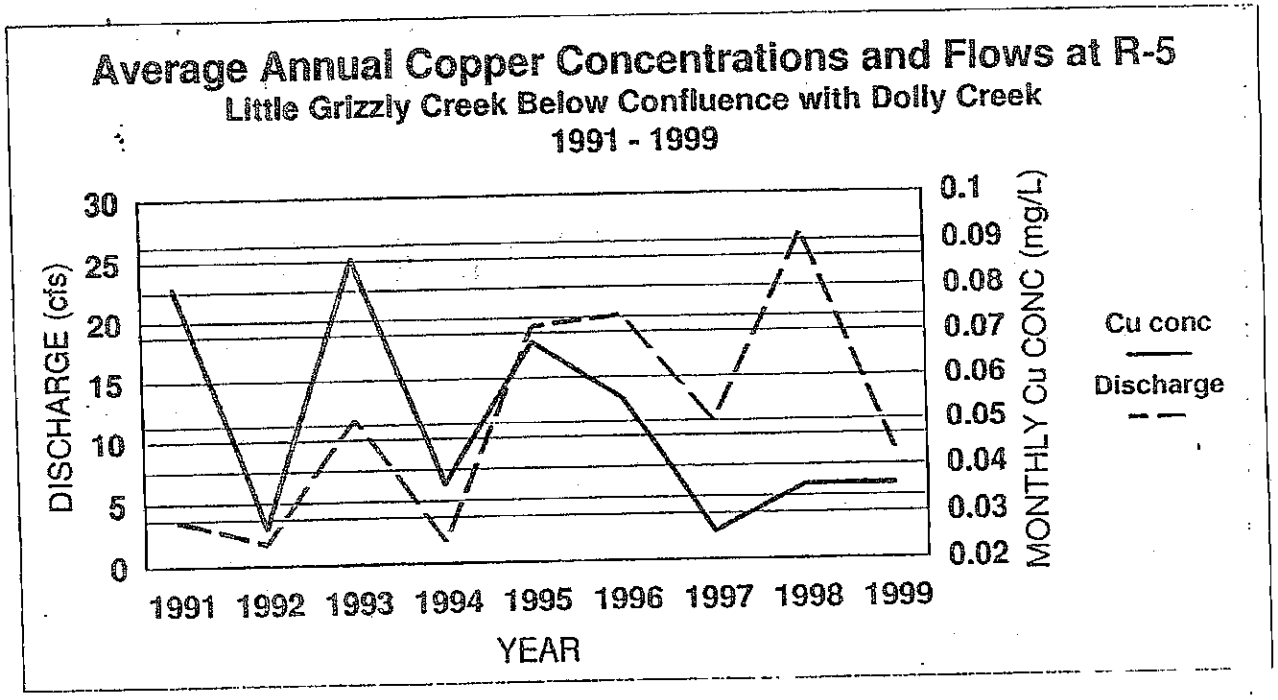


Chart 15

Ave Month Copper mg/L	Ave Monthly Cu Limit mg/L
0.0000	0.0027
0.0288	0.0029
0.0466	0.0041
0.0691	0.0061
0.0625	0.0070
0.0443	0.0068
0.0524	0.0069
0.0658	0.0061
0.0560	0.0063

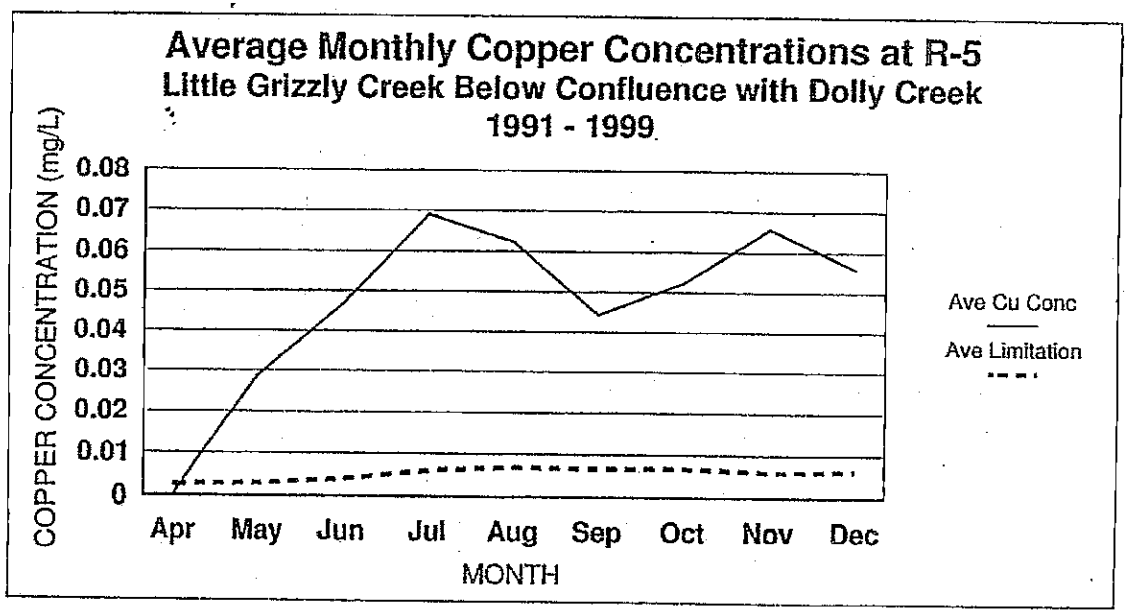


Chart 16

Zinc Concentrations at R-5

Little Grizzly Creek Below Confluence with Dolly Creek

1991 - 1999

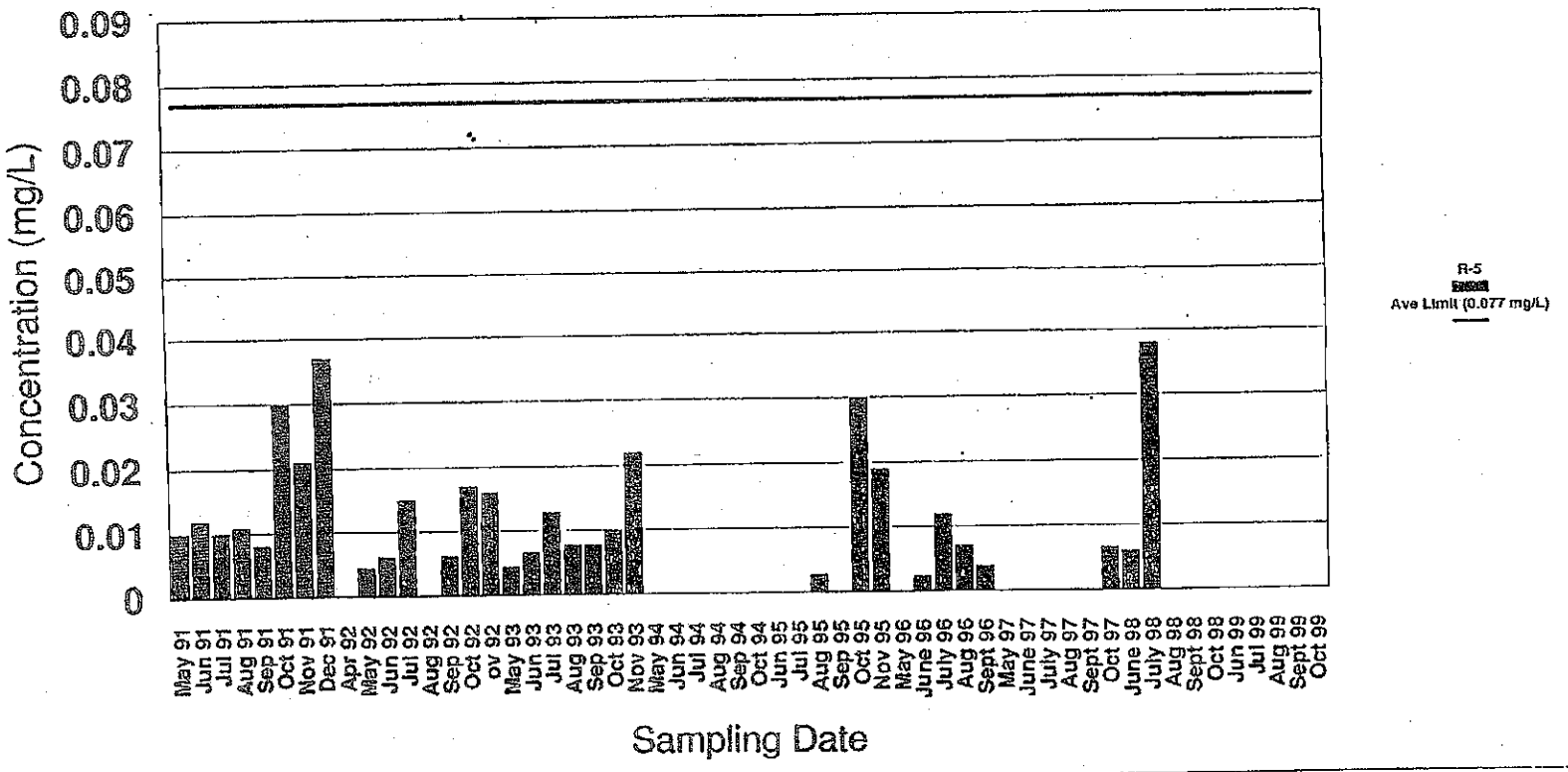


Chart 17

MONTH	Ave Month Zinc mg/L	Ave Monthly Zn Limit mg/L
Apr	0.000	0.036
May	0.003	0.039
Jun	0.004	0.054
Jul	0.010	0.081
Aug	0.004	0.093
Sep	0.003	0.089
Oct	0.012	0.092
Nov	0.020	0.081
Dec	0.037	0.083

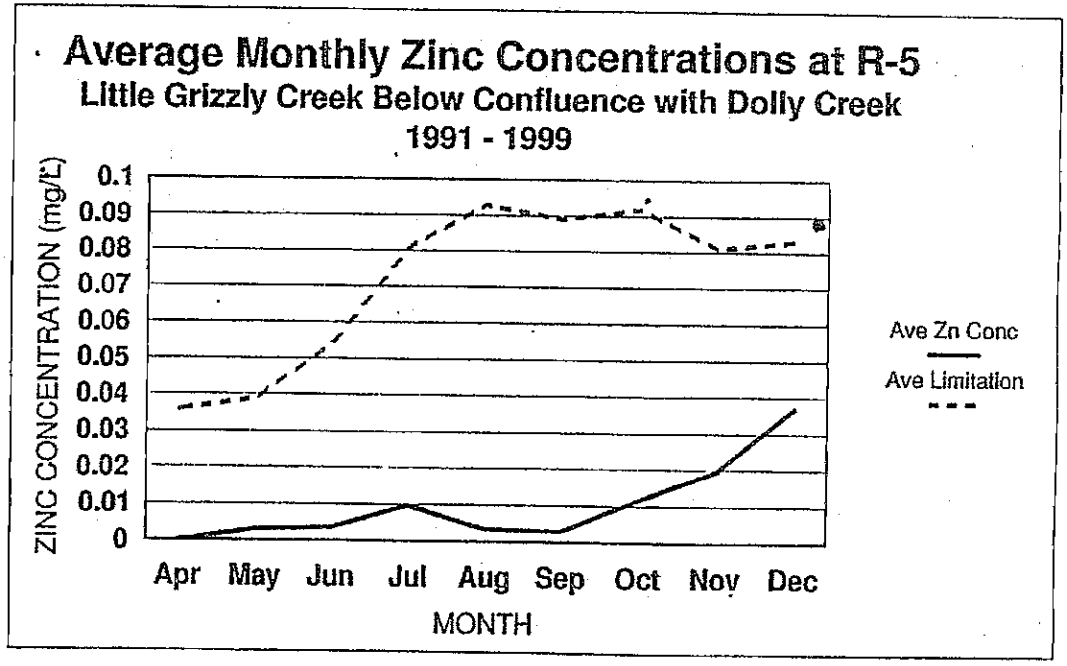


Chart 18

Cu + Zn Concentrations at R-5

Little Grizzly Creek Below Confluence with Dolly Creek

1991 - 1999

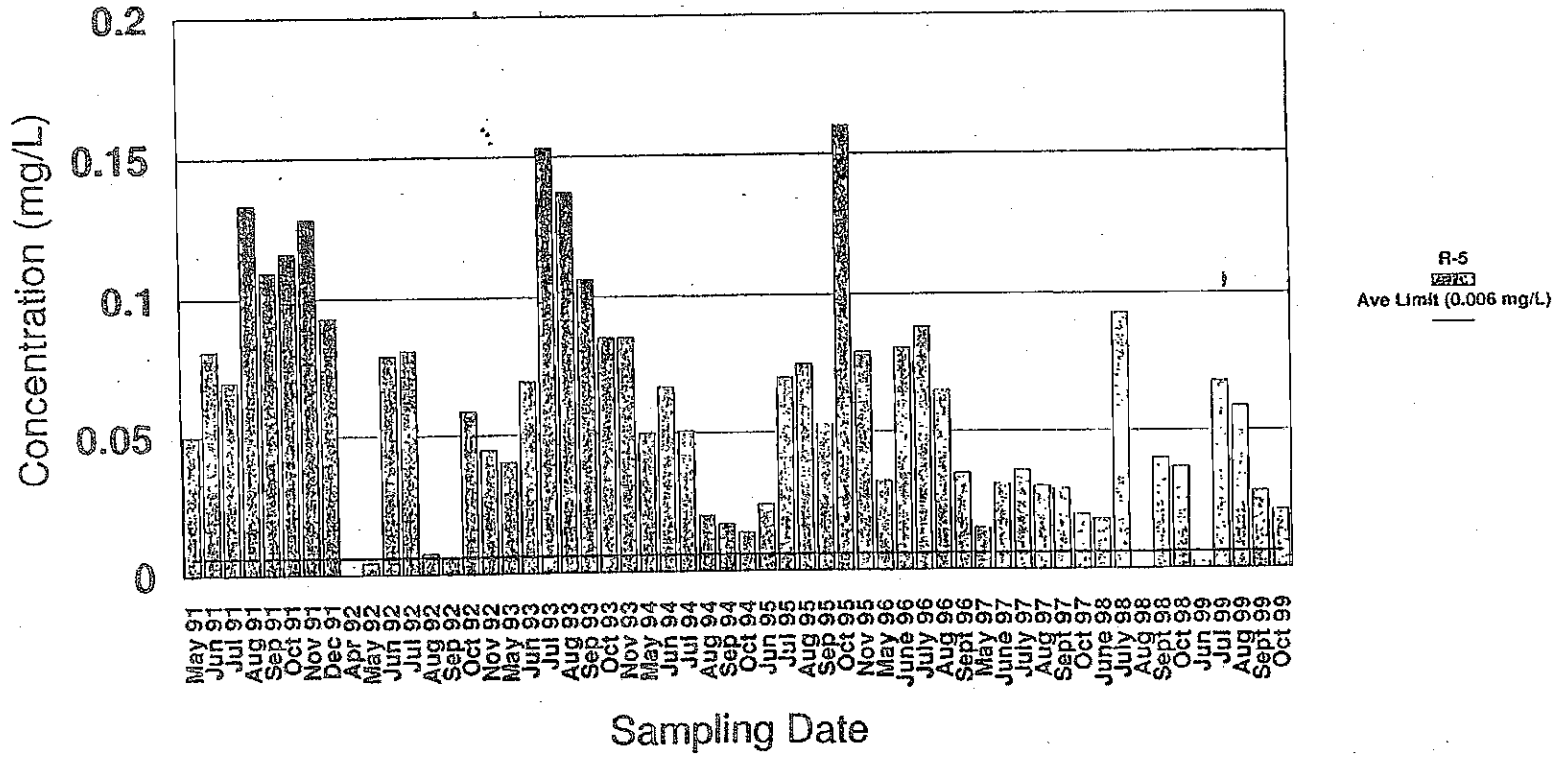


Chart 19

Iron Concentrations at R-5

Little Grizzly Creek Below Confluence with Dolly Creek

1991 - 1999

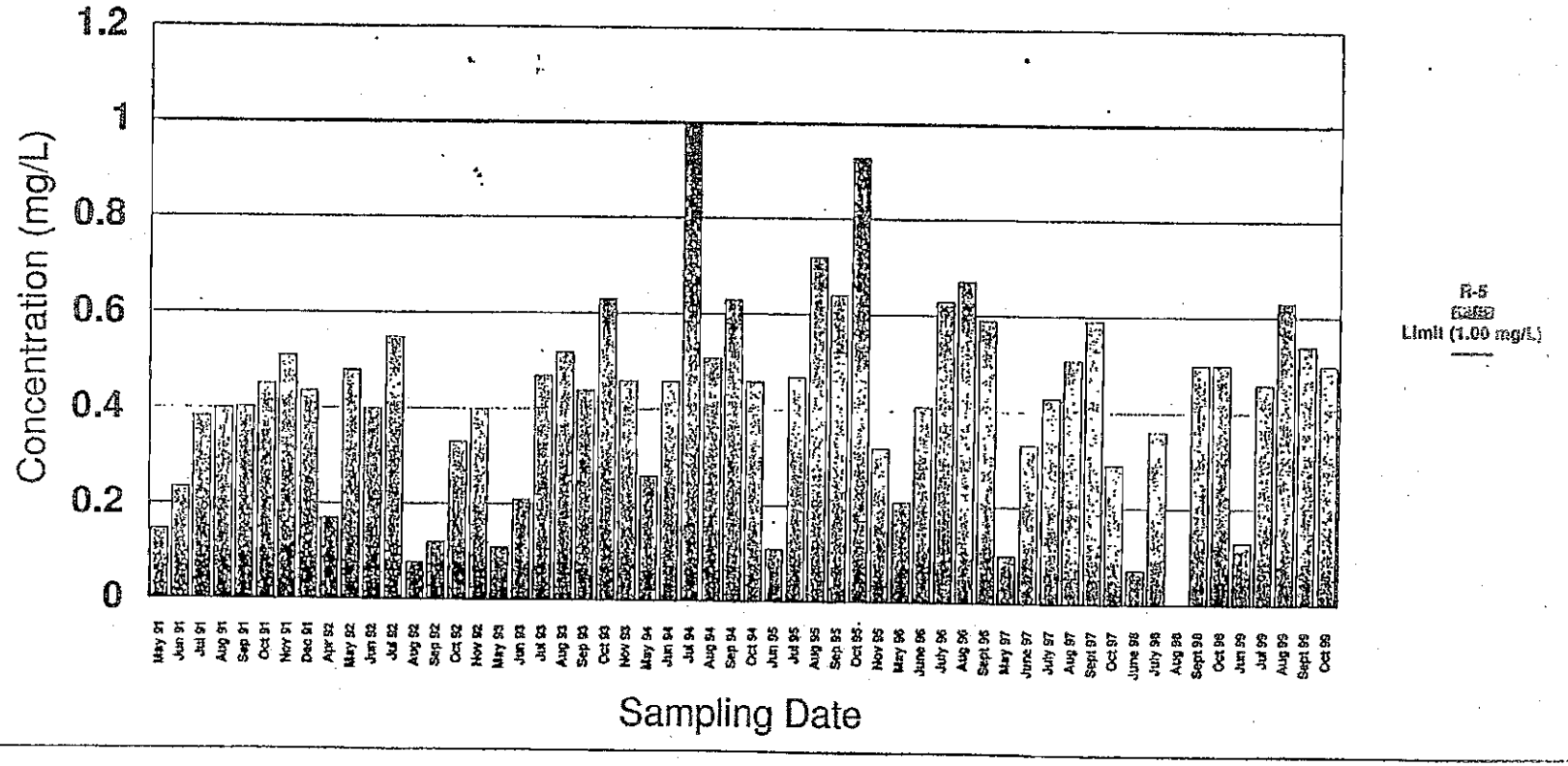


Chart 20

MONTH	Ave Month Iron mg/L	Limitation Iron mg/L
Apr	0.170	1.000
May	0.218	1.000
Jun	0.262	1.000
Jul	0.526	1.000
Aug	0.505	1.000
Sep	0.495	1.000
Oct	0.512	1.000
Nov	0.423	1.000
Dec	0.437	1.000

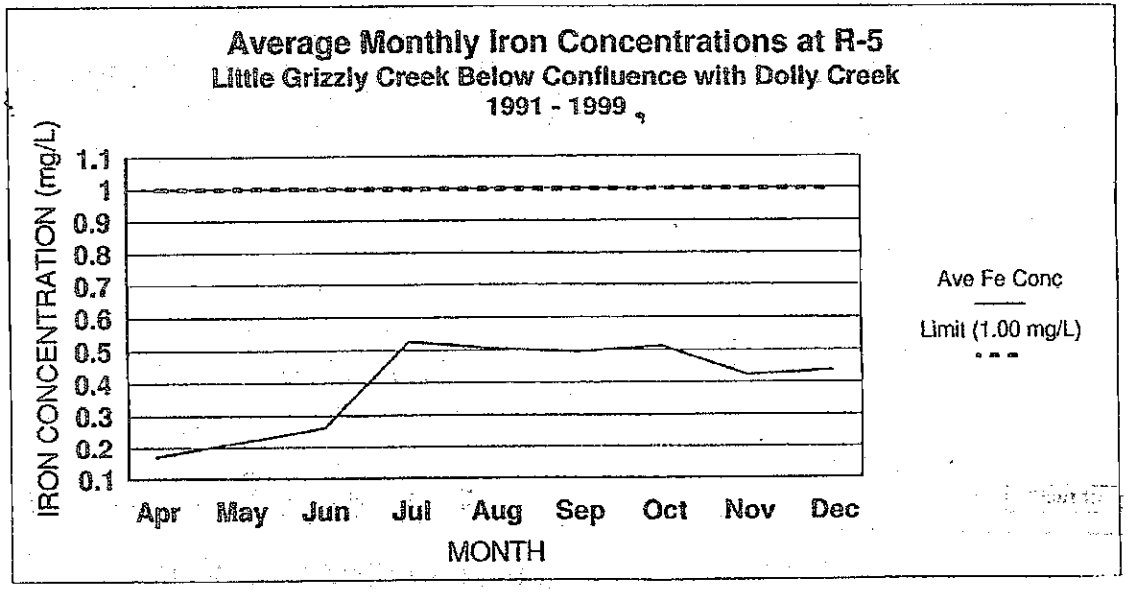


Chart 21a

Flows at R-1 and R-2

Dolly Creek Above and Below Walker Tailings

1986 - 1999

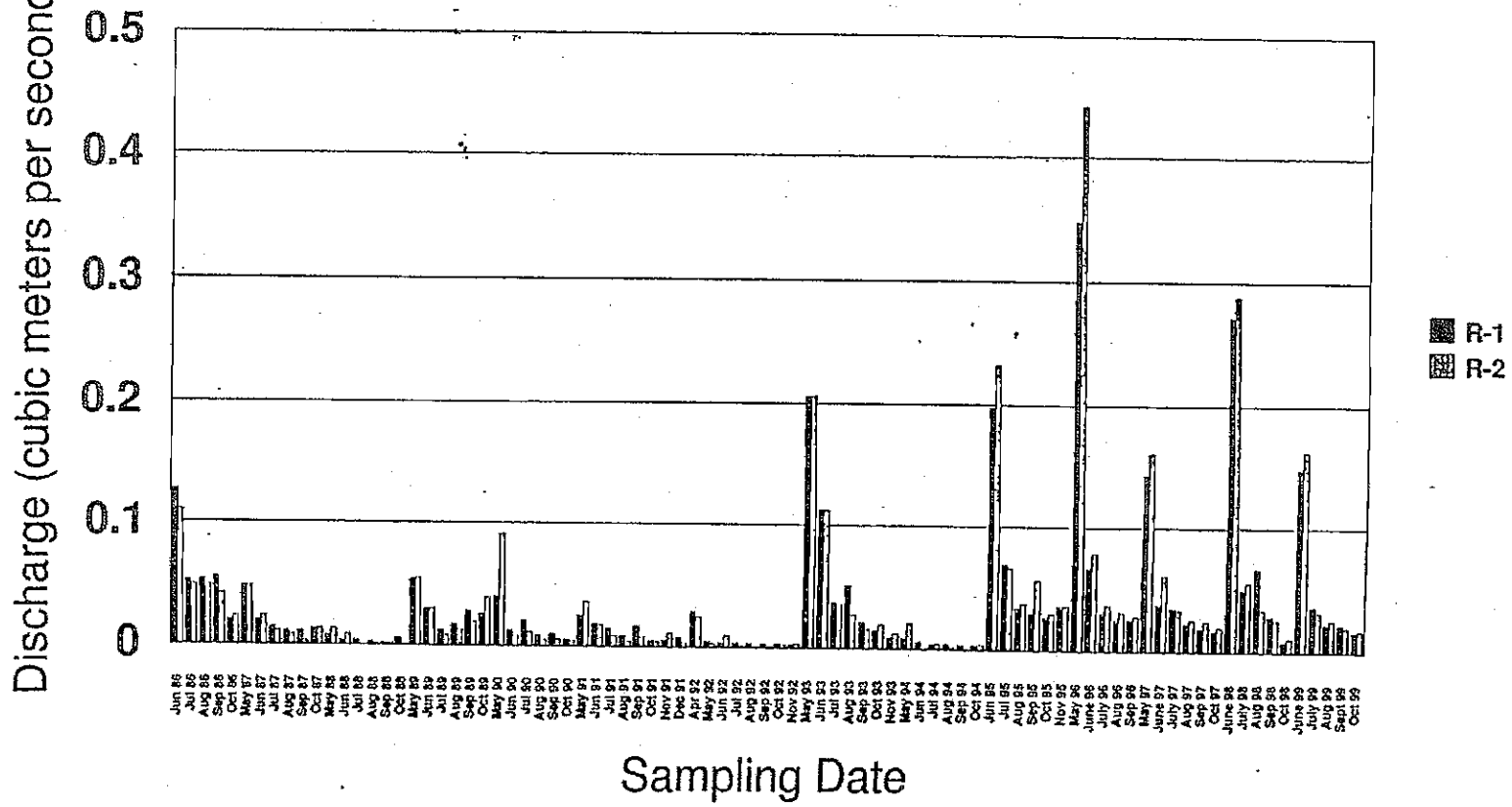
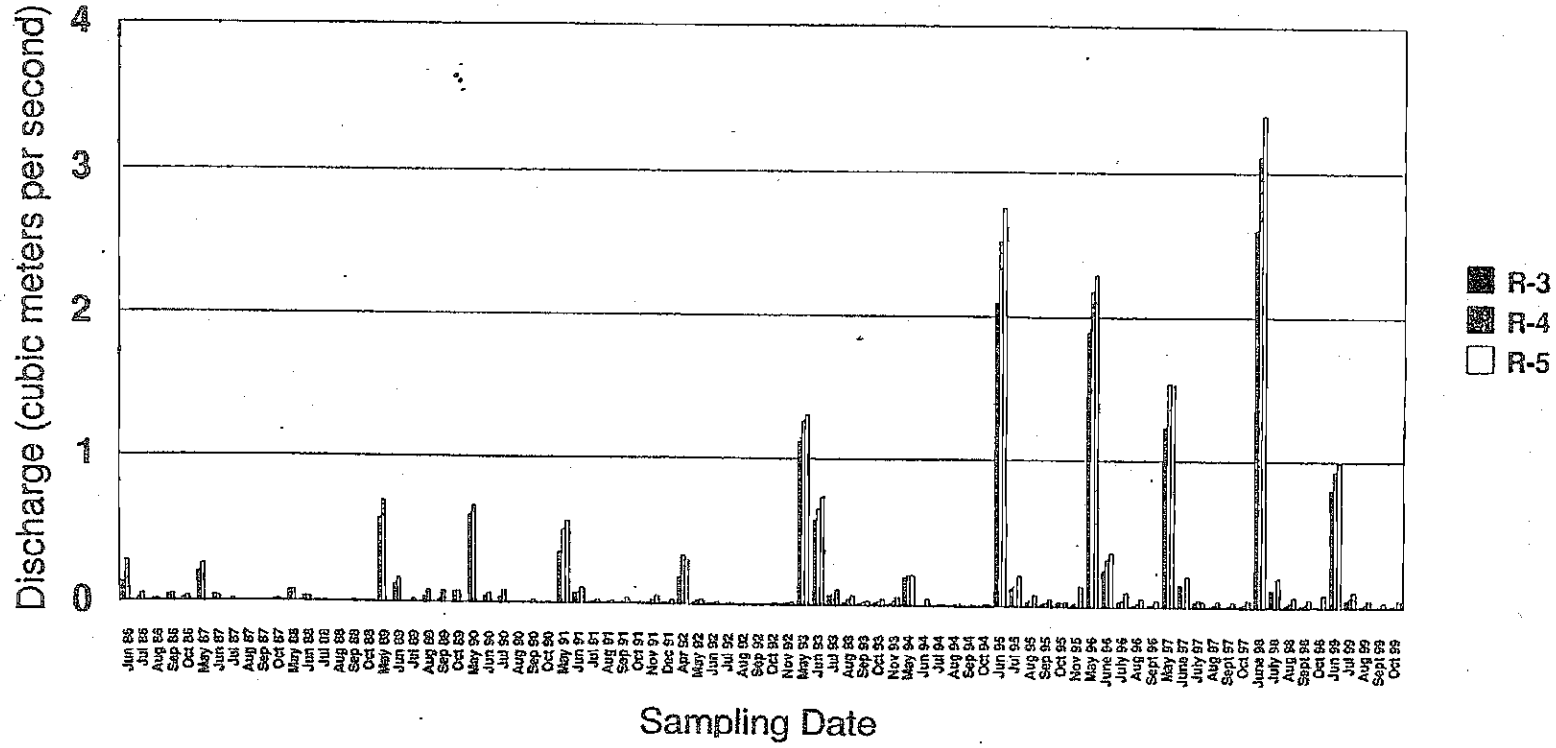


Chart 21b

Flows at R-3, R-4, and R-5

Little Grizzly Creek Above and Below Walker Tailings

1986 - 1999



Appendix 2

United States Department of Agriculture | Forest Service | Plumas National Forest | 159 Lawrence Street
P.O. Box 11500
Quincy, CA 95971-6025
(530) 534-7984 Text (TDD)
(530) 283-2050 Voice

File Code: 2540

Date: December 18, 2000

Mr. Patrick Morris
California Regional Water Quality Control Board
Central Valley Region
3443 Routier Road
Sacramento, CA 95827-3098

Dear Mr. Morris.

Please find attached two reports required by Waste Discharge Requirements Order No. 5-00-028 for the U.S. Department of Agriculture, Forest Service, Plumas National Forest at the Walker Mine Tailings in Plumas County. The reports are (1) Quarterly Monitoring Report for September 2000 and (2) the Annual Monitoring Report.

Samples collected September 13, 2000 by Sierra Environmental were taken to Henrici Water Laboratory, near Quincy, for analysis. The Henrici laboratory sent a second set of samples to North Coast laboratories Ltd., in Arcata, California, for metals analyses.

Negotiations with the Atlantic Richfield Company (ARCO) over the Draft Revised Proposed Treatment Plan is still pending. We do expect to have a signed amended ROD in the near future.

Please call Terry Benoit of this office if you have questions.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in the attached documents and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possiblity of fine and imprisonment.

Mark J. Madrid

MARK J. MADRID
Forest Supervisor

attachment

ANNUAL MONITORING REPORT

WDR Order Number: 5-00-028

Discharger: USDA Forest Service, Plumas National Forest

Facility: Walker Mine Tailings, Plumas County

Reporting Frequency: Annual Summary

Monitoring Period: Calendar Year 2000

Findings:

(1) Surface Water. Samples were collected during May, July, and September, as prescribed in the Waste Discharge Requirements. Adjusting for hardness at the Compliance Station (R-5), the calculated limitation for dissolved copper was exceeded during each of the sampled months. The limitations for iron and zinc were not exceeded in any of the samples collected.

Testing for copper at R-3, the background station on Little Grizzly Creek, and R-4, Little Grizzly Creek above the confluence with Dolly Creek, has produced some unusual results (refer to Map 1). Test results from the July samples show a concentration of 23 ug/l at R-3 while the downstream result at R-4 was below the detection limit. The detection limit was raised from 5 ug/l to 10 ug/l due to the need to dilute the samples because of high concentrate readings. The water testing laboratory said that the reading for copper would probably have been non-detectable at R-4 even if the detection limit had been set at 5 ug/l.

Reviewing the copper test results from 1991 to present for R-3 and R-4 indicates that copper concentrations above the detection limits were found in the waters of Little Grizzly Creek above the confluence with Dolly Creek 22% and 24% of the time (Table 1). Only one set of samples, those taken in September 1992, exceeded water quality limitations. The reason is unknown. About half the time copper is detected at R-3 it is not detected downstream at R-4. Again, there's no explanation. In fact, there's no concrete explanation for the detection of copper at the R-3 station at all. The only apparent contamination of Little Grizzly Creek at that location is the occasional drift of tailings material blown by the wind into this upstream area. Even with this apparent contamination pathway, it does not seem plausible that concentrations of copper in samples taken at R-3 could be detected.

Although the copper concentrations at R-1, Dolly Creek above the tailings area, did not exceed the limitations calculated for R-5, copper was still detected from samples taken at that site, all three sampling times. The results from the R-2 samples, Dolly Creek below the tailings area, confirm the tailings area as the primary source of copper to the receiving waters, amounting to over 90% of the copper in Dolly Creek at that location (Table 2 and Chart 1). The reduction in copper concentrations between stations R-2 and R-5, the compliance station on Little Grizzly Creek, was 89% in May, 61% in July, and 66% in September. These results are more similar to those of the pre-1995 period, when weather conditions were dryer than normal. The 2000 water year was considered a near average year for precipitation, but below average runoff, probably due to a below average snow pack. Table 3 displays flow amounts for the three sampling periods from 1991 through 2000.

(2) Groundwater. As specified in the WDR, three monitoring wells (W-3, W-5, and W-7) were sampled twice, in May and September. A summary of the test results of this year's sampling is compared to that taken in 1992, the year the wells were installed, and 1994-1995, the only other years the wells were sampled (Table 4). Only well W-3 was sampled in 1992, but all wells were sampled in 1994 each month from July through October. All wells were sampled twice in 1995, June and November.

The test results for the 1992 sampling are questionable and may reflect the values taken from tailings material extraction water, rather than the well water itself (refer to Table 4.0 on page 14 of the Westec Report, "Monitoring Well As-Built and Waste Characterization Program for the Walker Mine Tailings", August 18, 1993, Report No. 732).

Generally, dissolved copper and zinc were not detected in any of the wells. The exceptions for copper are at W-4 and W-6 during three months in 1994, August through October. Like copper, zinc is generally at non-detectable concentrations, but does show up in W-4 in 1994 and again in W-1 and W-7 (the background well) in 1995 (Refer to Map 2). No explanation for the zinc in the background well.

Test results for total copper and zinc in the 1994 and 1995 samples indicate that these constituents are present throughout the tailings area. The characterization of the tailings material in 1992 by Westec confirmed the presence and established the concentration of these constituents throughout the tailings area. The characterization program included not only the seven monitoring wells, but also an additional seven boreholes.

One can basically conclude that even though copper and zinc are present in the tailings material throughout the site, they are not entering into solution (except along the Dolly Creek channel). This is confirmed by the surface water-sampling program, in which samples taken at the base of the tailings in Little Grizzly Creek (R-4) generally indicate that these constituents are at non-detectable levels. It's only after Little Grizzly Creek mixes with Dolly Creek that soluble copper and zinc are detected.

The same cannot be said about iron. Not only is dissolved iron found in all the wells sampled, it is prevalent in all surface waters sampled (refer to the January 7, 2000

summary report by the Forest Service, "Analysis of Surface Water Quality at the Walker Mine Tailings, 1986-1999"). This includes both background stations, W-7 and R-3. Iron precipitates are readily seen all along Little Grizzly Creek where it flows along the base of the tailings and in the Dolly Creek channel as it flows across the tailings area. Iron precipitates can also be found in both channels above and below the tailings area. The water level in each well is measured during each sampling month, May and September. A map displaying the groundwater gradient and direction was produced for each of the two months (refer to Maps 3 and 4). The maps show groundwater contour lines in five-foot increments. Generally, the groundwater in the tailings area drains in two directions, towards the tailings dam along Dolly Creek and towards the settling pond near R-6. The groundwater gradient steepens by the end of the summer season, dropping five feet near the dam and ten feet at the settling pond.

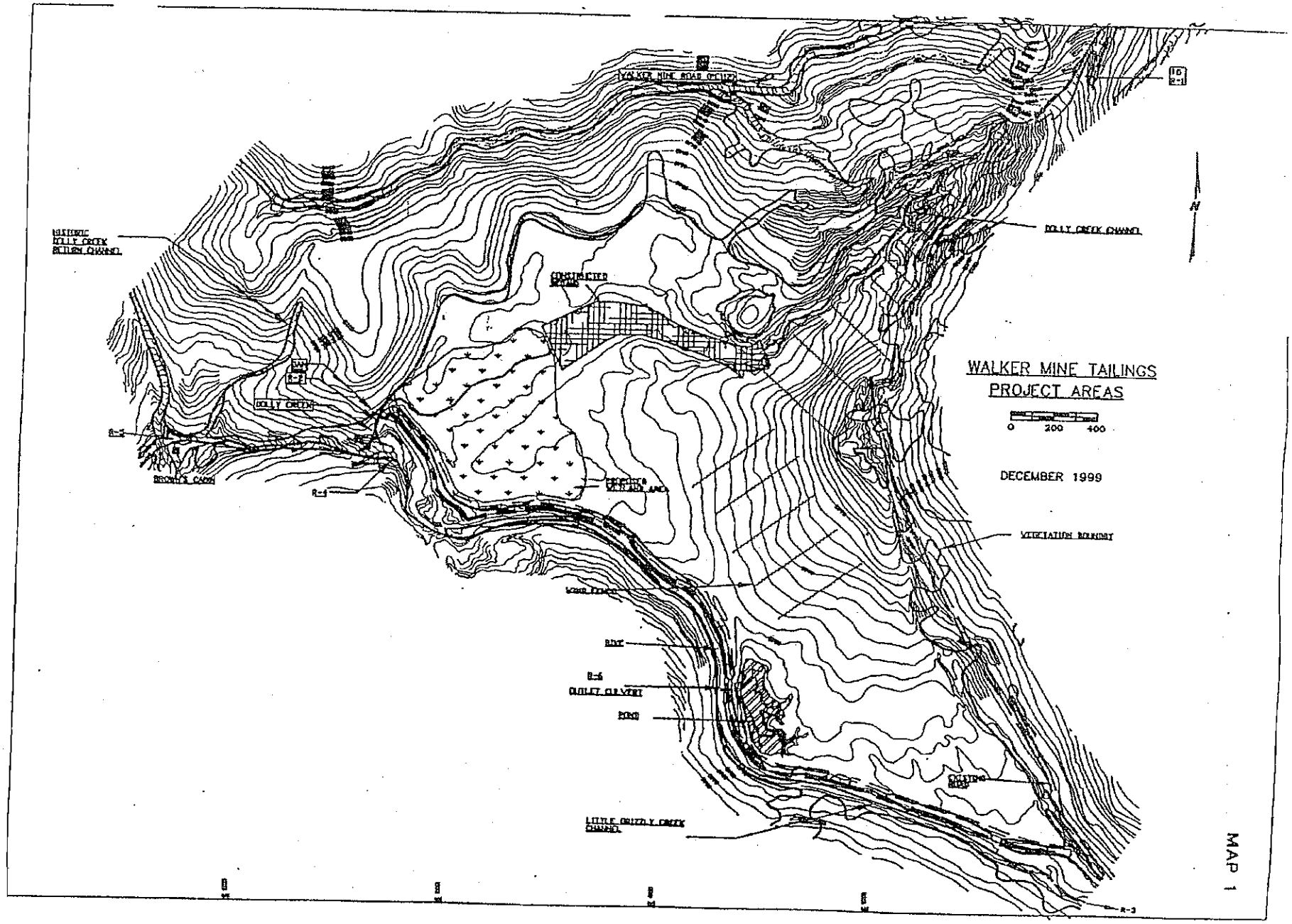
Groundwater depths are listed in Table 5 for 1993, 1994,1995, and 2000. Though the data is preliminary, the W-7 data seems to indicate a lag time in response to weather changes with no change seasonally, while all other wells seem to respond primarily to seasonal changes and secondarily to weather changes.

During the 2000 monitoring season, groundwater elevations at W-7 remained nearly constant throughout the season and that at W-4 dropped six feet (Table 6 and groundwater contour maps). W-4 receives water from the slope above the tailings area east side while W-7 is located in a seep area along the same slope (refer to Maps 1 and 2). Only the groundwater elevation data collected in 1994 can be added to this year's data. The table compares the wet month (May) depth to water with that of the dry month (September). The change in depth to water for each well shows a definite drop, but it also shows a definite response to weather conditions and location. As at W-7, W-2 is spring fed. The drop in groundwater elevation at W-2 seems to reach a maximum at about three feet.

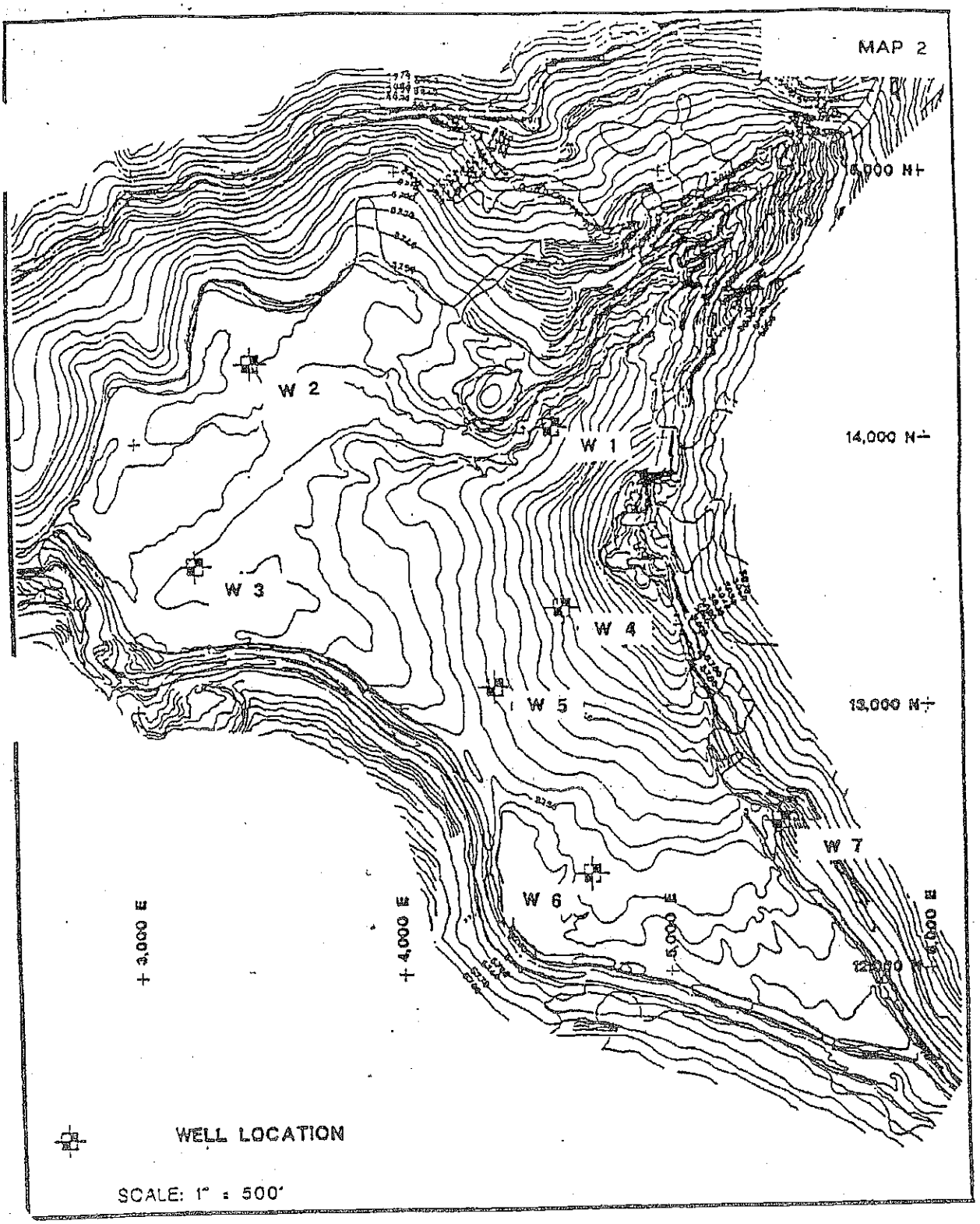
Groundwater elevations at W-3 are important to look at from the standpoint of the proposed anaerobic wetland. The depth to water this year was from four to six feet, but the drop in 1994, the last year of dry period, was from six feet to over 34 feet. Implementation of the 1994 ROD was underway during the summer of that year, including construction of the aerobic wetland. This may be the cause of the dramatic drop in groundwater at W-3. Surface water did continue to flow over the dam all months that year. Excluding the 1994 data, the depth to groundwater at W-3 appears about six feet (Table 5) and the seasonal drop is less than two feet (Table 6). Except for the driest year since monitoring began, water continues to flow over the tailings dam at all times. In August 1992, Dolly Creek flows did not reach the tailings dam during the heat of the day.

(3) Channel Substrate Analysis (Pebble Count). One of the measured changes that should occur as a result of rehabilitating the tailings area is a decreased transport of tailings material to Little Grizzly Creek. Though most of the material moves during times of high flows when sampling does not normally occur, evidence of its occurrence should be measurable by analyzing channel substrate size classes. The current WDR requires that a "Wolman pebble count" be conducted once a year in September. A complete discussion

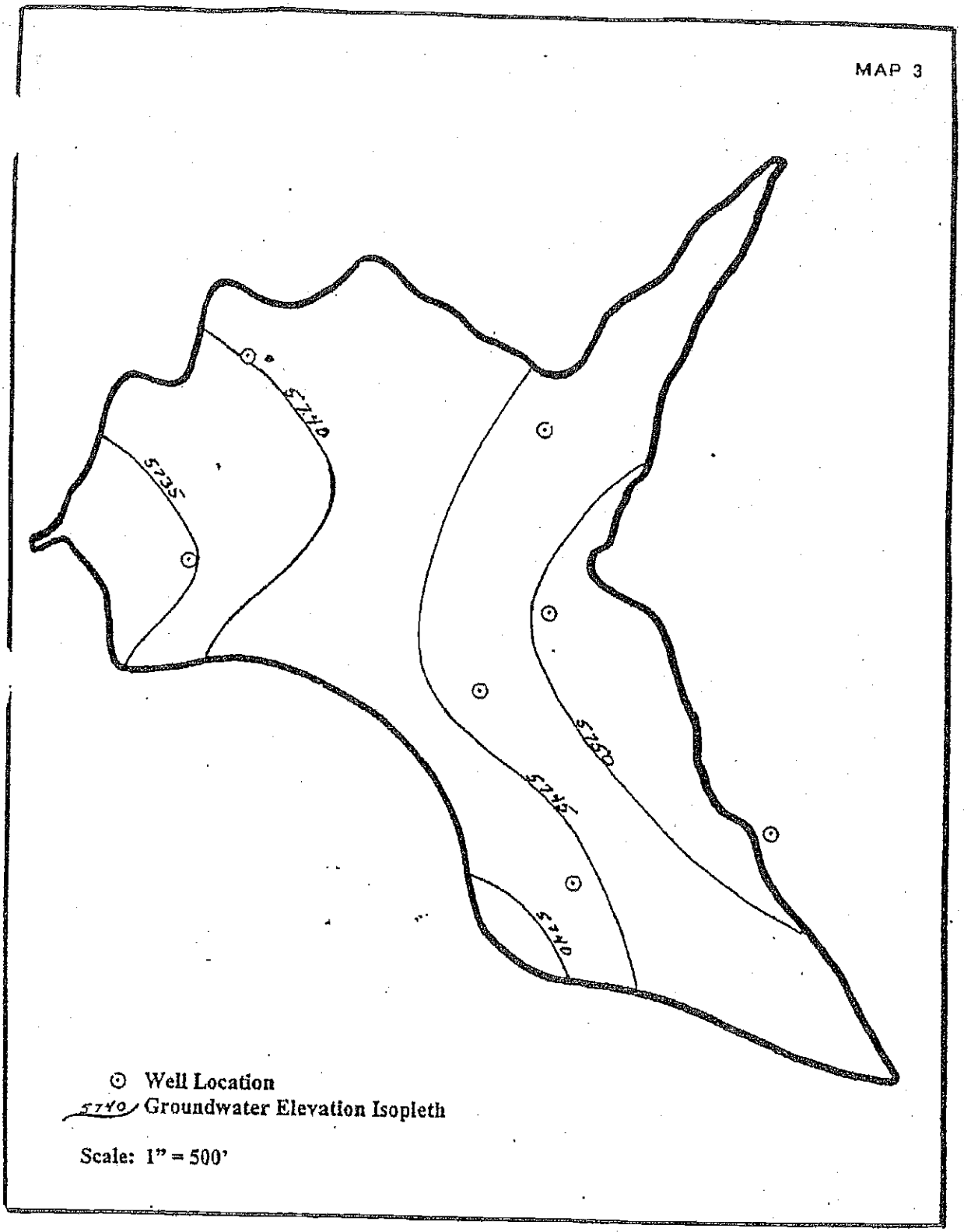
of the results of the first pebble count, conducted last September, can be found in that report. Essentially, the analysis found that some tailings material is depositing at the compliance station, R-5. This same material is not found upstream, near the R-6 station.


WALKER MINE TAILINGS
PROJECT AREAS
0 200 400
DECEMBER 1999
VEGETATION BOUNDRY
DAM
OUTLET CULVERT
POND
LITTLE GRIZZLY CREEK CHANNEL
HISTORIC DOLLY CREEK RETURN CHANNEL
DOLLY CREEK CHANNEL
DOLLY CREEK
BROWN'S CANYON
R-1
R-2
R-3
R-4
R-5
R-6
N

MAP 1



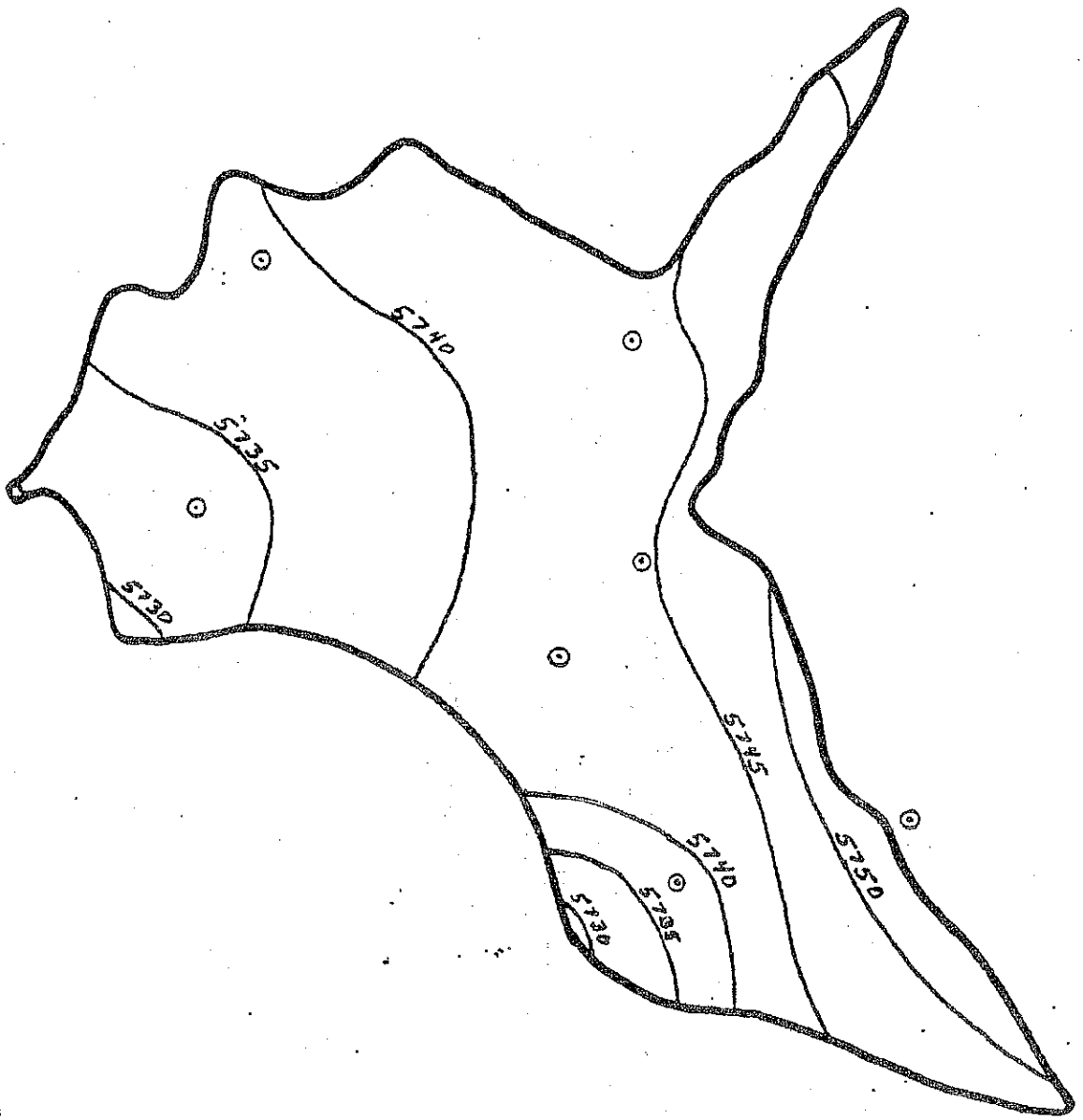
WALKER MINE TAILINGS



WALKER MINE TAILINGS
GROUNDWATER CONTOUR MAP

May 2000

MAP 4



⊙ Well Location

5740 Groundwater Elevation Isopleth

Scale: 1" = 500'

WALKER MINE TAILINGS
GROUNDWATER CONTOUR MAP

September 2000

Table 1

Copper Concentrations at R-3 and R-4 Little Grizzly Creek Above and Below Walker Tailings

Date	R-3 Copper mg/L	R-4 Copper mg/L
May 91	ND	0.0020
Jun 91	ND	ND
Jul 91	ND	ND
Aug 91	ND	0.0030
Sep 91	ND	ND
Oct 91	ND	ND
Nov 91	ND	ND
Dec 91	ND	0.0030
Apr 92	ND	ND
May 92	ND	0.0390
Jun 92	0.0039	ND
Jul 92	ND	ND
Aug 92	0.0036	ND
Sep 92	0.1200	0.1200
Oct 92	ND	0.0024
Nov 92	ND	ND
May 93	ND	ND
Jun 93	0.0028	ND
Jul 93	0.0024	0.0070
Aug 93	ND	ND
Sep 93	ND	0.0083
Oct 93	ND	ND
Nov 93	ND	0.0040
May 94	ND	ND
Jun 94	0.0090	0.0057
Jul 94	ND	ND
Aug 94	ND	ND
Sep 94	ND	ND
Oct 94	ND	ND
Jun 95	ND	ND
Jul 95	ND	ND
Aug 95	0.0041	ND
Sep 95	ND	ND
Oct 95	ND	ND
Nov 95	ND	0.0023
May 96	ND	ND
June 96	ND	ND
July 96	0.0029	ND
Aug 96	0.0022	ND
Sept 96	ND	ND
May 97	ND	ND
June 97	ND	ND
July 97	ND	ND
Aug 97	ND	ND
Sept 97	ND	ND
Oct 97	ND	ND
June 98	ND	ND
July 98	0.0110	0.0034
Aug 98	0.0046	0.0015
Sept 98	ND	ND
Oct 98	0.0130	0.0088
Jun 99	ND	ND
Jul 99	ND	ND
Aug 99	ND	ND
Sept 99	ND	ND
Oct 99	ND	ND
May 00	ND	ND
Jul 00	0.023	ND
Sep 00	ND	ND
x	0.0034	0.0036
n	59	59
s	0.0158	0.0162
max	0.1200	0.1200
min	0.0000	0.0000

Summary Water Quality Data for R-1, R-2 and R-5
1991 - 2000

Table 2

	R-1 Cu Conc. (mg/l)			R-2 Cu Conc. (mg/l)			R-5 Cu Conc. (mg/l)		
Year	May/June	July	September	May/June	July	September	May/June	July	September
1991	0.110	0.044	0.023	0.572	0.256	0.362	0.040	0.060	0.102
1992	0.034	0.034	0.033	0.250	0.360	0.240	0.000	0.066	0.000
1993	0.024	0.110	0.047	0.370	0.450	0.230	0.036	0.140	0.099
1994	0.074	0.029	0.021	0.500	0.210	0.088	0.050	0.051	0.017
1995	0.086	0.055	0.042	0.190	0.220	0.100	0.024	0.070	0.053
1996	0.065	0.017	0.014	0.150	0.180	0.066	0.032	0.076	0.031
1997	0.002	0.011	0.013	0.092	0.082	0.060	0.015	0.036	0.029
1998	0.050	0.015	0.011	0.150	0.180	0.080	0.012	0.055	0.040
1999	0.016	0.014	0.017	0.017	0.180	0.071	0.002	0.068	0.028
2000	0.014	0.016	0.009	0.310	0.220	0.096	0.033	0.085	0.033
x	0.05	0.03	0.02	0.26	0.23	0.14	0.02	0.07	0.04
n	10	10	10	10	10	10	10	10	10
s	0.03	0.03	0.01	0.17	0.10	0.10	0.02	0.03	0.03
max	0.11	0.11	0.05	0.57	0.45	0.36	0.05	0.14	0.10
min	0.00	0.01	0.01	0.02	0.08	0.06	0.00	0.04	0.00

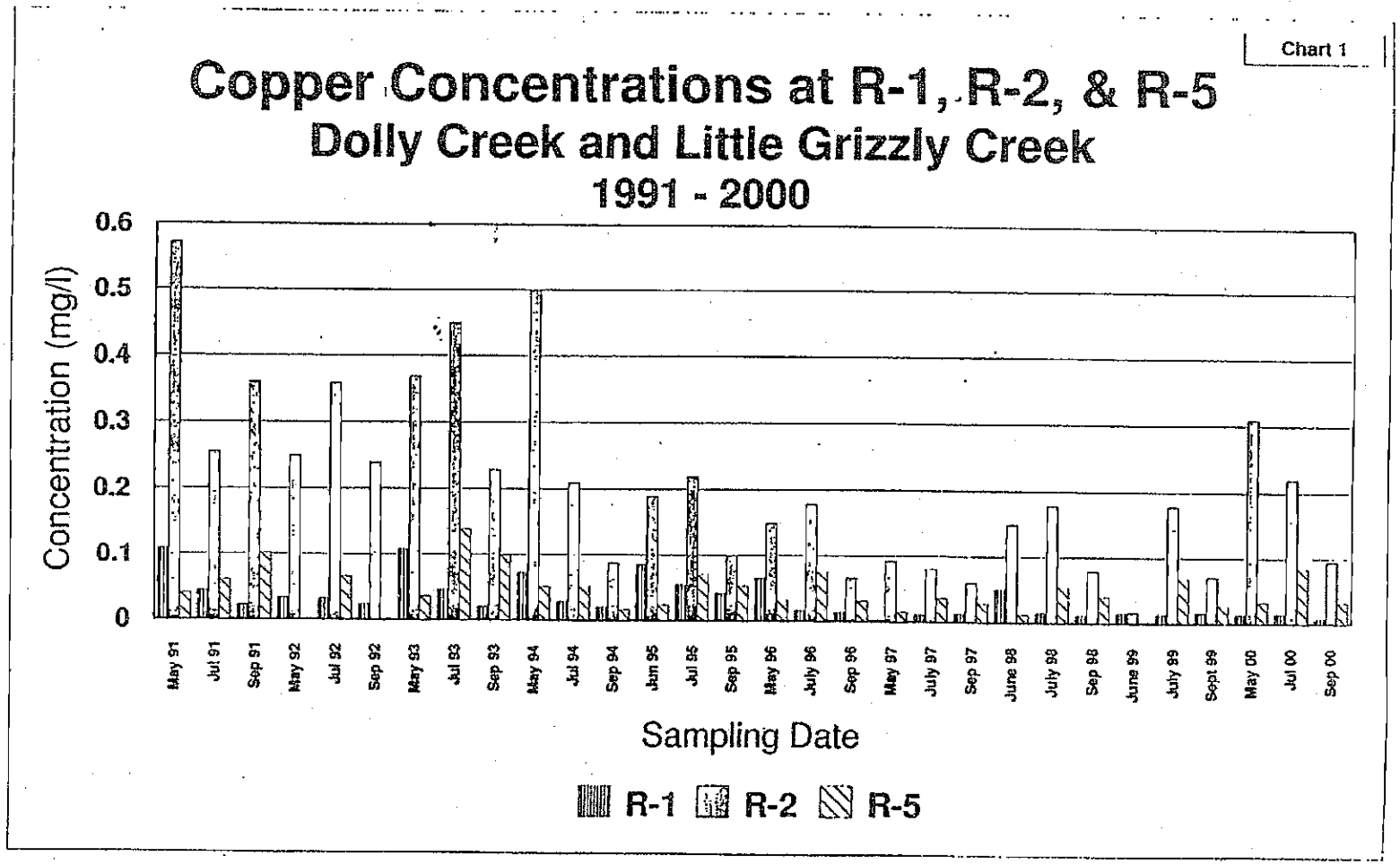


Chart 1
Copper Concentrations at R-1, R-2, & R-5
Dolly Creek and Little Grizzly Creek
1991 - 2000
Concentration (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
May 91
Jul 91
Sep 91
May 92
Jul 92
Sep 92
May 93
Jul 93
Sep 93
May 94
Jul 94
Sep 94
Jun 95
Jul 95
Sep 95
May 96
July 96
Sep 96
May 97
July 97
Sep 97
June 98
July 98
Sep 98
June 99
July 99
Sept 99
May 00
Jul 00
Sep 00
Sampling Date
R-1
R-2
R-5

Summary of Flows at R-1, R-2 and R-5
1991-2000

Table 3

	R-1 Flows (cfs)			R-2 Flows (cfs)			R-5 Flows (cfs)		
Year	May/June	July	September	May/June	July	September	May/June	July	September
1991	0.88	0.52	0.60	1.28	0.31	0.28	19.62	0.84	1.35
1992	0.18	0.14	0.11	0.12	0.06	0.02	1.06	0.43	0.22
1993	7.28	1.31	0.73	7.28	1.25	0.57	46.10	3.53	1.10
1994	0.31	0.14	0.14	0.72	0.15	0.01	7.30	0.45	0.44
1995	6.97	2.48	1.05	8.22	2.38	2.01	97.20	7.46	1.88
1996	12.30	1.10	0.90	15.60	1.30	1.00	80.90	3.40	1.70
1997	5.05	1.24	0.66	5.69	1.18	0.86	54.09	1.43	1.34
1998	9.60	1.80	1.00	10.20	2.00	0.90	120.00	7.10	2.10
1999	5.24	1.30	0.78	5.74	1.13	0.72	34.97	3.74	1.35
2000	2.00	0.70	0.40	2.20	0.70	0.40	23.40	2.10	1.00
x	4.98	1.07	0.64	5.71	1.05	0.68	48.46	3.05	1.25
n	10	10	10	10	10	10	10	10	10
s	3.93	0.70	0.31	4.63	0.73	0.56	37.64	2.42	0.56
max	12.30	2.48	1.05	15.60	2.38	2.01	120.00	7.46	2.10
min	0.18	0.14	0.11	0.12	0.06	0.01	1.06	0.43	0.22

GROUNDWATER QUALITY AT WALKER MINE TAILINGS

Table 4

1992 - 2000

Well No.	Sampling Date	Copper		Iron		Zinc	
		Total (mg/l)	Filtered (mg/l)	Total (mg/l)	Filtered (mg/l)	Total (mg/l)	Filtered (mg/l)
W-1	10/04/1992	-	-	-	-	-	-
W-1	07/18/1994	0.46	-	78.00	-	0.08	-
W-1	08/24/1994	0.33	ND	73.00	0.22	0.07	ND
W-1	09/22/1994	0.22	ND	65.00	0.10	0.06	ND
W-1	10/25/1994	0.30	ND	68.00	1.30	0.05	ND
W-1	06/24/1995	ND	ND	0.30	0.30	ND	ND
W-1	11/13/1995	0.24	ND	44.00	0.51	0.05	0.01
W-1	05/24/2000	-	-	-	-	-	-
W-1	09/13/2000	-	-	-	-	-	-
W-2	10/16/1992	-	-	-	-	-	-
W-2	07/18/1994	0.18	-	21.00	-	0.02	-
W-2	08/24/1994	0.28	ND	21.00	0.18	ND	ND
W-2	09/22/1994	0.18	ND	18.00	0.87	ND	ND
W-2	10/25/1994	0.21	ND	16.00	1.10	ND	ND
W-2	06/24/1995	ND	ND	0.50	0.50	ND	ND
W-2	11/13/1995	0.13	ND	17.00	0.06	ND	ND
W-2	05/24/2000	-	-	-	-	-	-
W-2	09/13/2000	-	-	-	-	-	-
W-3	10/15/1992	0.28	-	3.40	-	0.28	-
W-3	07/18/1994	0.02	-	1.40	-	ND	-
W-3	08/24/1994	0.02	ND	1.40	ND	ND	ND
W-3	09/22/1994	ND	ND	0.73	0.17	ND	ND
W-3	10/25/1994	ND	ND	1.10	0.70	ND	ND
W-3	06/24/1995	ND	ND	1.60	ND	ND	ND
W-3	11/13/1995	ND	ND	0.36	0.04	ND	ND
W-3	05/24/2000	-	ND	-	21.00	ND	ND
W-3	09/13/2000	-	ND	-	ND	ND	ND
W-4	10/14/1992	-	-	-	-	-	-
W-4	07/18/1994	1.20	-	120.00	-	0.11	-
W-4	08/24/1994	0.89	0.55	93.00	0.41	0.08	0.04
W-4	09/22/1994	1.70	0.62	120.00	0.41	0.15	0.05
W-4	10/25/1994	0.98	ND	100.00	32.00	0.12	ND
W-4	06/24/1995	ND	ND	28.00	28.00	ND	ND
W-4	11/13/1995	ND	ND	47.00	25.00	ND	ND
W-4	05/24/2000	-	-	-	-	-	-
W-4	09/13/2000	-	-	-	-	-	-
W-5	10/03/1992	0.38	-	4.40	-	0.40	-
W-5	07/18/1994	0.11	-	32.00	-	ND	-
W-5	08/24/1994	0.04	ND	31.00	0.10	ND	ND
W-5	09/22/1994	0.05	ND	30.00	ND	ND	ND
W-5	10/25/1994	0.06	ND	32.00	2.20	ND	ND
W-5	06/24/1995	ND	ND	2.50	1.90	ND	ND
W-5	11/13/1995	ND	ND	17.00	0.15	ND	ND
W-5	05/24/2000	-	ND	-	68.00	ND	ND
W-5	09/13/2000	-	ND	-	740.00	ND	ND
W-6	10/02/1992	-	-	-	-	-	-
W-6	07/18/1994	0.08	-	3.80	-	ND	-
W-6	08/24/1994	0.46	ND	14.00	ND	0.04	ND
W-6	09/22/1994	0.99	0.01	31.00	0.69	0.08	ND
W-6	10/25/1994	0.72	0.01	23.00	0.27	0.02	ND
W-6	06/24/1995	ND	ND	ND	ND	ND	ND
W-6	11/13/1995	0.09	ND	3.90	0.06	ND	ND
W-6	05/24/2000	-	-	-	-	-	-
W-6	09/13/2000	-	-	-	-	-	-
W-7	10/19/1992	0.04	-	0.58	-	0.23	-
W-7	07/18/1994	ND	ND	1.90	-	0.02	-
W-7	08/24/1994	0.02	ND	30.00	0.45	0.05	ND
W-7	09/22/1994	0.04	ND	43.00	0.96	0.07	ND
W-7	10/25/1994	0.04	ND	52.00	1.10	0.06	ND
W-7	06/24/1995	ND	ND	ND	ND	ND	ND
W-7	11/13/1995	0.01	ND	14.00	0.67	0.02	0.01
W-7	05/24/2000	-	ND	-	79.00	-	ND
W-7	09/13/2000	-	ND	-	180.00	-	ND

Table 5

Groundwater Depths at Walker Mine Tailings
1993 - 2000

Depth to Groundwater From Top of Casing (ft)	Monitoring Well Number: Depth to Water (ft)							Average Depth (ft)
	W-1	W-2	W-3	W-4	W-5	W-6	W-7	
Top of Casing Elevation	5759.24	5741.74	5738.83	5768.00	5754.09	5747.87	5754.91	-
07/17/1993	13.34	2.14	5.12	16.96	7.90	5.64	1.06	7.45
07/18/1994	15.06	3.00	6.11	23.43	11.94	6.74	1.71	9.71
08/24/1994	15.35	3.26	6.59	24.52	12.88	7.63	2.07	10.33
09/22/1994	29.42	2.94	34.25	25.25	13.46	8.14	2.05	16.50
10/25/1994	15.59	2.60	6.28	25.90	13.97	8.33	1.91	10.65
06/24/1995	11.17	0.86	3.76	11.61	4.43	3.33	0.13	5.04
11/13/1995	14.75	2.34	5.98	22.64	11.32	7.09	1.03	9.31
05/24/2000	12.54	0.95	4.22	16.58	6.62	3.73	0.33	6.42
09/13/2000	14.80	2.77	6.08	22.76	11.34	7.09	0.25	9.30
Average Depth	15.78	2.32	8.71	21.07	10.43	6.41	1.17	9.41

Table 6

Change In Seasonal Groundwater Elevations 1994 and 2000

Well Number	Date	Depth to Water (ft)	Date	Depth to Water (ft)	Change in Depth (ft)	Well Number
W-1	07/18/1994	15.06	09/22/1994	29.42	14.36	W-1
W-1	05/24/2000	12.54	09/13/2000	14.80	2.26	W-1
W-2	07/18/1994	3.00	09/22/1994	2.94	-0.06	W-2
W-2	05/24/2000	0.95	09/13/2000	2.77	1.82	W-2
W-3	07/18/1994	6.11	09/22/1994	34.25	28.14	W-3
W-3	05/24/2000	4.22	09/13/2000	6.08	1.86	W-3
W-4	07/18/1994	23.43	09/22/1994	25.25	1.82	W-4
W-4	05/24/2000	16.58	09/13/2000	22.76	6.18	W-4
W-5	07/18/1994	11.94	09/22/1994	13.46	1.52	W-5
W-5	05/24/2000	6.62	09/13/2000	11.34	4.72	W-5
W-6	07/18/1994	6.74	09/22/1994	8.14	1.40	W-6
W-6	05/24/2000	3.73	09/13/2000	7.09	3.36	W-6
W-7	07/18/1994	1.71	09/22/1994	2.05	0.34	W-7
W-7	05/24/2000	0.33	09/13/2000	0.25	-0.08	W-7

Appendix 3

ARCO

Legal

June 30, 2000

Rose Miksovsky, Esq.
United States Department of Agriculture
Office of the General Counsel
33 New Montgomery Street, 17th Floor
San Francisco, CA 94105

Mark J. Madrid
United States Department of Agriculture
Forest Supervisor, Plumas National Forest
159 Lawrence Street
P.O. Box 11500
Quincy, CA 95971-6025

Re: Revised Proposed Treatment Plan for the Walker Mine Tailings Site
Atlantic Richfield Company's Comments

Dear Mr. Madrid and Ms. Miksovsky:

Enclosed please find a copy of Atlantic Richfield Company's comments on the U.S. Forest Service's Revised Proposed Treatment Plan for the Walker Mine Tailings Site. These comments were prepared with the help of our outside counsel, Davis Graham & Stubbs, as well as the assistance of our in-house engineers. We look forward to discussing these comments with the Forest Service at a time that is mutually convenient for all parties.

Sincerely,

Jean Martin

Jean A. Martin
Counsel for Atlantic Richfield Company and its affiliate, ARCO Environmental Remediation, L.L.C.

Enc. (1)

cc: David B. Glazer, U.S. Dept. of Justice
John Pantano and Dave McCarthy, AERL
Roger Freeman, Davis Graham & Stubbs

COMMENTS OF ATLANTIC RICHFIELD COMPANY ON THE REVISED PROPOSED TREATMENT PLAN FOR THE WALKER MINE TAILINGS SITE

June 30, 2000

I. Introduction and Summary.

The Atlantic Richfield Company ("ARCO") appreciates the opportunity to comment on the U.S. Forest Service's Revised Proposed Treatment Plan, dated April 21, 2000 ("Proposed Plan") for the Walker Mine Tailings Site ("Site"). We appreciate your efforts to obtain input from parties who have an interest in the Proposed Plan, and hope that this process will continue. ARCO also thanks the Forest Service for granting ARCO an extension of time, through June 30, 2000, to submit these comments.

In these comments we make the following points:

Necessity: The proposed stream diversion project is not required by the new WDRs for this Site. If the Forest Service implements the erosion control and wetland system selected in the original remedy, the diversion project may be unnecessary.

Cost: The proposed stream diversion project in the Plan will quadruple the expected remedy cost, without significantly improving water quality below the site.

Alternatives: If additional work is needed to address flood conditions that might arise at the site, the Forest Service should consider less costly alternatives.

II. The New WDRs Are Not Enforceable Nor Realistic ARARs At This Site.

The driving force for the Proposed Plan, and the amendment to the Record of Decision for this Site ("ROD"), appears to be the new waste discharge requirements issued on February 2, 2000, by the California Regional Water Quality Control Board, Central Valley Region (Order No. S-00-028). The Order states that mine tailings add significant concentrations of copper to Dolly Creek. Order, Finding 9. It requires the U.S. Forest Service "to divert Dolly Creek and expand the wetlands (treatment) area or take other effective actions to improve water quality in Dolly Creek." Order, Finding 13.

Two months later, the U.S. Forest Service proposed to build a man-made channel that would divert Dolly Creek around the tailings and discharge its water directly into Little Grizzly Creek. This would significantly change the remedy for the tailings area at the Site.

We question the applicability of the Board's new waste discharge requirements ("WDRs") to the remedy at this Site. As you know, the WDRs were issued over 5 years after a remedy was selected for this Site. Such changes in the law generally will not change the previously chosen remedy. Here, the process of applying state water quality limits to this Site has been protracted and subject to several administrative proceedings. Recently, the California Regional Water Quality Control Board ("Board") attempted to apply these discharge limitations directly to ARCO. By letter dated December 30, 1999, a copy of which was submitted to the

Forest Service, ARCO presented its position that the application of these standards was not supportable under California law. Our comments explained why these water discharge limitations cannot be applied to a long-standing federal use such as the Walker tailings site that pre-dated state water quality laws. See ARCO's December 30, 1999 letter, pages 4-7.

Under the National Contingency Plan, when a remedy is selected it must meet applicable or relevant and appropriate legal requirements ("ARARs"). Once the remedy has been selected and a Record of Decision ("ROD") has been issued, however, the ARARs are typically "frozen" in place. 40 C.F.R. § 300.430(f)(ii)(B)(1). In other words, post-ROD requirements generally are not treated as ARARs. Only where the lead agency makes a specific finding that such requirements are relevant/appropriate and "necessary to ensure that the remedy is protective of human health and the environment," are post-ROD requirements applicable. Id. No such showing is made in the Forest Service's Proposed Plan, nor can this threshold be met given the Site history described in our December 30 letter.

Even if the new WDRs are applied to this Site, they do not mandate the proposed plan to divert Dolly Creek. The WDRs expressly allow the Forest Service to take any "other effective actions to improve water quality." Order, Section E.9, Task B.1. Other effective and less costly alternatives are discussed in the original ROD, and in these comments on page four.

The Dolly Creek diversion project is unlikely to achieve the desired stream standards, even with the expenditure of the significant additional costs identified in the diversion Plan. See Order, Finding 15. For example, before Dolly Creek enters the tailings area, its average dissolved copper concentration is 22 ug/l (Order, Finding 9). The selected remedy must meet a copper concentration limit of only 5 ug/l or less at the compliance point (Order, page 5, para. 1). We question whether this limit can be met simply by re-routing and discharging Dolly Creek water directly above the compliance point. Likewise, we question the impact of diverting clean water away from Little Grizzly Creek and into the tailings area, as overall water quality may deteriorate.

III. The Proposed Remedy Changes Are Premature. The Forest Service Should Not Revoke the 1994 Remedy Before Key Components Are Implemented.

The Forest Service proposes to adopt a new remedy before it even tries to implement the original remedy.[1] A fundamental component of the original remedy, as adopted by the Forest Service in June 1994, was the construction and operation of an anaerobic wetlands system that would remove metals from the tailings area through a complex interaction of plants, organic matter, bacteria and wetlands water. Another critical component was the stabilization of 1500 feet of the Dolly Creek Channel, to prevent additional metals from eroding into the creek and tailing/wetlands. At this point the wetlands have not been constructed yet and the stabilization work is only partially complete.

The Forest Service should complete the proposed work and obtain the benefit of water quality data on the effectiveness of the original remedy. Without such data, there is no basis for

[1] The Forest Service suggests that wetland construction was delayed by attempts to "reach a settlement with the [PRPs] prescribing responsibilities at the Site." However, neither CERCLA nor the NCP authorizes a lead agency to forego implementation of the selected remedy due to its inability to reach agreement with a PRP to undertake site work.

determining whether additional remedies are needed, or identifying the remedies (if any) which can achieve a significant further improvement in water quality.

The proposed diversion remedy will cost an estimated $2,180,000 to construct. This is approximately 4 times higher than the $450,000 remedy selected in the original Record of Decision for this Site. There is little or no data to indicate that the more expensive remedy will achieve substantially better water quality levels than the original remedy.

Given the limited data available, the marginal benefits of the proposed stream diversion remedy do not appear to justify the significantly higher cost of the proposed new remedy. "An alternative that far exceeds the cost of other alternatives evaluated and that does not provide substantially greater public health or environmental protection or technical reliability shall usually be excluded from further consideration." General Electric v. Litton Business Systems Inc., 715 F. Supp. 949, 962 (W.D. Mo. 1989); see also The Matter of Bell Petroleum Services Inc., 3 F.3d 889, 905-906 (5th Cir. 1993) (requirement for alternative water system held arbitrary and capricious where it "did not even reduce, much less eliminate, any public health threat.").

IV. The Proposed Plan Does Not Properly Factor In Certain Risks.

The proposed diversion of Dolly Creek around the tailings pond is likely to lower the water table within the tailings, affecting wetland survival and the effectiveness of the wetlands treatment system. To address this concern, the proposed remedy would convey clean water from Little Grizzly Creek back to the wetland at times via a pipeline system. The Proposed Plan does not explain how this situation would be monitored and who would be responsible for the considerable study and operational oversight that would be required to balance the water needs of the primary wetland treatment system against the expected diversions. There is a significant risk that the diversion remedy may drain and damage the wetlands area, undermining the primary method of removing metal from the tailings area. It is more reasonable and consistent with the National Contingency Plan to proceed with the original proposed remedy, than to potentially undermine the effectiveness of wetlands remedy in this way.

The Walker Mine site and associated tailings pile has been in existence on federal lands for many decades. The original tailings pond location and design was approved and managed by the federal government. This site has also been on the CERCLA federal cleanup docket for nearly a decade. There are no new risks at the Site which require a change in the remedy at this stage of the process. Against this backdrop, the brief comparative analysis between the current remedy and proposed new diversion remedy fails to meaningfully factor in environmental risk in choosing the new option. The diversion project could damage the wetlands remedy

Moreover, it could have an adverse (although temporary) impact on human health. The discussion of overall risk contained in the Proposed Plan fails to account for risks to workers and the environment that will be created if Dolly Creek is rechanneled in the manner proposed. The disturbance of contaminants during the construction work has not been factored into the analysis. Thus, the critical NCP "implementability" factor – both a screening factor and evaluation criterion – is not meaningfully applied to the two alternatives. See 40 C.F.R. § 300.430(f).[2]

[2] The Forest Service recognizes in its comments that public response to its prior remedial analysis was "low" and that any public health issue arising from the Site has been resolved through restriction of

V. The Forest Service's Proposal of a Single Remedial Alternative Is Insufficient.

The two alternatives presented by Forest Service in the Revised Plan consist simply of maintaining the current system as proposed under ROD, or constructing the Dolly Creek diversion. The Forest Service has not considered a variety of other options, which would be more cost-efficient than construction of a whole new diversion at this time, or more effective. In turn, there is no indication that the Forest Service has screened alternatives as required under the NCP, 40 C.F.R. § 300.430(e)(7).

For instance, one clearly viable option would be to improve erosion control/in-stream stabilization along the reach of Dolly Creek within the tailings pond area and monitor the effectiveness of this measure prior to determining whether a full diversion system is warranted. Another option would be to increase the size of the primary wetland treatment system and carefully monitor the result, rather than rely on the prediction contained in the January 7, 2000 water quality report that a ten acre system will not be fully effective. The system might be re-calibrated to account for occasional high flow conditions. These alternatives should be adequately considered and analyzed under the NCP rather than simply posing one alternative for public consideration. The Proposed Plan contains no meaningful alternative comparisons, advancing only a single alternative without any indication that the requisite alternative screening process has occurred.

VI. Conclusion.

ARCO appreciates the opportunity to provide these comments. We believe that the Forest Service's resources and attention should be devoted to continuing to implement the original remedy, and if necessary, refine the remedy later based on the resulting data, rather than making a premature and needlessly costly change. As always, ARCO remains willing to discuss with the Forest Service avenues whereby it can participate in implementation of these remedial measures on a basis that fairly reflects the technical and legal circumstances surrounding this Site.

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recreational uses in the area. If so, there are no immediate public health threats at the Site that require a premature change in the remedy. This analysis does not consider potential risks to on-site workers.

Appendix 4

United States Department of Agriculture | Forest Service | Plumas National Forest | 159 Lawrence Street
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Date: January 22, 2001

Jean A. Martin, Esq.
Counsel for Atlantic Richfield Company
444 South Flower Street
Los Angeles, CA 90071

Re: Revised Proposed Treatment Plan for the Walker Mine Tailings Site
USDA Forest Service Response to Atlantic Richfield Company's Comments

Dear Ms. Martin:

Attached is the Forest Service response to ARCO's June 30, 2000, comments of the Revised Proposed Treatment Plan for the Walker Mine Tailings Site, dated April 21, 2000. The preparation of this response involved meeting with you and others from ARCO on site last August. It also involved meeting with our attorney, the Central Valley Regional Water Quality Control Board and the Environmental Protection Agency. Please direct questions or comments to Terry Benoit of this office at (530) 283-7822 or e-mail at *tbenoit@fs.fed.us*.

Sincerely,

Mark J. Madrid

MARK J. MADRID
Forest Supervisor

attachment

cc: District Ranger, Beckwourth RD
Rose Miksovsky, OGC
Dave McCauley, RO

USDA FOREST SERVICE RESPONSE TO THE JUNE 30, 2000 COMMENTS FROM ATLANTIC RICHFIELD COMPANY ON THE REVISED PROPOSED TREATMENT PLAN FOR THE WALKER MINE TAILINGS SITE

January 22, 2001

The USDA Forest Service distributed the Revised Proposed Treatment Plan for the Walker Mine Tailings for public comment on April 24, 2000. Three responses were received. First, a phone call was received from Mr. Jack Boise, downstream landowner in the Genesee Valley on May 1, 2000. He was supportive of the Revised Proposed Treatment Plan and added his observations of aquatic and riparian faunal changes during the past five years. Second, the California Regional Water Quality Control Board, Central Valley Region (CVRWQCB), sent a letter dated May 11, 2000, supporting the Revised Proposed Treatment Plan as in agreement with Waste Discharge Requirements Order No. 5-00-028. The third response was from the Atlantic Richfield Company (ARCO) on May 17, 2000, asking for a 30-day extension. The extension was granted and ARCO submitted their response letter June 30, 2000. Additionally, ARCO and the Forest Service met to visit the site and to review the proposed and existing treatments for the project site on August 28 & 29, 2000.

The Forest Service also met with the Environmental Protection Agency and the CVRWQCB on October 25, 2000, regarding treatment proposals at the Site. The agencies reached a consensus that the selected alternative identified in the Revised Proposed Treatment Plan would be the most effective remedy for the site to meet Federal and State water quality standards.

Set forth below is the response to ARCO's comment letter of June 30, 2000, following the format of that letter.

I. **Introduction and Summary**. No comments.

II. **The New WDRs Are Not Enforceable Nor Realistic ARARs At This Site.**

ARCO's comment briefly stated:

(1) The Forest Service has responded to new Waste Discharge Requirements (WDR Order No. 5-00-028) by proposing to divert Dolly Creek around the tailings area, discharging directly to Little Grizzly Creek, significantly changing the remedy established in the 1994 ROD (Record of Decision For Remediation of the Walker Mine Tailings, Beckwourth Ranger District, Plumas National Forest).

(2)These new WDRs are not applicable since the ROD was approved five years ago in response to the WDR in effect at that time (Order No. 91-017).

(3) The diversion of Dolly Creek is unlikely to achieve the desired stream standares.

(4) We question the impact of diverting clean water away from Little Grizzly Creek and into the tailings area, as overall water quality may deteriorate.

Forest Service response:

(1) The proposed ROD amendment is consistent with the 1994 ROD requirement that the Forest Service review remedial actions every five years using the remedy selection criteria of the NCP. The proposed amendment is also consistent with the WDR issued by the CVRWQCB. The Forest Service has worked cooperatively with the CVRWQCB water quality engineers in connection with the Site. The 1994 ROD provides that "...the Forest Service, in cooperation with the CVRWQCB, will review the remedial action no less than every five years after initiation of the selected remedial action..."(p.20). The intent is to adjust remedial treatments if necessary to meet water quality requirements.

The Forest Service analyzed the need to divert Dolly Creek around the tailings site in the 1994 ROD (Alternative 3, p. 11). Additionally, the diversion of Dolly Creek was analyzed and recommended in a phased approach to remediation of the site by Dames & Moore in their 1991 report (Walker Mine Tailings Rehabilitation Study, Plumas National Forest, For United States Forest Service) in their Alternative 5 – Diverting Dolly Creek (Chapter 6.6). Streamflow calculations made by Dames & Moore were inconsistent with actual streamflow data collected prior to the development of the 1994 ROD. Actual streamflow data collected before the 1994 ROD suggested a diversion may not be necessary because the Dolly Creek flow was sufficiently low and steady to support a wetland over time. However, this data was collected during a relatively dry period. Moderate to low streamflows were recorded by the Forest Service from the beginning of monitoring in 1986 through the 1994 season. The Dolly Creek watershed is not typical of most watersheds in the area and does not fit typical runoff models until saturated conditions develop. These conditions are exceeded during very wet years and runoff amounts more closely match the modeled amounts. The 1994 ROD selected the wetland only alternative, with the understanding that if the wetland alone was ineffective in treating the Dolly Creek flow before being released to Little Grizzly Creek, the alternative to divert Dolly Creek would be selected (1994 ROD).

In contrast to the earlier drought period, the period since 1994 has generally been much wetter than normal. Even though Dolly Creek flows are not as high and variable as calculated by Dames & Moore, the flows have been shown to be too high and variable for proper wetland operations (Analysis of Surface Water Quality at the Walker Mine Tailings, USDA Forest Service, Plumas National Forest, Beckwourth Ranger District, 1986 – 1999; "Findings Summary" on the first page, p. 7, "Critical Observations" and charts 14, 21a & b). Streamflow data collected since 1994 indicate that diversion and control of Dolly Creek is necessary for proper anaerobic wetland operations.

(2) The State periodically (approximately every 5 years) updates WDRs in response to their own requirements and in response to the data and information collected during monitoring. The water quality limitations for water released from the Walker Mine Tailings Site were adjusted to meet the most recent requirements established by the Environmental Protection Agency (EPA) in

which the 4-day average formula for calculating the limitation has been refined (refer to Order No. 5-00-028, p.2 of the "Information Sheet" for the most recent equation).

ARCO seems to suggest that the 1994 ROD "Froze" ARARs and that the new WDR requirements can't be incorporated into the Revised Proposed Treatment Plan. Under Section 121(c) of CERCLA, remedial actions may be reviewed for adequacy. The Forest Service's proposed ROD amendment is authorized under Section 121(c) and 40 C.F.R.§300.430(f)(1)(ii)(B)(1) to Account for new ARARs promulgated after issuance of the original ROD.

(3) Treatment of the Site, the proposed alternative, requires that two types of wetlands be constructed. Dolly Creek would flow through first an aerobic wetland, constructed in 1994, for sediment removal and initial removal of contaminants, such as iron, followed by an anaerobic wetland for the removal of copper and zinc. As stated above, the Forest Service, in cooperation with the CVRWQCB, reviewed the outcome of the work accomplished at the Walker Mine Tailings Site through 1999 and concluded that the primary treatment, the anaerobic wetland, initially designed to be 10 acres, would not function properly with the uncontrolled flows of Dolly Creek flowing through it. Streamflow variability does not affect the functioning of the aerobic wetland. If the proposed diversion is installed, it would be prudent to test when and to what degree releases of contaminants from the tailings would be reduced to meet WDRs at the compliance station before further wetland design and construction is implemented. If it is determined that a wetland is needed, a controlled outflow of water from the diversion would be released to the constructed wetland for proper maintenance and operations. In either event, the diversion of Dolly Creek is necessary to help meet water quality standards.

(4) We agree that diverting water from Little Grizzly Creek to the anaerobic wetland may or may not be necessary. Until the diversion is complete and the anaerobic wetland is functioning and additional monitoring data is collected, it is unknown whether additional water will actually be needed. On the other hand, it is known that maintaining an anaerobic wetland will require more water during the summer months of dry water years than can be supplied by Dolly Creek alone. It is also known that Little Grizzly Creek does not always have surplus water available for diversion during dry years, since there must be sufficient in-stream flows in the channel to meet aquatic needs. Recognizing that there are contingencies associated with the diversion of Little Grizzly Creek, the inclusion of this in the Revised Proposed Treatment Plan was made contingent upon certain criteria.

III. <u>The Proposed remedy Changes are Premature. The Forest Service Should Not Revoke the 1994 Remedy Before Key Components Are Implemented.</u>

ARCO's comment briefly stated: *The work proposed by the 1994 ROD needs to be completed and evaluated before determining if additional remedies are needed.*

Forest Service response:

As stated above, flows from the Dolly Creek watershed are greater and more variable than the original Forest Service data indicated. Streamflow data collected after 1994 supports the higher

flow regime similar to that projected by Dames & Moore and, therefore, is not new information. The wetland system must operate in a relatively constant, steady state condition, to minimize hydraulic, vegetative, and substrate stresses. To do this requires a relatively constant inflow rate (Robert S. Hedin, Robert L. P. Kleinmann, and Greg Brodie, "1990 Course Notes" and references, "Constructing Wetlands to Treat Acid Mine Drainage", p. 10).

Additionally, groundwater data collected at monitoring well W-3, which is next to the outer boundary of the proposed anaerobic wetland, indicates that during dry months the groundwater elevation is several feet below the surface of the tailings even though surface water flows over the dam at all times (refer to the Annual Monitoring Report for 2000). This information along with the streamflow differences between R-1, above the tailings site, and R-2, below the tailings site, indicate that Dolly Creek in the area of the proposed anaerobic wetland is a losing stream. In other words, water seeps away from the channel in this area of the tailings during the dry months, rather than flowing from the tailings to the channel.

Based on current information, the anaerobic wetland in the 1994 remedy cannot adequately treat all of the water flowing through it and the wetland would probably not function as an anaerobic system during the summer months without a Dolly Creek diversion and control system.

IV. **The Proposed Plan Does Not Properly Factor in Certain Risks.**

ARCO's comment briefly stated: *(1) The 1994 ROD remedy calls for a wetland treatment system that could be jeopardized by the diversion of the Dolly Creek and Little Grizzly Creek. The proposed remedy would likely lower the water table, draining and damaging the proposed wetland and demand considerable study and operational oversight. There are no new risks at the Site which require a change in the remedy at this stage of the process.*

(2) There could be an adverse health risk to workers constructing the diversion works.

Forest Service response:

(1) The proposed wetland would not be jeopardized by the proposed diversion of Dolly Creek because water inflow to the wetland would be controlled and maintained up to the maximum capacity of Dolly Creek. Additional water from Little Grizzly Creek could be added if necessary to maintain water table elevations. Key to the diversion question is the need to control flows through the wetland. Updated information about the Dolly Creek flow regime shows that the timing and magnitude of the flows are too variable for proper wetland operations. The subsequent higher flow data is not new information, as it is consistent with the Dames & Moore projections. Without the diversion and controlled flows from that diversion to the wetland, as proposed, the wetland would be in jeopardy of rapidly filling with sediment and of not sufficiently removing contaminants. With the diversion, the amount of wetland necessary to treat the effluent from the tailings may be less than originally designed and would be expected to last much longer before requiring replacement. It is true that all this water works would require extra oversight and whenever a system requires a lot of human intervention over a long period of time, things can go wrong, therefore jeopardizing wetland health and operations.

Because Dolly Creek is a "losing" stream at the location of the proposed anaerobic wetland, it may be hard to maintain anaerobic conditions when it is most needed, during the dry months, even with the addition of Little Grizzly Creek water. The placement of the proposed anaerobic wetland is critical to collecting and treating most of the contaminated water. For this reason, the best location for the wetland is just above the tailings dam, where the loss of water from Dolly Creek to the tailings seems to be the greatest.

To remedy the situation (too much human intervention and a groundwater elevation lower than the wetland), the Dolly Creek diversion is required along with raising the tailings dam to help pond the water. The diversion would end just upstream of the tailings dam, supplying water that would have been lost to the tailings upstream to just the area occupied by the anaerobic wetland. The anaerobic wetland would be part of the backwater area created by this outflow and excess water during high flow months would flow over the tailings dam without flowing through most of the wetland. Water from Little Grizzly Creek would most likely not be needed and control of flows through the wetland would be passively controlled, eliminating most of the human oversight originally proposed. Even though water would still seep into the tailings from this area, the amount of water supplied is expected to be greater than that lost and the water surface higher than ground level. The details of this proposal still need to be worked out before implementation and additional data about water volumes and timing gathered.

In any event, Dolly Creek needs to be diverted around most of the tailings before proper treatment can be realized. Again, just diverting Dolly Creek around the tailings area may be sufficient to meet water quality requirements by itself, with no anaerobic wetland. If the tailings still release contaminated water to Little Grizzly Creek, then an anaerobic wetland is proposed to treat that water, but the volume of that water is expected to be much less than now exists (no diversion). For this reason, less than 10 acres of anaerobic wetland would probably be sufficient to treat the reduced amount of water released from the Site. Because the proposed anaerobic wetland would be within the slackwater area created by the diversion and the raising of the tailings dam, residence time for treatment would be increased, also contributing to the need for less anaerobic wetland area.

(2) In 1996, the Forest Service contracted with Ecology & Environment, Inc., to analyze the site for airborne hazards and to develop a monitoring and worker safety plan. SInce that time, all work at the site has followed a health and safety plan based on those findings and all future work is expected to also follow the plan, with no anticipated adverse health risks to workers.

V. **The Forest Service Proposal of a Single Remedial Alternative is Insufficient.**

ARCO's comment briefly stated: *The two alternatives presented in the revised plan are insufficient and other, more cost-efficient alternatives need to be included.*

Forest Service response:

The Revised Proposed Treatment Plan supplements the 1994 ROD and Proposed Treatment Plan where several alternatives were evaluated. The sole purpose of the Revised Proposed Treatment Plan is to propose the diversion of Dolly Creek, as in Alternative 3 of the 1994 ROD and the

1991 Dames & Moore report; this time with new and updated data and information. There are no other known, cost-efficient alternatives to be considered. Controlling water inflow to the wetland is a necessity with few, if any, options.

Appendix 5

California Regional Water Quality Control Board

Central Valley Region

Steven T. Butler, Chair

Winston H. Hickox
Secretary for Environmental Protection

Sacramento Main Office
Internet Address: http://www.swrcb.ca.gov/~rwqcb5
3443 Routier Road, Suite A, Sacramento, California 95827-3003
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Gray Davis
Governor

11 May 2000

Mr. Mark Madrid, Forest Supervisor
Plumas National Forest
P.O. Box 11500
Quincy, CA 95971-6025

PROPOSED TREATMENT PLAN FOR WALKER MINE TAILINGS, PLUMAS COUNTY

We have reviewed the 21 April 2000 *U.S. Department of Agriculture, Forest Service, Revised Proposed Treatment Plan for the Walker Mine Tailings Site*. The *Proposed Treatment Plan* proposes to complete the remedial actions prescribed in the 1994 Record of Decision with modifications. Specifically, the modifications include diverting Dolly Creek around the Walker Mine Tailings during periods of high flows to reduce erosion and sedimentation. Diverting Dolly Creek away from the Tailings will also reduce the volume of water requiring treatment through the passive wetland treatment system. The second modification described in the *Proposed Treatment Plan* includes diverting some flow from Grizzly Creek to operate and maintain the wetlands treatment system during times of low flows.

Waste Discharge Requirements Order No. 5-00-028 requires the Forest Service to divert Dolly Creek or take other effective action as necessary to improve water quality and reduce sedimentation in Dolly and Grizzly Creeks. The *Proposed Treatment Plan* is in agreement with the Dolly Creek rehabilitation requirements of Order No. 5-00-028. We concur with the concepts described in the plan and look forward to its implementation and success.

Order No. 5-00-028 also requires additional work to revegetate and control erosion for the remainder of the Tailings. While the *Proposed Treatment Plan* does not address this work, the Forest Service may want to include any modifications to the Tailings rehabilitation program with the revised *Proposed Treatment Plan*. Please note that a detailed workplan for both the Dolly Creek work and the Tailings rehabilitation is due to the Board by 1 November 2001 and implementation shall begin six months after Board review and approval. Please contact Patrick Morris at (916) 255-3121 if you have any comments regarding this facility.

JACK E. DEL CONTE
Supervising Engineer

cc: Ms. Rose Miksovsky, US Department of Agriculture, San Francisco
Ms. Frances McChesney, SWRCB, OCC, Sacramento

Appendix 6

Treatment
Walker Plan Public Response (Phone Conversa's in

5/4/2000
Norman Lamb ~~Revised~~ Plan + 1994 ROD
Copy of

5/9/2000: Jerry Sipe, Co. Envirn. Health.
He's reviewed the Revised Plan & has no comments.

Terry A. Bennett
DSC

Appendix 7

5/1/2000
1000

Phone Conversation

Jack Boise — lives along L. Grizzly
1 of 4 — bought in 1986

L. Grizzly Cr — fish in Cr (trout)
— ~~no~~ low fish or beetlies in past 5 yrs.
low pop.
dippers + merganzers - ok
(Low macro #s?)

remnant wood rail fence — next drive - white wood post on bridge

No other concerns with Little Grizzly Cr and no specific comments, positive or negative, about the proposed plan.

Terry A. Bennett
OSC

Exhibit 44

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2014-XXXX

ATLANTIC RICHFIELD COMPANY
UNITED STATES DEPARTMENT OF AGRICULTURE,
UNITED STATES FOREST SERVICE

WALKER MINE TAILINGS
PLUMAS COUNTY

UNITED STATES DEPARTMENT OF AGRICULTURE, UNITED STATES FOREST SERVICE'S RESPONSE

I. INTRODUCTION

The California Regional Water Quality Control Board for the Central Valley Region (Water Board) presented a proposed Cleanup and Abatement Order (CAO) to the United States Forest Service (Forest Service) to address mine tailings at Walker Mine Tailings Site (Tailings Site). For the reasons presented below, the Water Board staff's proposed enforcement action is misguided. In particular, the Water Board lacks jurisdiction over the Forest Service. In addition, the proposed enforcement action is untimely. The Forest Service respectfully requests that the Water Board refuse to issue the CAO proposed by its staff.

A. SITE HISTORY

The Walker Mining Company began operating the Walker Mine Complex in the early part of the Twentieth Century and actively mined copper there until 1943. The mining claims were located on the Plumas National Forest pursuant to the 1872 Mining Law, long before the Forest Service's active mining management program was created in the 1970s. Thus, the Forest Service had virtually no control over mining activities anywhere on the Walker Mine Complex, and it did not oversee the mining there.

As allowed under the Mining Law, Walker Mining Company began depositing tailing on Forest Service land in about 1920, and it continued doing so until the Mine Complex was abandoned in the 1940's. Ore from the Walker Mine was processed at the Walker Tailings Site, and the tailings were dumped into Dolly Creek, a small waterway flowing through the mine complex. The one-hundred-acre tailings pond was formed on the Tailings Site when the mine operators dammed the creek. That slowed down the flow of water enough to allow the tailings to settle out, instead of continuing down Dolly Creek and into Little Grizzly Creek.

B. RESPONSE ACTIONS

In the early 1990's, the Forest Service asserted its authority under the Comprehensive Environmental Response, Compensation, and Liability Act[1] (CERCLA) to clean up the Tailings Site. Well before that time, however, it began working with state agencies, including the Water Board, to clean up the environmental problems at the Tailings Site.

In 1994, the Forest Service adopted a CERCLA Record of Decision (ROD) and began remedial action. The work included channel erosion control, development of wetlands, revegetation, and additional wind erosion control.

The ROD was updated in 2001 to divert Dolly Creek through the tailings in a lined channel. That action eliminated the risk that the creek would erode tailings into the waterway, and this response action eliminated the seepage of surface waters into the tailings. Finally, it reduced the seepage of contaminated groundwater from the tailings pond into the creek. The remedial action at the Tailings Site is continuing at the present time, including work to eliminate any residual flows from Dolly Creek's original path.

In 2000, during the Forest Service's active CERCLA response action, the Water Board issued waste discharge requirements (WDRs) for the Tailings Site in accordance with the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan).[2] At the time that the WDRs were issued, the Forest Service objected to the Water Board's assertion of authority over the Forest Service. In 2001, the Forest Service incorporated the WDRs into the cleanup standards for the CERCLA cleanup.

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[1] 42 U.S.C. §§ 9601, *et seq.*

[2] Order No. 5-00-028.

II. ARGUMENT

A. FEDERAL SOVEREIGN IMMUNITY BARS ANY ENFORCEMENT ACTION BY THE WATER BOARD AGAINST THE FOREST SERVICE

The Water Board is precluded from enforcing the CAO against the Forest Service because Federal sovereign immunity has not been waived by Congress. Very much like the State of California itself, the United States is immune from suit unless it has waived its immunity.[3] Without Congress's prior consent, state courts lack subject matter jurisdiction over any claim against the United States.[4] Furthermore, waivers of sovereign immunity must be expressed unequivocally,[5] and statutory waivers of sovereign immunity are not to be liberally construed.[6] Ultimately, "[w]hen the United States consents to be sued, the terms of its waiver of sovereign immunity define the extent of the court's jurisdiction."[7]

The Water Board asserts authority in its opening brief under the Clean Water Act (CWA). Like most Federal environmental statutes, the CWA includes a waiver provision.[8] However, there are significant limitations to the waiver—both within the statute itself and in the case law.[9] Because the Water Board asserts that the "[t]he Tailings CAO is based in the Regional

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[3] *Dept. of the Army v. Blue Fox, Inc.*, 525 U.S. 255, 260 (1999).

[4] *Consejo de Desarrollo Economico de Mexicali, A.C. v. United States*, 482 F.3d 1157, 1173 (9th Cir. 2007).

[5] *United States v. Nordic Village, Inc.*, 503 U.S. 30, 33 (1992).

[6] *Id.* at 34.

[7] *United States v. Mottaz*, 476 U.S. 834, 841 (1986).

[8] 33 U.S.C. § 1323(a).

[9] We note that sovereign immunity not only prevents lawsuits entirely but also prevents enforcement of penalty assessments to those penalties "arising under Federal laws or imposed by a state or local court to enforce an order or the process of such court." 33 U.S.C. § 1323(a). Furthermore, while the Act authorizes civil penalties against "any person" in violation, the definition of "person" does not include the United States. 33 U.S.C. § 1362(5). Because there are no current penalties assessed against the Forest Service, we will defer any further discussion of these provisions until necessary.

Board's California Water Code and Federally-delegated Clean Water Act authority",[10] the Water Board must rely on the limited waiver of sovereign immunity within the CWA.

The waiver of sovereign immunity in the CWA has been interpreted narrowly by the United States Supreme Court. In *Department of Energy v. Ohio,*[11] the Court addressed the limitations of the waiver within the CWA and reaffirmed its canon of strict construction of waivers of sovereign immunity.[12] Finding that there was no waiver with respect to punitive fines for past violations of the CWA, the Court emphasized that text of the Act was not unequivocal, and it was unwilling to read more into the text than what was clearly required. [13]

The decisions of Federal appellate courts further demonstrate that the waiver of sovereign immunity in the CWA is limited to the extent of the Act itself. In particular, it does not waive immunity for all potential violations of a state environmental standard not foreseen by the CWA—especially not for alleged nonpoint source pollution.[14] Such a waiver is limited to the relevant requirements of a state's water quality program devised according to the provisions of the CWA, and unequivocally and uniformly enforceable against all entities. As described in more detail below, the Forest Service is not a discharger under the CWA. Therefore, the Water Board cannot enforce any state standard relating to point source discharge against the Forest Service.

In *EPA v. California,*[15] the Supreme Court indicated that state water quality "requirements" which might be applicable to the Federal government under the immunity waiver

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[10] Opening Brief at 4.

[11] *Department of Energy v. Ohio*, 503 U.S. 607 (1992).

[12] *Id.* at 635-6.

[13] *Id.* In so holding, the Court limited liability to only those 'coercive' penalties designed to induce compliance "with injunctions or other judicial orders designed to modify behavior prospectively. 503 U.S. at 613.

[14] *State of Mo. ex rel. Ashcroft v. Dep't of the Army*, 672 F.2d 1297, 1304 (8th Cir. 1982).

[15] *EPA v. California ex rel. State Water Resources Control Board*, 426 U.S. 200 (1976).

are intended to be objective, quantifiable limits and standards anticipated under the CWA.[16] Applying the Supreme Court's explanation, in *Romero-Barcelo v. Brown* the First Circuit held that the U.S. Navy did not violate Puerto Rico's statute which generally prohibited water pollution because a general prohibition was not specific enough to create a discernable standard under Puerto Rico's statutory framework.[17]

Similarly, in *State of Missouri ex rel. Ashcroft v. Dep't of the Army*, soil erosion resulting from construction of a dam by the Army Corp of Engineers did not constitute point source pollution as defined by the CWA, so the Eighth Circuit likewise held there was no violation of the CWA.[18] Further, the court held that the Federal agencies involved could only be accountable to the state water quality laws related to a discharge from a point source.[19] Therefore, since the Corps was not discharging a pollutant in violation of the Federal CWA, any claim under the Missouri Clean Water Law could not succeed.

This reasoning was affirmed by the Sixth Circuit in *U.S. v. Tennessee*.[20] In that case, the court recognized that Congressional amendments expanding the waiver language of the CWA to include procedural elements did *not* expand on the substantive issues that fall under the waiver. Because the dam was not a point source of pollution under the CWA, the court did not require the Tennessee Valley Authority (a corporation owned by the U.S. government) to comply with permitting requirements.[21] Thus, in a variety of circumstances, the appellate courts have held

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[16] *Id.* at 215 n. 28.
[17] *Romero-Barcelo v. Brown*, 643 F.2d 835, 847 (1st Cir. 1981), *rev'd* on other grounds.
[18] *State of Mo. ex rel. Ashcroft*, 672 F.2d at 1304.
[19] *Id.*
[20] *U.S. ex rel. Tennessee Valley Auth. v. Tennessee Water Quality Control Bd.*, 717 F.2d 992 (6th Cir. 1983).
[21] *Id.* at 997.

that, even when sovereign immunity has been waived, the waiver only goes as far as the Federal act containing the waiver provision and not beyond.[22]

B. THE FOREST SERVICE IS NOT ESTOPPED FROM OBJECTING TO THE PROPOSED CAO

Contrary to the Water Board staff's suggestion, the Forest Service has not been subject to the WDRs "for decades."[23] Nor is the Forest Service estopped from objecting to either the WDRs in prior orders, or the Water Board staff's proposed new CAO. Simply stated, the Water Board did not have subject matter jurisdiction over the Forest Service for its prior orders because only Congress can waive sovereign immunity, not the Forest Service's representatives who allegedly failed to object to earlier orders. And at least since the present CERCLA response action started in the early 1990's, the Water Board's earlier orders have faced the same CERCLA preclusion problems as the current proposed order. No doubt because the Water Board recognized its lack of authority for its earlier orders against the Forest Service, it did not attempted to enforce those earlier orders.

Further, the Supreme Court recognizes that "the Government is not in a position identical to that of a private litigant"[24] and approaches collateral estoppel against the government with extreme caution. The United States may not be subject to estoppel as to matters that would

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[22] The district court case which preceded Ashcroft stated, "The evidence in the case at bar establishes that operation of the hydroelectric generator at Stockton Dam involves the discharge of several thousand cfs of water into the river channel below the dam, and that the associated rise and fall of the water level in the river dislodges and carries away silt and other material defined as "pollutants" under the FWPCA. The Court does not, however, find that this phenomenon constitutes the "runoff of a pollutant" within the meaning of the [CWA]. This being so, the Corps' operation of the Stockton project is not subject to state and local water quality laws under § 3123(a) of the [CWA]." *Missouri ex rel. Ashcroft v. Department of Army, Corps of Engineers*, 526 F. Supp. 660, 678 (W.D. Mo. 1980).

[23] Opening Brief at 4.

[24] *INS v. Hibi*, 414 U.S. 5, 8 (1973).

establish jurisdiction in a suit to which the government has not consented.[25] A district court has authority to inquire at *any* time whether the conditions under which it may exercise its jurisdiction have been met.[26]

C. CERCLA PREEMPTS THE PRESENT ENFORCEMENT ACTION BY THE WATER BOARD

1. Section 113(b) provides exclusive Federal jurisdiction for any challenge to an ongoing removal or remedial action

Under CERCLA § 113(b), Federal district courts have exclusive original jurisdiction over all controversies related to CERCLA cleanups.[27] Although the Water Board has characterized its proposed CAO as independent of the CERLCA cleanup,[28] the enforcement action is still precluded. As the 9th Circuit has broadly declared in *Fort Ord Toxics Project, Inc. v. California Environmental Protection Agency*, "Congress used language more expansive than would be necessary if it intended to limit exclusive jurisdiction solely to those claims created by CERCLA."[29] The court further emphasized that "congressional intent is best effectuated by reading § 113(b)'s exclusive jurisdiction provision to cover any "challenge" to a CERCLA cleanup."[30] The court reasoned that it did not make sense to believe Congress intended to "preclude dilatory litigation in Federal courts but allow such litigation in state courts."[31] Any attempt to limit the language of § 113(b) in this manner "is inconsistent with the broad language used in §113(b)."[32]

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[25] *Peacock v. U.S.*, 597 F.3d 654 (5th Cir. 2010); see also *Andrade v. Gonzales*, 459 F.3d 538, 545 n. 2 (5th Cir. 2006).

[26] *Broussard v. United States*, 989 F.2d 171, 176 (5th Cir. 1993).

[27] 42 U.S.C. § 9613(b).

[28] Opening Brief at 4.

[29] *Fort Ord Toxics Project, Inc. v. California Environmental Protection Agency*, 189 F.3d 828, 832 (9th Cir. 2000).

[30] *Id.*

[31] *Id.*

[32] *Id.*

But in any case, as is explained in more detail below, the CAO is, on its face, a challenge to an ongoing cleanup. CERCLA's exclusive jurisdiction provision means that the Water Board and state courts lack the jurisdiction to resolve any claim brought here.

2. Section 113(h) of CERCLA prevents review of any challenge to ongoing cleanup actions

In addition to mandating exclusive Federal court jurisdiction, CERCLA prevents the Water Board from pursuing any challenge to the Forest Service's remedial action in Federal court until *after* the cleanup is completed. As noted above, the Forest Service continues to implement a remedial action at the Walker Tailings Site. To date, the Forest Service has performed over a million dollars' worth of cleanup work, and such action is ongoing. For example, the Forest Service and the California Dept. of Conservation are currently finalizing an agreement to work together to revegetate the tailings. The Forest Service is also working on a focused Feasibility Study for further remediation of groundwater and surface water.

Under § 113(h), "[n]o Federal court shall have jurisdiction under Federal law. . .or under State law. . .to review any challenges to removal or remedial action . . ."[33] As the Ninth Circuit noted in *McClellan Ecological Seepage Situation v. Perry* (*MESS*), § 113(h) was passed to protect "the execution of a CERCLA plan *during its pendency* from lawsuits that might interfere with the expeditious cleanup effort."[34] The court has also summarized the interplay of sections 113(b) and 113(h) as follows: "[Section] 113(h), by postponing the jurisdiction of Federal courts, postpones jurisdiction over challenges from the only courts that have jurisdiction to hear such challenges."[35]

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[33] 42 U.S.C. § 9613(h).
[34] *McClellan Ecological Seepage Situation v. Perry (MESS)*, 47 F.3d 325, 329 (9th Cir. 1995).
[35] *Fort Ord*, 189 F.3d at 832.

In an attempt to take advantage of a narrow exception to the jurisdictional bar of § 113(h), the Water Board's staff mischaracterizes the basis of authority for the cleanup action at the Tailings Site.[36] The Forest Service is conducting a remedial cleanup of a privately owned and operated mining site pursuant to § 104. The agency is not attempting to clean up a federally owned and operated facility, like a weapons plant, under CERCLA § 120.

CERCLA § 104 provides authority for the President to commence removal or remedial action to protect the environment.[37] CERCLA defines a removal or remedial action as "such actions as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances. . ."[38] "Removal actions are typically described as time-sensitive responses to public health threats. . . [r]emedial actions, on the other hand, are often described as permanent remedies to threats for which an urgent response is not warranted."[39] Even such preliminary action as commencing studies of a release site is sufficient to meet the burden under CERCLA.[40]

On the other hand, § 120 outlines specific rules for "remedial actions" on Federal facilities, like military bases or weapons production facilities or Forest Service work centers. [41] It is understandable that Congress would set up more stringent cleanup requirements where Federal agencies have made their own messes and might have an incentive to minimize their own problems. In the present case, however, the Forest Service never owned or operated the mine.

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[36] Opening Brief at 7 (the Board "does not concede that the ROD qualifies as a removal or remedial action selected under section 9604 or as an order issued under section 9606(a). . .because the ROD appears to be a remedial action pursuant to Section 120" (internal citations omitted).

[37] 42 U.S.C. § 9604(a)(1).

[38] 42 U.S.C. § 9601(23)-(24).

[39] *United States v. W.R. Grace & Co.*, 429 F.3d 1224, 1227-8 (9th Cir. 2005).

[40] See *Razore v. Tulalip Tribes of Washington*, 66 F.3d 236, 239 (9th Cir. 1995)(finding that the initiation of remedial investigation studies was sufficient to qualify as a removal action, even when the EPA still had the option of not conducting any additional clean up on the site).

[41] 42 U.S.C. § 9620(d)-(e).

Indeed, at the time the mine did operate, the Forest Service could not even regulate the tailings pond or the mine itself. The Forest Service's sole interest at the Tailings Site, just like for the Water Board, is to clean up the site for the benefit of the public.

Just as in *Shea Homes Limited Partnership v. United States*, the cleanup at the Tailings Site is a remedial action on a Federal property taken under authority of § 104 of CERCLA.[42] In that case, the court expressly declined to extend the narrow exception to the jurisdictional bar carved out of § 113(h) in *Fort Ord.* In *Fort Ord*, the EPA was conducting a remedial action on a Federal facility, namely a military base, listed on the National Priorities list under § 120. In that case, the court found that the jurisdictional bar of § 113(h) only applied to removal actions, not remedial ones, when taken pursuant to the separate grant of authority under § 120.[43]

Next, the Water Board overlooks the established Ninth Circuit case law interpreting the meaning of a challenge under § 113(h). Under the statute, "[n]o Federal court shall have jurisdiction under Federal law. . .or under State law. . .to review any challenges to removal or remedial action . . ."[44] Case law illustrates that the Water Board's action here is a challenge to an ongoing CERCLA cleanup, and enforcement action is precluded.

In this case, the Water Board's draft order itself shows that it is an attempt to take control of the CERCLA cleanup. First, it states that the Forest Service will pay the Water Board's past response costs, just like under CERCLA § 107. Second, the draft order requires the Forest Service to investigate, identify, and classify all sources of mining waste, just as it did in the Remedial Investigation it performed under CERCLA § 104. Third, the CAO requires the Forest Service to submit a series of plans to "remediate the site in such a way to prevent future releases of mining waste. . ." The Forest Service did exactly that in its Feasibility Study and by

[42] *Shea Homes Limited Partnership v. United States*, 397 F.Supp.2d 1194, 1202 (N.D. Cal. 2005).
[43] *Fort Ord*, 189 F.3d at 834.
[44] 42 U.S.C. § 9613(h).

implementing the RODs. In fact, there is nothing in the draft order that would not be found in a typical cleanup order for a CERCLA site. But most telling of all, the draft order even has a deadline to "complete all remedial actions," just as though the Water Board's CAO was for a CERCLA § 104 remedial action—*which, of course, it is.*

In *MESS*, the plaintiff brought claims under the Clean Water Act and the California Water Code (among others) for alleged violations during the pendency of an ongoing cleanup at a true Federal facility, namely McClellan Air Force Base. Relying on the plain text of the statute, the court found that § 113(h) "amounts to a blunt withdrawal of Federal jurisdiction" and refused to entertain "any challenges" to the cleanup, not just those brought under CERCLA.[45] In that case, plaintiffs sought to compel compliance with reporting and permitting requirements of RCRA. The court found that such "additional reporting requirements. . .would second guess the parties' determination and thus interfere with the remedial actions selected."[46] While not all suits constitute a "challenge," those that are "directly related to the goals of the cleanup itself" certainly do.[47] "What is dispositive [. . .] is the court's inability to fashion any remedy that would not interfere with" the ongoing cleanup actions.[48]

Although the Water Board attempts to bolster its authority because it is a state administrative agency,[49] the court in *MESS* (despite what the prosecution's opening brief suggests) specifically addressed this issue by stating § 113(h) "does not distinguish between

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[45] *MESS*, 47 F.3d at 328 (citations omitted).

[46] *Id.* at 330.

[47] *Id.* The court distinguished such suits from those that increase the cost of the cleanup without implicating the underlying goals of the cleanup, such as a dispute over minimum wage. Likewise, a suit involving only citizen's right to access information about a cleanup was not a "challenge" to the cleanup itself. *ARCO Environmental Remediation, L.L.C. v. Dep't of Health & Environmental Quality of Mont.*, 213 F.3d 1108 (9th Cir. 2000). However, even a constitutional challenge can implicate the remediation plan. *Broward Gardens Tenants Association v. EPA*, 311 F.3d 1066 (11th Cir. 2002).

[48] *MESS* at 331.

[49] Opening Brief at 8.

plaintiffs."[50] The court acknowledged that while this "may in some cases delay judicial review for years, if not permanently;"[51] the court held this was Congress' policy choice to make, not the court's.

Similarly, in *Shea Homes* plaintiffs were seeking injunctive relief to "improve" an ongoing cleanup. The court found that because the relief being sought was "plainly related to the goals of the clean-up," it was therefore a challenge for purposes of § 113(h). [52] Likewise, in *Razore*, the court rejected plaintiffs' attempts to compel action under RCRA and the CWA where EPA had commenced investigation of a hazardous waste site. The court denied jurisdiction because such action "attempt[s] to dictate specific remedial actions and to alter the method and order for cleanup."[53]

The Water Board staff's attempts to overlook the overwhelming and established circuit precedent and instead analogize to a Tenth Circuit decision involving an extreme situation must also fail. The factual and legal background in *United States v. Colorado*[54] was far different from the fact pattern here. In *Colorado*, the Tenth Circuit interpreted the applicability of the Resource Conservation and Recovery Act (RCRA) in the context of a CERCLA cleanup of extensive amounts of extremely hazardous waste on an Army-operated manufacturing plant for chemical warfare agents. Simply stated, there are no hazardous waste issues at the Tailings Site.

At the Rocky Mountain Arsenal, the Army produced both mustard gas and Sarin, the most potent nerve gas known, and in making these extremely toxic chemicals, the Army

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[50] *MESS* at 328.
[51] *MESS* at 329.
[52] *Shea Homes*, 397 F.Supp.2d at 1204.
[53] *Razore*, 66 F.3d at 239-240. *See also*, *Pakootas v. Teck Cominco Metals, Ltd.*, 646 F.3d 1214 (9th Cir. 2011).
[54] *United States v. Colorado*, 990 F.2d 1565 (10th Cir. 1993).

produced large quantities of liquid hazardous waste. Then the Army leased the facility to Shell Oil Co., where it produced huge quantities of pesticides and much more liquid hazardous waste.

Because the Army stored huge quantities of extremely toxic liquid waste at the Arsenal, it filed a RCRA permit application. By filing the permit, the Army qualified for RCRA's interim status regulations for impoundments and accepted the applicability of the RCRA interim status regulations at the Arsenal. The Army then filed Part B of its application, with a specified closure plan.

Of course, at the Walker Mine, the Forest Service never produced anything. Nor did it operate the facility itself. In addition, there are no hazardous wastes at the Tailings Site, so no one needs a hazardous waste permit for anything there. And even if they did, the Water Board does not have the authority to implement the State RCRA program.

In Colorado, at about the same time the Army voluntarily submitted itself to RCRA enforcement, the EPA authorized the state of Colorado to take over the RCRA program. When the state found the Army's plan deficient, it issued its own closure plan. Only then did the Army attempt to withdraw its existing RCRA permit application and substitute a CERCLA cleanup plan.

Under these extraordinary circumstances, the Tenth Circuit found that Colorado could continue to enforce RCRA while the CERCLA cleanup proceeded. But it is worth noting that the court declined to extend any special consideration to the state's position as a governmental entity. "[T]he language of § [113(h)] does not differentiate between challenges by private parties and challenges by a state. Thus, to the extent a state seeks to challenge a CERCLA response

action, the plain language of [§ 113(h)] would limit a Federal court's jurisdiction to review such a challenge."[55]

So the key question is what constitutes a "challenge?" The Ninth Circuit has answered that question by stating that a challenge can be best identified by the remedy being sought. Here, the remedy that the Water Board is specifically intended to improve upon the ongoing CERCLA cleanup. As in *MESS*, the Water Board seeks a remedy that cannot be separately addressed from the current remediation actions. Imposing such additional requirements would impede and interfere with the Forest Service's selected remedial actions, slow down response, and waste money. In essence, the Water Board's staff wants the Forest Service to finish its "remedial action" and then make it better by implementing another "remedial action," one that they dictate this time.

Finally, further evidence that the draft CAO is a direct challenge to the CERCLA cleanup comes from the fact that the only potential point source discharges alleged in the draft CAO are the "Diversion Channel Outfall" and the improperly named "USFS Dam." Both of these structures are essential parts of the CERCLA remedial action. The Forest Service is currently using these two structures to reduce metals loading into the waterways onsite.

In fact, the diversion channel was created as part of the CERCLA remedial action. It was designed specifically to keep Dolly Creek from being contaminated by mine tailings. The diversion channel is a lined ditch that safely transports the water flowing in Dolly Creek through the Tailings Site. Contaminated groundwater in and below the tailings can no longer leach into the creek, and creek water can no longer saturate the tailings and mobilize the metals there. In a

[55] *Id.* at 1576.

very similar situation, the United States Supreme Court recently held the outfall of the diversion channel does not constitute a point source discharge under the Clean Water Act.[56]

Second, the mislabeled dam referred to by the Water Board staff's in the proposed CAO was not created by the Forest Service. It was built almost a century ago by the mine operators who impounded the tailings to keep them from flowing down Dolly Creek. In the decades after the miners abandoned the Walker Mine Complex, various entities maintained the tailings dam to keep tailings from flowing down Dolly Creek, thereby improving the water quality in stream.

The dam has continued to serve that function since the early 1990's, when the Forest Service began the present remedial action. That is not to say the agency contemplates leaving the dam in place indefinitely. Now that the diversion channel has been finished, the flow of Dolly Creek no longer goes to the dam. Some water flows in that area occasionally, and Forest Service is currently evaluating in a focused feasibility study how to best eliminate the dam entirely.

D. THE FOREST SERVICE HAS NOT VIOLATED FEDERAL OR STATE WATER QUALITY LAWS BECAUSE IT IS HAS NOT DISCHARGED A POLLUTANT FROM A POINT SOURCE.

1. The Forest Service has not violated the CWA

As a preliminary matter, in order to be a discharger, a party needs to operate a facility in some manner, but the Forest Service never operated the Walker Mine or its tailings pond. The simple fact is, at this site, the Forest Service's activities are exclusively focused on cleaning up the Tailings Site for the benefit of the public. It emphatically is not operating, and has not operated, some kind of business or even a local Forest Service work center at the Tailings Site.

Further, the Forest Service has not discharged contaminants at the Tailings Site from a point source. In general, pollution from a mine site is not from a point source. U.S. Environmental Protection Agency specifically identifies acid drainage from abandoned mines as

[56] *Los Angeles County Flood Control Dist. v. NRDC*, 133 S.Ct. 710, 713 (2013).

a form of nonpoint source pollution, meaning that it is not included under the regulations for point sources.[57]

As noted above, the Water Board's staff has alleged that two structures the Forest Service is using as part of the CERCLA remedial action are point sources that it is entitled to regulate. Congress anticipated jurisdictional conflicts such as this, where historic structures need to be kept in place until a permanent remedy can be implemented. CERCLA provides several defenses for the entities actually performing cleanup to keep them from becoming liable as they work in the public interest.

For example, under § 107(d), "no person shall be liable. . .as a result of actions taken or omitted in the course of rendering care, assistance, or advice in accordance with the National Contingency Plan."[58] Similarly, § 119 provides that '[a] person who is a response action contractor with respect to any release. . .shall not be liable under this subchapter or under any other Federal law."[59] Furthermore, § 121(d) states, '[n]o Federal, State, or local permit shall be required for the portion of any removal or remedial action conducted entirely onsite, where such remedial action is selected and carried out in compliance with this section."[60]

In short, CERCLA acknowledges that cleanups like the one at the Walker Tailings Site may not always be quick and straightforward, and that management of such a site may require outside observers to exercise patience and flexibility as the cleanup proceeds.

That does not mean state agencies have no role in the CERCLA process. In this case, the Water Board properly promulgated stream standards for the creek. The Forest Service has not disputed the Water Board's authority to set those standards, and the latest ROD for the Tailings

[57] "What is Nonpoint Source (NPS) Pollution?" U.S. Environmental Protection Agency. Available at: http://www.epa.gov/owow/NPS/qa.html.

[58] 42 U.S.C.§ 9607(d)(1).

[59] 42 U.S.C. § 9619(a). This includes governmental employees under §9619(a)(4).

[60] 42 U.S.C. § 9621(e)(1).

Site incorporates those stream standards as some of the relevant and applicable cleanup goals for the Tailings Site. CERCLA provides the necessary flexibility that will allow the Forest Service to reach those goals, knowing that they may not be met until the cleanup is complete. Now is certainly not the time for the Water Board to second-guess the Forest Service's ongoing work.

2. Even if there were no CERCLA cleanup underway, the Water Board should not issue the proposed CAO

First, the Forest Service is not subject to enforcement of general planning documents. For example, in 1998, the Ninth Circuit determined that the U.S. Forest Service was not required to comply with Idaho's anti-degradation water policy.[61] In that case, the court did not apply Idaho's anti-degradation policy to the Forest Service's plan to sell timber because there were insufficient facts to determine if the state's policy had in fact been violated.[62] Most important, the court limited the enforcement of anti-degradation standards in that case to the Federal standard, as set forth in 33 U.S.C. § 1313 and 40 C.F.R. § 131.12.[63]

The Water Board is also attempting to enforce its Basin Plan and policies against the Forest Service. The WDRs "protect beneficial uses. . .[and comply] with water quality objectives (WQOs) and goals."[64] While the State has identified Dolly Creek and Little Grizzly Creek as "impaired water bodies" under the CWA,[65] it has not yet established a Total Daily Maximum Load[66] for those water bodies. These beneficial uses and WQOs merely provide guidance for remediation, and do not supply explicit standards uniformly enforceable against individuals or entities. The Basin Plan further suggests that standards created under its guidelines may never be achievable, and provides the vague guidance that "if restoration of the background water quality

[61] *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1153 (9th Cir. 1998).
[62] *Id.*
[63] *Id.*
[64] Order No. 5-00-028 at ¶ 15.
[65] Order R5-2014-XXXX at ¶ 29.
[66] Order R5-2014-XXXX at ¶ 30.

cannot be achieved, [the discharger should] abate the effects of the discharge."[67] These policies, guidance documents, and aspirational goals fall far short of an explicit, enforceable standard created under any Federally-delegated CWA authority. By extension, they also fall outside the waiver of sovereign immunity.

A second factor that proscribes the Water Board staff's proposed CAO is that Federal agencies have been accorded great deference when making the difficult policy decisions that affect the natural resources they manage. For example, when evaluating whether the Forest Service's determination to allow mine expansion would violate state water quality standards for selenium levels at a mine in Idaho, the Ninth Circuit again deferred to the agency.[68] The court reaffirmed that agency decisions need to simply be based on a "rational conclusion between the facts found and the conclusions made."[69]

Third, there have been cases where the Ninth Circuit has ignored clear violations of a state's water quality standards by a Federal agency.[70] For example, in *Nat'l Wildlife Fed'n v. United States Army Corps of Eng'rs.*, the court recognized that halting a dam project by the U.S. Army Corp of Engineers would run afoul of Congress' intent for dams to be built, and for the sake of avoiding only possible violation of a state statute, the court decided such a result was unreasonable, and it allowed the dam project to continue.[71]

In this case, the Forest Service does not believe it has violated any California law or regulation. The Water Board claims authority to issue the CAO under § 13304, which applies to "any person who has discharged or discharges waste…in violation of any waste discharge

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[67] Water Quality Enforcement Policy at 36.
[68] *Greater Yellowstone Coalition v. Lewis*, 628 F.3d 1143, 1149 - 50 (9th Cir. 2010).
[69] *Id.*
[70] *Nat'l Wildlife Fed'n v. United States Army Corps of Eng'rs*, 384 F.3d 1163, 1180 (9th Cir. 2004).
[71] *Id.*

requirement. . . .or who has caused or permitted. . .any waste to be discharged into waters of the state and creates. . .a condition of pollution or nuisance."[72] Section 13267 likewise applies to "any person who has discharged, discharges, or is suspected of having discharged. . ."[73] Liability is assigned to anyone who has discharged waste in violation of state laws, according to § 13350.

In other words, the Water Code limits liability to those who have discharged (or who threaten to discharge) waste, and the Water Code specifically defines a "discharger" as "any entity required to obtain a national pollutant discharge elimination system (NPDES) permit pursuant to the CWA."[74] An entity required to obtain an NPDES permit is one that discharges a pollutant from any point source.[75] The consistent use of this term throughout the Water Code demonstrates that these regulations are meant to apply to point sources of pollution only, not the nebulous standards of the Basin Plan.

Finally, in *Redevelopment Agency v. BNSF Ry.*, the Ninth Circuit Court of Appeals refused to hold a railroad company liable for soil contamination under § 13304 because, "[a]s explained in our nuisance analysis, the Railroads engaged in no active, affirmative or knowing conduct with regard to the passage of contamination through the French drain and into the soil. Therefore, the Railroads did not "cause or permit" the discharge under section 13304."[76]

This case is most instructive because the court recognized that the drain the railroads built was certainly the conduit through which the petroleum traveled to ultimately impair the soil, but because the railroad company was not responsible for the presence of the petroleum in the first place, it could not be found to have permitted discharge. In the district court case which preceded

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[72] Cal Wat Code § 13304.
[73] Cal Wat Code § 13267(b)1.
[74] Cal Wat Code § 13263.3(c).
[75] See 33 U.S.C. § 1362, which defines the phrase "discharge of a pollutant" and 33 U.S.C. § 1342, which describes the permit process required to discharge pollutants.
[76] *Redevelopment Agency v. BNSF Ry.*, 643 F.3d 668, 678 (9th Cir. 2011).

Redevelopment Agency, the court reasoned that "the "cause or permit" language [in § 13304] requires either an affirmative act or actual knowledge of the discharge."[77] Further, the same court determined that "prior owners of property are not responsible for gradual passive migration of contamination that took place during their ownership, because the migration is not a "disposal" under CERCLA."[78] Such active, affirmative, or knowing conduct does not necessarily require direct, physical discharge of waste by a party for that party to be liable; however, conduct must be sufficiently purposeful.[79]

Similarly, in *City of Modesto Redevelopment Agency v. Superior Court*, the court held that manufacturers of dry cleaning solvents and equipment were not liable for the actions of the cleaners who customarily dumped the waste into the sewer system. Because the solvents and equipment were not "designed to discharge waste in a manner that will create a nuisance, [nor did the manufacturers instruct] a user to dispose of wastes in such a manner,"[80] the manufacturers did not cause or permit the subsequent contamination.

E. THE FOREST SERVICE IS NOT SUBJECT TO ENFORCEMENT BECAUSE IT IS NOT AN OWNER OF THE TAILINGS

The proposed CAO broadly asserts that the Forest Service is named "as owner and as discharger under the current [WDRs]."[81] As explained above, the Forest Service is not a discharger under the WDRs, and is not subject to § 13304. Without a working definition of "ownership" within the Water Code, analogous case law helps illustrate that the Forest Service also should not be liable as an owner, even if a discharge occurred.

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[77] *Redevelopment Agency v. BNSF Ry.*, 2006 U.S. Dist. LEXIS 18319, 11 (E.D. Cal. Apr. 11, 2006). *Rev'd* to the extent that the railroads were found not liable for the contamination on appeal.

[78] *Id.* at 10.

[79] *Id.*

[80] *City of Modesto Redevelopment Agency v. Superior Court*, 119 Cal. App. 4th 28, 41-42 (Cal. App. 1st Dist. 2004)

[81] Opening Brief at 1.

Traditional mining law holds that when minerals are extracted from the ground, they become personal property.[82] And when, as here, the operator of a mine works to impound mine tailings and other material behind barriers, these actions demonstrate intent to retain ownership of the material, perhaps for re-milling at a later date.[83]

Beyond the implications of property law, a recurring problem on public land is that all sorts of personal property accumulates and interferes with other uses of the land by the public. But that does not mean the Forest Service becomes the *de facto* owner of any abandoned property. To prevent unlawful takings of private property and to provide due process for owners, the Forest Service has developed specific regulations for taking control of abandoned property. The regulations essentially provide a process to condemn the property left on the forest and clean up public land.[84] Those regulations provided notice and an opportunity to challenge any impoundment, and the Forest Service must follow that process to take control of the tailings. Needless to say, the Forest Service has not used that process to acquire the tailings in question in this case.

Similarly, courts have found that the Federal government does not automatically become an "owner" or "operator" under CERCLA merely by being the title holder to the land under an abandoned mine site. For example, confronted with this issue in *United States v. Friedland*,[85] the Tenth Circuit explored the notion of 'ownership" in the context of CERCLA's broad liability provisions, and found that bare legal title in the United States was not sufficient to impose owner liability under CERCLA.[86] The court began by reasoning that an unpatented mining claim is "a

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[82] *U.S., George B. Conway, Intervenor v. Grosso*, 53 LD 115, 125-6 (1930).

[83] *See Manson v. Dayton*, 153 F. 258, 263 (8th Cir. 1907); *State v. Superior Court*, 208 Cal. App. 2d 659, 665 (Cal. Ct. App. 1962).

[84] 36 C.F.R. §§ 262.12-262.13.

[85] *United States v. Friedland*, 152 F. Supp. 2d 1234 (D. Colo. 2001).

[86] *Id.* at 1244-1246.

unique form of property."[87] Federal law allows private parties to acquire exclusive possessory interests in Federal land for mining purposes.[88] The court concluded "[b]ecause unpatented mining claimants possess vested property rights (including the right to sell, mortgage, or inherit), are subject to taxation, and cannot be divested of their rights if they demonstrate substantial compliance with maintenance requirements specified in the mining law, I find that the United States is not an "owner" in the fullest sense of the term."[89]

F. ISSUING THE DRAFT ORDER WILL RESULT IN INCONSISTENT RESPONSE ACTIONS

The Water Board proposes to issue the draft CAO against both the Forest Service and Atlantic Richfield at the same time, for contamination at the Tailings Site. Even if the Water Board decides to issue the CAO to Atlantic Richfield alone, the CAO is barred by CERCLA's "inconsistent response" provisions.[90]

Under CERCLA § 122(e)(6), "[w]hen either the President, or a potentially responsible party pursuant to an administrative order or consent decree. . .has initiated a remedial investigation and feasibility study for a particular facility. . .no potentially responsible party may undertake any remedial action at the facility unless such remedial action has been authorized by the President."[91] The Forest Service is actively managing its CERCLA cleanup efforts on the site. The Water Board has no authority to impose additional standards or requirements on potentially responsible parties in the context of an ongoing CERCLA cleanup.

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[87] *Id.* at 1245(citing *Western Mining Council v. Watt*, 643 F.2d 618 (9th Cir.1981)).

[88] *Id.* (citing *United States v. Locke*, 471 U.S. 84, 86 (1985)).

[89] *Id.*at 1246; *see also*, *Coeur D'Alene Tribe v. Asarco Inc.*, 280 F. Supp. 2d 1094, 1133-34 (D. Idaho 2003); *United States v. Atlantic Richfield Co., Inc.*, No. CV-89-39-BU-PGH (D. Mont. Nov. 1, 1994); *Idaho v. M.A. Hanna Co.*, No. 83-4179 (D. Idaho Dec. 12, 1994).

[90] 42 U.S.C. § 9622(e)(6).

[91] *Id.*

III. CONCLUSION

The Water Board and the Forest Service continue to be concerned about the same ultimate issue—how to best clean up the Tailings Site. Like the Water Board, the Forest Service has expended enormous amounts of time and money at the Site, and the Forest Service continues to work there. Rather than work at cross purposes to the Water Board, the Forest Service respectfully requests that it be allowed to continue its remedial action unimpeded.

Exhibit 45

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2014-XXXX

ATLANTIC RICHFIELD COMPANY
UNITED STATES DEPARTMENT OF AGRICULTURE,
UNITED STATES FOREST SERVICE

WALKER MINE TAILINGS
PLUMAS COUNTY

CLEANUP AND ABATEMENT ORDER NO. R5-2014-YYYY

ATLANTIC RICHFIELD COMPANY

WALKER MINE
PLUMAS COUNTY

PROSECUTION TEAM'S RESPONSE TO ATLANTIC RICHFIELD COMPANY'S PREHEARING MOTION NO. 1

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I. Introduction

Discharger Atlantic Richfield's (ARCO's) Prehearing Motion No. 1 seeks withdrawal and dismissal of proposed Cleanup and Abatement Orders R5-2014-XXXX (Tailings CAO) and R5-2014-YYYY (Mine CAO) on the basis that the CAOs are an impermissible "challenge" to the Forest Service's ongoing CERCLA action at the Walker Tailings site.

This motion largely treads the path of the Forest Service's arguments regarding the Tailings CAO (Forest Service Response, pp. 7-15), and must fail for the reasons set forth in the Prosecution Team's Opening Brief (pages 5-9) and Rebuttal Brief (pages 4-5). For ease of reference, those reasons are restated below.

ARCO also argues that the Mine CAO is a challenge to the Forest Service's CERCLA action at the Tailings site because cleaning the Mine will somehow impair the remediation at the Tailings. Though creative, this argument must fail. The Forest Service's CERCLA action by definition applies only to the Tailings site, and the privately owned Mine site has never been subject to a CERCLA action. Moreover, the Mine site contributes copper and other waste to Dolly Creek, which flows to the Tailings. Cleaning the Mine can only help the Tailings.

II. Background

The Forest Service issued the CERCLA Record of Decision (ROD) for the Tailings in 1994, and amended the ROD in 2001. By its terms, the Tailings ROD applies only to approximately 100-acre tailings site located on Plumas National Forest land. (See ARCO Exhibit 145, Figures 2-3.) In 2005, ARCO and the Forest Service entered into a Consent Decree regarding the Tailings site. (PT Exhibit 12.) The Consent Decree defined "the Walker Mine Tailings Site" as "encompassing approximately 100 acres, located in Plumas National Forest in Plumas County." (*Id.* at p. 8.)

The Walker Mine site is separate from the Tailings site, about a mile away, located on nearly 800 acres of private property within the Plumas National Forest. (See Mine CAO, Findings at 1, Attachment B.) Although the Mine is located upstream from the Tailings along Dolly Creek, the CERCLA ROD does not address the Mine site at all. The Mine site has never been subject to any CERCLA action.

The Forest Service has been subject to Central Valley Water Board waste discharge requirement (WDR) orders for the Tailings since well before the initial ROD. The current WDRs are set forth in Order No. R5-00-028, which was adopted prior to the 2001 amended ROD, and after consultation with the Forest Service (see PT Exhibit 10 [Forest Service comments on proposed Order No. R5-00-028].)

Order R5-00-028 requires the Forest Service to comply with specific Receiving Water Limitations by 1 October 2008. (PT Exhibit 9, at p. 8.) To date, the Forest Service has implemented all or essentially all of the remedial actions described in the amended

ROD, but the remedial action remains open. The Tailings continue to discharge mine waste, notably copper, in violation of the Receiving Water Limitations set forth in WDR Order R5-00-028. The purpose of the Tailings CAO is to require the Forest Service and ARCO (as successor to the Mine operator) to act to stop the unlawful discharges from the Tailings site.

III. The Cleanup and Abatement Orders are brought pursuant to Water Code authority

The Mine and Tailings CAOs are brought under Water Code section 13304, which authorizes the Board to compel the Forest Service and ARCO to clean up and abate the effects of waste at the Mine and Tailings sites to prevent ongoing and threatened unlawful discharges of waste from the Mine and Tailings sites into Dolly Creek and Little Grizzly Creek, both waters of the state and of the United States. The CAOs are also brought under Water Code section 13267, which authorizes the Board to require technical reports from dischargers.

The Board's authority arises in part from federally-delegated Clean Water Act authority, to which the Forest Service is subject. (33 USC § 1323, subd. (a).) If the Forest Service fails to comply with the Tailings CAO, the Attorney General for the State of California may seek injunctive relief from the superior court. (Water Code § 13304, subd. (a).) If ARCO fails to comply with either CAO, the Board may seek administrative or judicial civil liabilities under Water Code section 13350 or 13385, and the Attorney General may seek injunctive relief.

IV. CERCLA does not preempt the Board's Water Code authority

CERCLA generally reserves authority of all federal and State laws regarding discharges of pollutants:

> Nothing in this chapter shall affect or modify in any way the obligations or liabilities of any person under other Federal or State law, including common law, with respect to releases of hazardous substances or other pollutants or contaminants....

(CERCLA Section 302(d), 42 USC § 9652, subd. (d).)

CERCLA specifically reserves State authority regarding discharges of hazardous substances:[1]

> Nothing in this chapter shall be construed or interpreted as preempting any State from imposing any additional liability or requirements with respect to the release of hazardous substances within such State.

[1] Including copper: 50 CFR § 302.4; 22 U.S.C. § 1317(a); 40 CFR § 401.15; Cal. Health & Safety Code § 25316(d).

(CERCLA Section 114(a), 42 USC § 9614, subd. (a).)

Moreover, CERCLA specifically allows states to enforce state cleanup laws against federal agencies at federal sites:

> State laws concerning removal and remedial action, including State laws regarding enforcement, shall apply to removal and remedial action at facilities owned or operated by a department, agency, or instrumentality of the United States....

(CERCLA Section 120(a)(4), 42 USC § 9620, subd. (a)(4).)

Where State standards have been incorporated into a CERCLA cleanup action, the State may – but is not required to – enforce those standards in federal court:

> A State *may* enforce any Federal or State standard, requirement, criteria, or limitation to which the remedial action is required to conform under this chapter in the United States district court for the district in which the facility is located....

(CERCLA Section 121(e)(4), 42 USC § 9621, subd. (e)(4) [emphasis added].)

CERCLA Section 113(h) limits certain challenges to ongoing CERCLA actions, but does not limit the Board's authority over federally-managed CERCLA sites:

> No Federal court shall have jurisdiction under Federal law other than under section 1332 of Title 28 (relating to diversity of citizenship jurisdiction) or under State law which is applicable or relevant and appropriate under section 9621 of this title (relating to cleanup standards) to review any challenges to removal or remedial action selected under section 9604 of this title, or to review any order issued under section 9606(a) of this title, in any action except [CERCLA-based actions]....

(CERCLA Section 113(h), 42 USC § 9613, subd. (h).)

V. The Tailings CAO is not a challenge to the CERCLA action at the Tailings

As an initial matter, the Prosecution Team does not concede that the ROD qualifies as a "removal or remedial action selected under section 9604" or as an "order issued under section 9606(a)" as those terms are used in Section 113(h), because the ROD appears to be a remedial action pursuant to Section 120, 42 USC § 9620. (See *Fort Ord Toxics Project, Inc. v. California EPA* (9th Cir. 1999) 189 F.3d 838, 833-34 [Section 120 remedial actions fall outside Section 104 and thus are not subject to Section 113(h)].)

However, even assuming for argument that the ROD does so qualify, the Tailings CAO is not a "challenge" to it, and the Board is free to utilize the administrative and judicial enforcement processes authorized under the Water Code.

a. ARCO ignores the plain meaning of the CERCLA reservations of authority

ARCO offers only a conclusory assertion that the specific reservations of authority in CERCLA Sections 114(a), 302(d), 120(a)(4) and 121(e)(4) cannot overcome the federal court jurisdictional limit in Section 113(h). In support, ARCO cites *Anacostia Riverkeeper v. Wash. Gas Light* Co. (D.D.C. 2012) 892 F.Supp.2d 161, 171, a district court case in which citizen groups brought suit in federal court under RCRA regarding a CERCLA site. The plaintiffs relied only on Section 302(d), the most general reservation of authority, which the court held could not overcome Section 113(h) in that case. The court made no findings regarding Sections 114(a), 120(a)(4) and 121(e)(4), because the plaintiffs were not a state agency seeking to enforce state laws. The specific reservations in those sections, particularly the specific reservation of State enforcement authority in Section 120(a)(4), are not subservient to Section 113(h).

b. ARCO ignores the holdings in *United States v. Colorado*

ARCO's attempt to distinguish the leading case, *United States v. Colorado* (10th Cir. 1993) 990 F.2d 1565,[2] is equally conclusory. In that Tenth Circuit case, the Army challenged Colorado's action to enforce provisions of RCRA which had been delegated to Colorado by the EPA. The Army argued that because its facility was the subject of an ongoing CERCLA remediation action, Section 113(h) barred Colorado from issuing an administrative compliance order regarding the facility under state law. Citing CERCLA sections 114(a) and 302(d), the court rejected the Army and held that "an action by Colorado to enforce the ... compliance order, issued pursuant to its EPA-delegated RCRA authority, is not a 'challenge' to the Army's CERCLA response action." (990 F.2d at 1575.) Moreover, the court held that Section 113(h) is not a bar because "Colorado can seek enforcement of the ... compliance order in state court" rather than in federal court. (*Id.* at 1579.)

The *United States v. Colorado* court took pains to assess whether the State's compliance order sought to halt or impair the federal agency's CERCLA action. The court found that the compliance order sought to ensure the federal agency's compliance with State law during the course of the CERCLA action, "[t]hus, Colorado is not seeking to delay the cleanup, but merely seeking to ensure that the cleanup is in accordance with state laws which the EPA has authorized Colorado to enforce.... In light of [CERCLA Sections 302(d) and 114(a)], which expressly preserve a state's authority to take such action, we cannot say that Colorado's efforts to enforce its EPA-delegated RCRA authority is a challenge to the Army's undergoing CERCLA response action." (*Id.*

[2] Prosecution Team Exhibit 11 is a courtesy copy of the *United States v. Colorado* decision.

at 1576.) "While we do not doubt that Colorado's enforcement of the final amended compliance order will 'impact the implementation' of the Army's CERCLA response action, we do not believe that this alone is enough to constitute a challenge to the action as contemplated under [Section 113(h)]." (*Id.* at 1577.)

It is hard to imagine a set of facts more squarely on point than those in *United States v. Colorado*. Like the Colorado compliance order, the Tailings CAO here does not seek to delay the cleanup at the Tailings. Instead, the Tailings CAO seeks to ensure that the Forest Service complies with the Water Code, including EPA-delegated Clean Water Act authority. While the Forest Service's compliance with the Tailings CAO will undoubtedly impact the CERCLA response action to some extent, it is difficult to see how requiring the Forest Service to comply with the California Water Code will impair the CERCLA action in any way. The Tailings CAO is designed merely to bring the discharges into compliance with the Receiving Water Limitations set forth in WDR Order 5-00-028, something which the Forest Service incorporated into the CERCLA ROD. In this way, the Tailings CAO is wholly consistent with the CERCLA action at the site.

The Board's position here is the same as Colorado's in *U.S. v. Colorado* – a state agency acting pursuant to state law to enforce a federal statute, under authority delegated to it by the EPA, against a federal agency operating a CERCLA site. Such actions are not "challenges" to ongoing CERCLA actions. Like Colorado, the Board is acting pursuant to state administrative procedures reviewable in state court without any need to seek redress in federal court. Section 113(h) does not bar the Tailings CAO.

c. ARCO's remaining cases are distinguishable because they involve citizen suits brought in federal court, and do not involve state agencies seeking to enforce federally-delegated state laws

The other cases cited by ARCO are distinguishable in that they involve lawsuits by private citizens or local agencies brought in federal court specifically challenging CERCLA actions. *McClellan Ecological Seepage Situation (MESS) v. Perry* (9th Cir. 1995) 47 F.3d 325, holds only that a citizens group could not bring Clean Water Act and other state claims in federal court for sites covered under a Department of Defense CERCLA action, as such claims amounted to a challenge barred under Section 113(h). *MESS* does not address the question presented here, namely, whether a state agency can issue an enforcement order under federally-delegated law to a federal agency operating a CERCLA site on federal land. (See also *Pakootas v. Teck Cominco Metals, Ltd.* (9th Cir. 2011) 646 F.3d 1214 [citizen suit brought in federal district court]; *Fort Ord Toxics Project, Inc. v. California EPA* (9th Cir. 1999) 189 F.3d 828 [same].) None of the cases address CERCLA's reservations of authority, and none involve federal challenge to state administrative action under federally-delegated state authority. Moreover, there was no way to assess whether any state-proposed action would challenge or impair the CERCLA action.

ARCO conveniently ignores unfavorable court decisions. In *Shea Homes Limited Partnership v. United States* (N.D. Cal. 2005) 397 F.Supp.2d 1194, the Northern District Court rejected a citizen group's attempt to rely in *United States v. Colorado*, noting that "*Colorado* is clearly distinguishable in that the Court premised its ruling on the fact that the party asserting the RCRA claim was a state, rather than a private party." (397 F.Supp at 1204.) Indeed, the federally-managed CERCLA site at issue in *Shea Homes* had already been the subject of San Francisco Bay Regional Water Board waste discharge requirements and a cleanup and abatement order, apparently without challenge by the federal agency. (397 F.Supp. at 1197.) (See Prosecution Team Exhibit 47 [San Francisco Regional Water Board Orders R2-1996-0113 and R2-2001-0113].)

VI. The Mine CAO is not a challenge to the CERCLA action at the Tailings

ARCO argues that the Mine CAO is a challenge to the Forest Service's CERCLA action at the Tailings, even though the Mine site is privately owned and not covered by Forest Service's CERCLA action. ARCO suggests that taking remedial action to restore water quality at the upstream Mine site will impair the CERCLA cleanup at the downstream Tailings, so nothing should be done at the Mine until after the Forest Service completes the CERCLA action in some distant future. (ARCO's Prehearing Motion No. 1, at p. 3.)

It defies all logic to suggest that making the inflow to the Tailings from the Mine *cleaner* would somehow impair the Tailings CERCLA action. Like the Tailings site, the Mine site is a significant source of copper and other waste to Dolly Creek, which flows from the Mine to the Tailings. Logic dictates that doing nothing at the Mine is the greater impairment to the Forest Service's actions at the Tailings, and the greater harm to the beneficial uses of Dolly Creek and downstream.

The Prosecution Team tends to agree with ARCO that the remedial actions at the Mine and Tailings should be coordinated to have greatest effect. That is why both CAOs are being brought together, and why ARCO is named to both.

VII. Conclusion

For the reasons stated above, the Central Valley Water Board should deny Atlantic Richfield's Prehearing Motion No. 1.

For the Prosecution Team:

ANDREW TAURIAINEN
Senior Staff Counsel
MAYUMI OKAMOTO
Staff Counsel
Office of Enforcement

Exhibit 46

REPORT

of the

Anaconda Copper Mining Company

For the Year Ended December 31st, 1918

Investments

During the year, your Company and its Subsidiaries added to their investments, expending the sum of $8,883,627.65 on this account. The principal items, aside from advances made to the South American Companies, for which your Company has received, or is entitled to receive stock of such Companies, issued at par, are the following:

(a) Walker Mining Company—On October 1, 1918, the International Smelting Company exercised its option on 630,000 out of a total of 1,250,000 shares of the Walker Mining Company stock.

This property is located in Plumas County, California, approximately 22 miles by wagon road from Portola, a station on the Western Pacific Railroad.

The holdings of the Walker Mining Company consist of 38 patented lode claims and 2 placer claims, all forming a compact block of ground.

The exploration of the property to the depth of 346 feet has been accomplished by two shafts. Drifts from these shafts have opened up a body of ore approximately 800 feet in length averaging 16 feet in width, and a grade of about 4 per cent. copper. Recent developments by means of diamond drill holes indicate an additional length of vein approximating 900 feet. There is still a considerable amount of unexplored territory.

The following construction and development program is now in progress:

Increasing capacity of concentrator to 200 tons per day.

Installation of a new tailings dam.

Installation of an aerial tramway 8.2 miles in length to handle concentrates to and supplies from the railroad.

Driving a crosscut tunnel from the concentrator site a distance of 3,500 feet to strike the extension of the vein, then following the vein to the shaft, a distance of 1,200 feet. This tunnel will develop the property to a depth of approximately 800 feet.

Additional housing facilities for employees.

Additional plant equipment in the form of electric hoist and small shops.

(b) Arizona Oil Company—On account of the necessity for protecting the fuel oil supply upon which the operations of the International Smelting Company, at Miami, depend, it was deemed advisable to purchase, jointly with the Inspiration Consolidated Copper Company, a tract of 160 acres of oil-producing land in the Bakersfield District of California. A corporation, known as the Arizona Oil Company was formed, and

title to the property was conveyed to it. The Oil Company has an authorized capital of $2,500,000, of which 16,320 shares, having a par value of $100.00 each, have been issued. Your Company and the Inspiration Consolidated Copper Company each owns one-half of the issued stock. The net investment of your Company in this stock amounts to $794,668.01. The transaction was consummated on May 21, 1918, since which date 329,622 barrels of oil were produced to December 31, 1918.

Finance

On December 31, 1918, the Directors of your Company authorized an issue of $50,000,000 10-year secured gold bonds. $25,000,000 of said bonds, designated as Series "A", bearing interest at the rate of 6 per cent., were issued on January 2, 1919. Full details of the transaction were embodied in a circular letter of the Chairman of the Board, addressed to the shareholders of the Company, under date of January 2, 1919, to which reference is made for your further information.

Financial Condition

Attached hereto you will find a consolidated balance sheet showing the financial condition of the Company, and its Subsidiary Corporations, at the close of business, December 31, 1918, and an income statement for the year, both certified to by Messrs. Pogson, Peloubet & Company, Certified Public Accountants.

JOHN D. RYAN,
Chairman of the Board.

New York, N. Y., May 5, 1919.

Exhibit 47

WALKERMINE - 1943

Walkermine was not being operated during World War II, but was being maintained so that operations could resume, if feasible, at a later date.

We visited the caretaker, Parnell "Red" Sisk, and his family for several days in October, and toured the mine with Red as he went about his caretaking duties.

The mine trolleys provided seating for four to six passengers and pulled one or more additional cars. The cars being pulled on our trip were used for hauling out rocks which had fallen into the tunnels. The alternating current delivered to the mine was converted to direct current for trolley operation by a transformer located at the mine site.

Our host and guide told me that the patches of concrete on the tunnel walls sealed valuable deposits of gold that were being saved for later mining, and I made plans to return with a pick; my husband discouraged dreams of riches when he told me that the concrete was only for support of tunnel walls and that Red was taking advantage of my gullibility.

My gullibility could have inspired the story about the grizzly as well. And for this story, it is my husband who claims to know a former Walkermine employee who quit in some haste when he was told to free the Grizzly. "I ain't turning no damn bear loose," was quoted as his parting remark.

The mine grizzly was located in the highest building on the mountain and was fed large pieces of ore by elevator. The large pieces of rock were "chewed" into smaller pieces by the grizzly, which occasionally became clogged and had to be freed by a charge of dynamite.

Unfortunately, there is no doubt about the truth of a collision of a trolley loaded with explosives entering the mine with a trolley carrying miners who were leaving; we saw the scars on the tunnel intersection, and were also shown the basket. The basket, standard equipment in underground mines, is divided into sections for re-assembling bits and pieces of a human body - a bit of left arm in one part, right thigh in another, torso in the center section,etc.

In above-ground locations we saw the tram cable around a wheel about fifteen feet in diameter, and the tram itself on a supply trip from Spring Garden.

The ball mill was especially interesting to us because of a feeling for the power of the rock. The mill, a large revolving tank, was used to break the ore into smaller pieces by collision with iron balls. The balls weighed about twelve pounds when put into service and became progressively smaller with use with some, still spherical, reduced to the size of a small marble and weighing less than an ounce.

The ore sample collection was also impressive, and indicated to us that the samples were a catalog of the composition of every cubic foot of the mountain. The samples were on diamond drill cores in boxes 6 to 8 inches wide, 2 to 3 inches deep, and 15 to 20 feet long.

The Walkermine area in October is beautiful with autumn color and we enjoyed having a complete town for ourselves, with long hikes in the day and uninterrupted bridge games in the evening. Our hosts used the superintendent's house as a guest cottage, and it wasn't a bad place to stay if one didn't have to worry about running a mine. We enjoyed the living-on-top-of-the-world feeling even more because of the contrasts with the anxieties, tensions, shortages, restrictions, and general run-down grubbiness of San Francisco and of most places in the "real world" in wartime. We found a rare tranquility in an uninhabited town which is only waiting.

Walkermine, as it turned out, was waiting to be dismantled and to be remembered only by nostalgia buffs.

Reminders of the mine in Portola include a number of houses that were purchased at auction and moved to north side lots; one of the houses was occupied by Dubby and Edith (Joy) Hardy and their infant daughter (now Diane Angel) when Edith was killed, apparently because of gases from a defective or inadequate heating system, in 1952. A smaller building, attached to a section of old army barracks, was the residence of Bud and Norma Janes when Bud, now an Appellate Court Justice, first began the practice of Law. Other converted Walkermine houses are now occupied by Nelda Whitenton and by Hank and Monica Sproul.

Walkermine as a going operation would be remembered by Vic Dods, a Western Pacific Railroad conductor in Portola, who worked at the mine for a time in the 1930's. The mine and miners should also be remembered by Edith Austin who, with her husband, the late Tom Austin, operated the Red Feather, and by Norma Peterson who played the piano there - and by Roy Mitts and Snap Applegate who tended bar and dealt twenty-one at the old HM&J Club, and by a number of other long-time residents of eastern Plumas County.

Marcile

Marcile Nielsen

Gil Luman Interview

Gil Luman worked at Walkermine during the years of 1928 and 1929. He was employed as mill hand (lumber), logger, and recreation aide.

The community of Walkermine was almost self-contained. It contained a saw mill, foundry, blacksmith shop, and machine shop. Groceries were shipped in via the tram way. The saw mill cut all of the mine logging, and lumber used in the stuctures, and the timbers used in the construction of the tram towers. Many of the parts, such as bearings, were manufactured in the foundry and machine shop. This was very necessary as the only mode of travel during some of the winter months was the tram.

Logging was done with a steam donkey; this method of logging was similar to the present day high lead method of logging. The logs were ground skidded by cable to a landing below the donkey. The logs were conveyed by truck and flume to the sawmill.

The mill was a 36" circular mill. Two 36" opposed vertical circular saws cut the lumber. (Indications are that some of the lumber was sold commercially.)

A man by the name of Ralph Gil was the donkey puncher (operator). He was Gil Luman's immediate supervisor when he was logging.

As a recreation aide Mr. Luman's immediate supervisor was Wayne Braden. He coordinated baseball games and other sporting events. Wayne Braden's father was the sheriff of Plumas County at that time. A sister of Wayne Braden, Evelyn Braden, resides in Quincy. She drives the taxi cab. Wayne Braden was killed at the Engel Mine. It was suspected that he was killed by his partner during an argument over finances.

An explosion occurred at the mine during the '30's that killed seven to nine men. An ore car loaded with the explosives hit either one side of the adit or the side of the tummel. Mr. Luman could recall the accident but it was not too clear as he was not working at the mine at that time. (Interview with Roy Harrison indicates that the car hit the adit. Mr. Harrison was called on to identify the bodies.)

At the time Mr. Luman worked there the village at Walkermine supported a hospital, a grade school, and high school. He did not remember when their construction took place. Prior to construction of the high school the high school students were boarded out, probably at Portola, to get their high school education.

All communities such as the one at Walkermine contained local colorful characters. One of them was Art Erickson, also known as The Flying Swede.

On one of the trips the Flying Swede got drunk and fell approximately 30 feet to the snow where he remained for a considerable length of time before he was found. Mr. Luman and two other men towed him out via snow shoes and tobaggan, about a four mile trek.

Mr. Luman stated that skilled labor was $5.50 per day for a ten hour day. One dollar a month was retained to pay the compensation doctor who visited the camp once a month.

It was pointed out by Mr. Luman that both the Engle mine and the Walker mine produced enough gold to pay for their operation.

The miners worked under relatively safe conditions considering that during that era safety was not a major concern. Occasional cave-ins occurred, and the previously mentioned explosion that killed seven to nine men. The greatest concern was the mis-fires of explosive charges. A series of charges were set to go off almost simultaneously. Since black powder fuses and caps were used, one could count the explosions and determine whether all of the charges were exploded. Needless to say, misfires produced nervous disorders, frustration, and, in some instances, temporary insanity - that is, for the person or persons who had to locate and render harmless the unexploded charge. Overall, Walker mine retained a good safety record throughout its years of operation.

Frank and Johnny Sobrero worked at Walkermine. The Sobreros are still residents of Plumas County. The Sobreros had a baseball team in the family.

Midway House on Little Grizzly Creek and Willow Glen, near Portola, were the whore houses that were most used by the Walkermine male population. They were the primary source of illegal liquor. Many of the cafes had speakeasies in back where liquor was sold. Most of the illegal liquor was manufactured in Butterfly Valley.

Mr. Luman salvaged lumber from the structures at Walkermine.

INTERVIEW - LOUIS S. RICHARDS

Mr. Louis S. Richards lived at Walker Mine from 1921 to 1927. He was ten years old when he and his family moved away. His dad, Samuel Richards, was foreman in the blacksmith shop. He had previously been employed by the Ingersol Rand Corporation in Tonopah, Nevada.

Employees, in order to be employed, had to sign term contracts. If employees resigned or quit prior to completion of term, there were some consequences. One was that they had to furnish their own transportation out of Walker Mine.

Harry Murphy was the foreman of the Crusher Mill. He was an uncle of Louis S. Richards.

The blacksmith shop housed the foundry and machine shop. Iron and steel was shipped in in bar form. Most of the small and many of the large replacement parts were manufactured there.

The ore concentrates were hauled from a railroad siding at Spring Garden. From there it was shipped by train to the Anaconda Copper Company refinery near Salt Lake City, Utah for the final stage of refining.

Shoeing the draft horses that were used for skidding logs was one of the many duties of the blacksmith. While Samuel Richards was shoeing one of these horses, the horse bit him. Mr. Richards immediately punched the horse in the vicinity of the head and killed him.

The cabinet maker at Walker Mine was a lookout on Mt. Ingalls during the summer months.

The community of Walkermine was recreation minded. The community had a baseball team that played in most of the communities in Plumas County. A ski tow was constructed near the community. A tennis court was constructed from 4"x4"x4" wooden blocks. They were set in sand with the grain end up and the lines painted on. Children were not allowed on the court.

I lived in Walker Mine from 1931 until 1941

As I was very young when we moved to Walker Mine, there are naturally many things I can't remember, but the memories I do have are happy ones.

My parents, brothers and sister all thought the mine was a great place to live.

They had a school for grammer and high school students. The library was also in the same building.

The company owned houses were mostly small one or two bedrooms, kitchen, bathroom each with a small shed built on the back of each cabin for wood. Electricity was provided for each house but wood was used for heating and cooking purposes. It was a back breaking job in those days to get enough wood for the long, cold winters. There were at least 130 houses, four bunkhouses for the bachelors, grocery store, post office, ice cream parlor and a movie house which showed movies 3 times a week, a hospital, recreation hall. Also about 60 private homes. At one time at least 600 people were employed at the mine when it was in full operation. Walker Mine was ranked as a major copper producer in California.

Even though Walker Mine was such an isolated community you never felt the lack of anything since it could provide almost everything.

The tramway running from Spring Garden over the mountains to Walker was nine miles long, carried everything needed especially in the winter when the roads were blocked by the heavy snows. There was no way of getting out except by the tramway.

It was a wonderful place to live, as year around there was something to do for the children, sliding skiing, toboggoning in the winter, hiking, fishing in the summer. The company even built a small ski-lift for the residents.

So it was a sad day for me when the mine closed in the fall of 1941. When the pumps and other underground equipment were removed I knew it would be permanent. The company said the (sic) could no longer operate it profitably with the price of copper at 12 cents a lb.

/S/ Elaine Mills
Quincy, Calif.

November 20, 1974

2360 Recreation - Special Interests

Walker Mine Tramway

I lived at Walker Mine between 1921 and 1927. I was a young child at that time, but these are some of my recollections of Walker Mine.

Most of the people who lived and worked at Walker Mine were of an age that might be called young adults. As a result, the interests of the people were those things which this age group liked. During the summer months, there was always groups of adults playing out of doors, playing such games as run sheep run, baseball, etc. During winter, there was always groups skiing, sledding or having card parties in the community hall. Also there were motion pictures once a week and at Christmas time the school children put on an entertainment with a play and carols. The management of the mine provided gifts for all of the children in the camp. Many of the older children used Little Grisley Creek for swimming. They constructed a small dam on the creek above the tailings pond; this formed a small lake and provided a swimming area. There were many people who spent the evenings fishing in the many creeks in the area and in the fall there were many deer and bear taken by the hunters.

Some of the names of the people who were there at that time were Mr. Geisendorfer and Tunnell. They were the managers of the mine. Mr. S. Richards, Foreman of the shops. Mr. H. Murphy, Foreman of the mill. Mr. C. d'Arrieta was the Mine Engineer. Others were Mr. Studebaker, Mr. Cox, Mr. Smith, Mr. Burke, Mrs. Hanavan was the school teacher. There was only one school room and all grades were taught by one teacher. Those children of high school age were boarded in Quincy or some other city in the Sacramento Valley and attended school there.

There were many unmarried men in the camp and they lived in the bunk houses and were fed at a mess hall, although some of the women would take in boarders and provided homecooked meals. The company did not provide firewood or coal for the families so many of the summer evening hours were spent in gathering firewood for use during the winter.

Winter at Walker Mine was very rigorous. There was no road into Walker Mine so that all food, mail and freight had to be brought in over the tramway. Also anyone wishing to come into or out of the camp was forced to use the tramway.

The tramway was nine miles long, it ran in a straight line from Walker Mine to Spring Garden on the Western Pacific Railroad, which

at that time was the only way out of the area, as the Feather River Canyon Road had not been built yet. The tramway consisted of two sets of cables. The carrier cable was 1 1/4 inches in diameter and the moving cable was 3/4 inches in diameter. The cables were held off of the ground by a series of towers which were spaced in most places about one hundred to two hundred feet apart. The height of the carrier cable above ground was usually twenty to thirty feet above ground. It took three and 1/2 hours to go the nine miles. The buckets which carried the ore concentrate were spaced about 75 feet apart but when a passenger was carried the spacing between the ore bucket and the passenger car was one hundred and fifty feet. There were several canyons which the tramway crossed. The spans were up to 1/2 mile wide and the carrier cable was up to 1500 feet above the floor of the canyon. The passenger cars were constructed like a metal box 4 feet by 3 feet square with three side walls 1 foot high. The fourth side was a round bar. The passenger sat flat on the floor as there was no bench or seat. Passengers were only carried during daylight hours, even so it was a rigorous ride. You put on all the heavy clothing you could find and then wrapped up in a couple of blankets and still you were paralyzed with cold by the time you arrived at the mine or Sping Garden. Winter time closed in usually about the last of October and the road to Portola was closed until the last of April or middle of May. The snows in the area were always very heavy and deep, up to sixteen to twenty feet deep and in some places the buckets of the tramway dragged through the snow. The miners who worked at Walker signed contracts to work for certain lengths of time, usually one year. Those who became dissatisfied either had to ski out or take the tramway, either way was very hazardous. These people usually left at night. They would walk out of camp some distance, then climb one of the support towers and grab a ride on one of the ore buckets. This usually cost them their life because they were not familiar with the construction of the various support towers. When the tramway approached a large span such as across one of the canyons, there was a tower called a tension tower. The clearance through these towers was not the same as the others and the person who was riding the ore bucket was swept off and usually badly injured; he was dropped into the deep snow and usually lost his life. He may have not been missed for a day or so, so that no one started to look for him for several days. The company employed a group of people who were called tram riders. These people rode the tram every day and knew how to get through these tension towers. They were used to inspect the towers and cables. These people usually found the bodies of those who were knocked off the tram.

The drill steel used in the mine was brought in over the tram and some of the steel was very long and it would often hang up on drifts of snow or bushes and cause the carrier basket to be pulled off the cable. This would cause a shutdown and it would take up to two weeks to hike out to the area of the accident and get it repaired.

The company maintained a grocery store which was open only about three hours per day. It was also the post office, so that the time when it was open was usually the camp social hour.

At the time of our arrival at Walker Mine, my brother and I and two other children were the only children living there; by the time we left, there were about 75. Before the camp closed, there were even enough that Plumas County provided a high school for the camp.

The camp had a baseball team which played in a league consisting of teams in Portola, Greenville, Mohawk, Taylorsville and Loyalton and Engle Mine. The games were played on Sunday and most of the camps families would form a caravan and go to the game and then have a picnic supper on the way home in one of the small meadows in Grizzley Valley. There was a farmer from the Sacramento Valley who used to bring a truck load of watermelons to the camp. The people usually bought him out and then everyone would have a hot dog and bean dinner at Lovejoys old farm with the watermelon as dessert. As in most cases when everyone had eaten their fill there was usually about half of the load of watermelon left and someone would grab a melon, break it open and wash someone else's face with it. This usually caused a free for all, with people being chased all over the valley. Someone would be thrown into the creek and then more, the women as well as men, and kids really had a good time at these picnics.

The company had a contract with a man who operated a saw mill at the camp. He supplied the mill and mine and also all the lumber used in the building of the homes at the camp.

When I first came to the camp, there was only three or four houses, one bunk house, a small hospital, the store and mess hall and a barn. The homes were built of wood and covered with tar paper. Later regular houses were constructed.

The camp was built in a natural saucer shaped valley. The mine and mill were constructed on the northwest side; the store, hospital, bunk houses, mess hall, sawmill and barns were northeast side and all the homes were on the southwest side. In the center was a large flat which was an old tailings pond from the mill. This was used as the baseball diamond and play area of the school. The tram house, offices, school and hall were constructed on the perimeter of the flat between the mine, mill and the homes. On the southeast was a long slope which was free of trees and was used by the people for skiing and tobogganing. Back of the saw mill and store was a long sloping meadow that was swampy in summer but was ideal for starting skiing. During the winter, the snow would accumulate up to 16 to 20 feet deep on the flat. As a result, there were trails across the flat to the store, the mine and mill and the tram house from the houses. These trails would be very narrow and have walls of snow

sometimes as high as 12 to 14 feet. Most of the houses were built up off of the ground. I remember that our house had 16 steps up to the front porch and during winter only one or two would be above the snow.

After I left Walker Mine, the road to Genesee was built.

There was extensive logging operations in the Big Grizzley Valley area. A railroad was built to haul logs from Big Grizzley Valley to a mill on the west side of the valley and to the big mill at Deleker near Portola.

During the time I lived there, there were several large forest fires in the area, some caused by the logging operations and some from summer lightning storms.

There was considerable wildlife in the area, notably deer, bear, mountain lion, marmots coyote, squirrels, chipmunks and various birds, robins, blue jays, sparrows, night hawks, eagles, chickadees and snow birds, orioles, and mountain canaries, grouse, quail and black birds.

Because I was rather young at the time I lived at Walker Mine, it is rather difficult remembering the names of all individuals who resided there at that time. In addition to those mentioned before, here are a few more: Mrs. S. Carter, a surveyor known to me as "Red" Neff, Mr. S. Burt and several of the Sobrero family of Plumas County. Mr. R. McCarthy was Foreman of the Machine Shop.

I hope the above recollections can be used by you. If needed, I could possibly draw some rough sketches of the tramway, towers and buckets. There is a possibility that at a later date I may be able to come up with some old photographs which could be copied and used by you.

I am retiring in May of 1975 and plan to be residing at Lake Almanor on a permanent basis after that time. Util then, I can be contacted at either 521 Laurel Ave., Apt. 3 Pinole, CA 94564 or through J.O. Richards of 830 East Mountain Ridge Rd., Lake Amanor Peninsula, CA 96137.

Sincerely yours,

LOUIS S. RICHARDS
521 Laurel Ave. Apt. 3
Pinole, CA 94564

Exhibit 48

DECLARATION OF ANDREA HAMILTON

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2014-XXXX

ATLANTIC RICHFIELD COMPANY
UNITED STATES DEPARTMENT OF AGRICULTURE,
UNITED STATES FOREST SERVICE

WALKER MINE TAILINGS
PLUMAS COUNTY

CLEANUP AND ABATEMENT ORDER NO. R5-2014-YYYY
ATLANTIC RICHFIELD COMPANY

WALKER MINE
PLUMAS COUNTY

I, Andrea Hamilton, declare as follows:

1. I am the Library and Information Resources Manager for Davis Graham & Stubbs LLP. I have held this position since August 16, 2012 when I was promoted from a position as Research/Reference Librarian for Davis Graham & Stubbs LLP. I hold a Master's degree in Library and Information Science.

2. In my work as the Library and Information Resources Manager for Davis Graham & Stubbs LLP, I regularly use electronic databases to search for information about whether a particular individual is living or deceased and, if living, what past and current addresses are associated with that individual. In making such searches, I use the individual's name combined with any other identifying information, such as a location where the individual was presumed to be living during a particular time period.

3. On February 7, 2014, I searched the LexisNexis Comprehensive Person Report database for information related to the individuals mentioned in paragraphs 4 through 8 below. I included as an additional criteria to my search that the individual lived in California at any point during their life.

4. Elaine P. Mills: My search results located an Elaine P. Mills with address records in Plumas County, California. Based on these records, Ms. Mills appears to still be living.

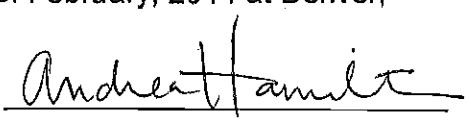
5. Marcile A. Nielsen: My search results located a Marcile A. Nielsen with address records in Plumas County, California. Based on these records, Ms. Nielsen is deceased as of April 23, 2005.

6. Gilbert W. Luman: My search results located a Gilbert W. Luman with address records in Plumas County, California and Deer Lodge County, Montana. Based on these records, Mr. Luman is deceased as of July 22, 2008.

7. Roy A. Harrison: My search results located a Roy A. Harrison with address records in Plumas County, California. Based on these records, Mr. Harrison is deceased as of September 15, 1988.

8. Louis S. Richards: My search results located a Louis S. Richards with address records in Plumas County, California. Based on these records, Mr. Richards is deceased as of November 27, 2001.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed this 20th day of February, 2014 at Denver, Colorado.



Andrea Hamilton

Exhibit 49

GERALD R. JOHNSON, ESQ.,
1100 California State Life Bldg.,
Sacramento 14, California.
Attorney for Trustee.

IN THE UNITED STATES DISTRICT COURT IN AND FOR THE DISTRICT OF UTAH
CENTRAL DIVISION

IN PROCEEDINGS FOR THE REORGANIZATION OF A CORPORATION

In the Matter of

WALKER MINING COMPANY,
Debtor.

No. B. 16087

BRIEF STATEMENT OF TRUSTEE'S INVESTIGATION (ETC.) PURSUANT TO SECTION 167(5) OF THE ACT OF CONGRESS RELATING TO BANKRUPTCY

Willard H. Davis, Trustee of the Walker Mining Company, a corporation, the above named debtor, hereby submits a brief statement of his investigation of the property, liabilities and financial condition of said debtor, the operation of its business and the desirability of the continuance thereof.

PROPERTY OF DEBTOR

The property of the said debtor consists of extensive mining ground in Plumas County, State of California, where all of its mining and milling operations have been carried on since the date of its organization. The cost of debtor's concentrating mill and all machinery, equipment, buildings and other property constituting its plant on said mining property was approximately $1,630,000.00, in addition to which it has on hand warehouse supplies acquired by it at a cost of approximately $130,000.00. Many miles of underground workings have been excavated and extensive diamond drilling has been carried on at said mining property.

LIABILITIES OF THE DEBTOR

The liabilities of the debtor as represented by claims which have been filed with the Clerk of the above entitled court total $530,460.01, of which $519,016.88 plus some additional interest accumulated since October 16, 1944 is owing to the International Smelting & Refining Company on a promissory note dated December 31, 1940 bearing interest at 2½% per annum, the remainder of debtor's indebtedness consisting of $4,628.00 owing to the Anaconda Copper Mining Company for advances made for premiums on fire insurance, a tax claim in the sum of $983.00, a labor claim for $81.23 and fixed claims for injuries or death totalling $5,760.90. There are also a number of potential claims under the Workmen's Compensation Act of the State of California, the amounts of which have not yet been determined.

Objections to the claim of the International Smelting & Refining Company were made by or on behalf of eight of debtor's stockholders. A hearing on said objections was commenced on December 15, 1944 and continued thereafter (excepting one Sunday, December 17, 1944)

until and including December 23, 1944. On February 10, 1945 the Honorable Tillman D. Johnson, District Judge, signed a decree in these proceedings approving and allowing said claim as a valid indebtedness due and owing from debtor to the International Smelting & Refining Company, in the principal sum of $519,016.88 plus interest from October 16, 1944 at the rate of 2½% per annum.

FINANCIAL CONDITION

Debtor has no operating revenue inasmuch as all of its mining activities were terminated during the month of October, 1941. Consequently it has become necessary to borrow the sum of $15,000.00 from the Continental National Bank & Trust Company of Salt Lake City, Utah, for the purpose of paying current expenses and for the preservation of debtor's estate. This indebtedness is in addition to that which has been hereinbefore mentioned.

OPERATION OF DEBTOR'S BUSINESS AND DESIRABILITY OF CONTINUANCE THEREOF

Since debtor's organization an aggregate of 362,696 dry tons of material have been produced from said mining property and mill and smelted by the International Smelting & Refining Company, of which 12,382 tons were crude ore and 350,313 tons were concentrates, lime scale, ball mill cleanings, precipitates and scrap copper. The net smelter returns of all of said material aggregated $20,091,290.08, and without any deductions for railroad freight, sampling or smelter treatment charge, the aggregate value of all metal content principally copper, was $22,243,025.26. Except for comparatively brief periods of suspension, mining and milling operations were carried on by debtor until the month of October, 1941, when said operations terminated. The mine activities were terminated for the reason that debtor's production cost at that time exceeded the selling price of 12c per pound for copper which had been previously fixed by the United States Government. The records reveal that debtor's production costs have always been high due to the low quality of ore mined and debtor's properties have always been classified by mining engineers as a high cost producer. On June 7, 1944 debtor filed a petition for reorganization which was approved on June 10, 1944.

By reason of the low grade of presently known ore bodies coupled with high production costs and the present price of copper, the Walker Mine cannot be operated at a profit. A few stockholders have indicated that further exploration might disclose high grade ore bodies in or near the Walker Mine properties, which would permit the mine to operate at a profit. It is not believed, however, that sufficient speculative capital, estimated at one million dollars, could be obtained for that purpose. Therefore, it is not desirable nor does it appear possible to resume mining operations. It further appears that reorganization of debtor is not possible and that the present proceedings should be terminated.

February 14, 1945.

WILLARD H. DAVIS, Trustee.

GERALD R. JOHNSON, ESQ.,
1100 California State Life Bldg.,
Sacramento 14, California.
Attorney for Trustee

Exhibit 50

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2014-XXXX

ATLANTIC RICHFIELD COMPANY
UNITED STATES DEPARTMENT OF AGRICULTURE,
UNITED STATES FOREST SERVICE

WALKER MINE TAILINGS
PLUMAS COUNTY

CLEANUP AND ABATEMENT ORDER NO. R5-2014-YYYY
ATLANTIC RICHFIELD COMPANY

WALKER MINE
PLUMAS COUNTY

ATLANTIC RICHFIELD COMPANY'S PREHEARING MOTION NO. 3 REQUESTING A REGIONAL BOARD RULING THAT THE DOCTRINE OF LACHES PRECLUDES THE BOARD FROM ISSUING THE DRAFT CAOs

INTRODUCTION

The Regional Board (the "Board") has been investigating the Walker Mine and Tailings Sites since 1958. At that time, it was common knowledge that International Smelting &Refining Company ("IS&R") had been an investor in the Walker Mining Company, the company that initially owned and operated the mine. Many individuals with first-hand knowledge of Walker Mining Company's operations were likely available at that time. Thirty years later, in 1987, Atlantic Richfield Company's predecessor donated its geological records to the University of Wyoming and thus made public the details of its relationship with the Walker Mining Company. Almost sixty years after the mine closed in 1941, the Board elected in 1999 to pursue Atlantic Richfield Company ("Atlantic Richfield") as a Discharger at the Walker Mine. But when Atlantic Richfield objected, for many of the same reasons now raised as defenses to the Draft Cleanup and Abatement Orders ("Draft CAOs"), the Board sent Atlantic Richfield a letter acquiescing to Atlantic Richfield's objections and removing Atlantic Richfield from the list of Dischargers. At least some individuals with knowledge of the facts were living in 1999. Now, fifteen years later and following inadequate settlements with the Mine Site's former owners, the Prosecution Team attempts to retread the same ground by looking to an incomplete documentary record as the sole evidence for imposing liability on Atlantic Richfield. In sum, there are no witnesses available to explain the documentary evidence on which the Prosecution Team relies or, more importantly, to provide evidence on mine operations that are not described in the geological records.

In light of the Prosecution Team's failure to timely prosecute this matter, Atlantic Richfield moves the Board for a ruling that the doctrine of laches precludes the Board from issuing the Draft CAOs.

BACKGROUND

The Walker Mining Company closed the mine in 1941. At that time, all of the documentary evidence of Atlantic Richfield's predecessors' relationship with the Walker Mining Company had already been generated and most witnesses with knowledge of the relationship presumably were still living. In 1945, when the Walker Mining Company's records were more readily available to the parties, the federal bankruptcy court held an eight-day hearing to consider the relationship between IS&R and the Walker Mining Company. (*See* Exhibit No. 132.) Based upon the testimony and documentary evidence presented, federal Judge Jackson concluded that Walker Mining Company "is not and has never at any time been an alter ego or instrument or department of Anaconda Copper Mining Company or of [IS&R]." (Exhibit No. 131.)[1]

The Board has waited 55 years from its first investigation of the sites until today to bring an enforcement action against Atlantic Richfield. Because the Board failed to

[1] *See also id.* at ¶ 4 ("[Walker Mining Company's] business and affairs have at all times been carried on and conducted in the manner and according to the methods and practice usually employed by corporations free of any domination or control by others.")

prosecute its case for 55 years, few (if any) individuals with first-hand knowledge of facts regarding mine operations are available. Moreover, IS&R's status as a shareholder of the Walker Mining company was a matter of public record as early as 1918 when the Anaconda Copper Mining Company reported IS&R's investment to Anaconda shareholders. (*See* Exhibit No. 7.) As the Prosecution Team itself acknowledges, the Anaconda / IS&R / Walker Mining Company geological records and related correspondence upon which the Prosecution Team relies have been publicly available since 1987. (Draft CAO No. R5-2014-YYYY at ¶ 35.) According to the Board's own documents, the Board reviewed this collection, at the latest, in the 1990s.[2] And the United States Forest Service's ("USFS") Record of Decision for the Tailings Site, entered in 1994, states that the Board "worked closely" with USFS to investigate the Site and then goes on to say that USFS identified Atlantic Richfield as potentially liable for the Site and shared all "relevant documents" with the Board. (Exhibit No. 145, Record of Decision at p. 4.)

During that same timeframe the Board began pursuing Atlantic Richfield. In letters dated August 13, 1997 and June 15, 1998 (Exhibit Nos. 144 and 148), the Board sought to negotiate an agreement with Atlantic Richfield "for past and future environmental remediation activities at the Walker Mine." (Exhibit No. 148.) On December 1, 1999, the Board issued a Notice of Tentative Order that would have named Atlantic Richfield as a Discharger at the Mine Site. (Exhibit No. 149.) The Notice stated that "[h]istorical records show that [Atlantic Richfield], as the successor of several companies that owned and operated the mine, is a responsible party of the Walker Mine." (Exhibit No. 150 at p. 1.) Counsel for Atlantic Richfield provided comments on this Notice via a letter dated December 30, 1999. (Exhibit No. 151.) In the letter, Atlantic Richfield identified the lack of proof that Atlantic Richfield bore any liability for the Sites, as well as the significant legal hurdles that the Board would face in attempting to name Atlantic Richfield as a Discharger at the Site. (*Id.* at 2-7.) Atlantic Richfield specifically noted that, as of 1999, "[v]arious legal doctrines, such as laches [and] equitable estoppel . . . would preclude Regional Board action against [Atlantic Richfield] based on circumstances known for decades . . . ." (*Id.* at 7.) In response to Atlantic Richfield's objections, on January 24, 2000, the Board sent a letter to counsel for Atlantic Richfield in which the Board stated: "In response to your comments, we have removed [Atlantic Richfield] from the tentative WDRs." (Exhibit No. 152.)

Even since 1999, evidence from those with first-hand knowledge of facts related to mine operations has been lost. Exhibit 135 contains notes of interviews conducted with several former residents at the Walker Mine, including Marcie Nielsen, Gilbert Lumen, and Luis Richards. (*See* Exhibit No. 135.) Nielsen, Lumen, and Richards were alive in 1999 and could have provided testimony about Walker Mining Company's

[2] In an internal Board memorandum dated July 2011, staff member Jeff Huggins stated that "[i]f the Central Valley Water Board is to reduce its liability for Walker Mine, it must determine if a responsible party exists." (Exhibit 158 at 1 (emphasis in original).) To that end, Huggins noted that IS&R owned "slightly more than a 50% stock interest in WMC," and that IS&R was a subsidiary of Anaconda, Atlantic Richfield's predecessor. (*Id.*) Huggins noted that "[a] previous search of the Anaconda Geological Documents Collection by Central Valley Water Board staff in the late 1990's provided information that links the operations of WMC to Anaconda." (*Id.* at 2.)

operations, but all are now deceased—Nielsen in 2005, Lumen in 2008, and Richards in 2001. (*See* Declaration of Andrea Hamilton at ¶¶ 5-8.) Atlantic Richfield is aware of no person still living who could provide first-hand testimony concerning Walker Mining Company operations, including IS&R's role (if any) in pollution-causing activities at Walker Mine.

ARGUMENT

Under California Civil Code § 3527, "[t]he law helps the vigilant, before those who sleep on their rights." This is the equitable defense of laches. *See Hamud v. Hawthorne*, 338 P.2d 387, 391-92 (Cal. 1959). Laches has two components: "*[U]nreasonable delay* plus either *acquiescence* in the act about which plaintiff complains or *prejudice* to the defendant resulting from the delay." *Conti v. Bd. of Civil Service Comm'rs*, 461 P.2d 617, 622 (Cal. 1969) (emphasis added); *see also Johnson v. City of Loma Linda*, 5 P.3d 874, 878 (Cal. 2000). When paired with unreasonable delay, *either* acquiescence or prejudice is sufficient grounds to invoke laches. *See In re Estate of Kampen*, 135 Cal. Rptr. 3d 410, 432 (Cal. Ct. App. 2011) ("Acquiescence, without a finding of prejudice, is sufficient for the court to apply the equitable defense of laches."). Laches is equally available as a defense to a state agency's claim as it is to any other plaintiff's claim. *Brown v. State Personnel Bd.*, 166 Cal. App. 3d 1151, 1163 (Cal. App. 1985); *City of Los Angeles v. County of Los Angeles*, 9 Cal. 2d 624, 630 (Cal. 1937). Here, along with unreasonable delay, Atlantic Richfield can establish *both* prejudice and acquiescence. Laches therefore bars the CAOs.

Unreasonable Delay. As described above, the documents upon which the Prosecution Team relies were available by 1987, and the salient facts were available still earlier than that. Importantly, witnesses with knowledge of Walker Mining Company management and its operations were available. The Board considered and analyzed its case against Atlantic Richfield at the very latest in 1997, when it first threatened to name Atlantic Richfield as a Discharger at the Mine Site. (Exhibit No. 144.) The 2011 Board memorandum noted above indicates that investigative efforts by "Board staff in the late 1990's provided information that links the operations of [Walker Mining Company] to Anaconda." (Exhibit No. 158 at p. 2.) Moreover, the same memorandum notes that IS&R was a substantial stockholder in Walker Mining Company from 1916 until 1941. (*Id.*)[3]

Yet for all that time, the Board did not pursue enforcement action against Atlantic Richfield for environmental conditions at the Walker Mine. The Prosecution Team claims that it more fully investigated the available records more recently. (Draft CAO R5-2014-YYYY at ¶ 35 ("[Board] staff recently obtained and reviewed relevant documents from the database and other sources.").) But the Prosecution Team does not claim, and could not claim, that these records were unavailable or unknown to it. The Prosecution Team does not identify what, if any, "new" information has been obtained. Nor does the Prosecution Team appear to consider what evidence has been

[3] The 2011 Memorandum is factually incorrect; IS&R acquired its shares of Walker Mining Company in October 1918. (*See* Haegele, at p. 4.)

lost through the passage of time. A lack of reasonable diligence does not excuse laches. *Hecht v. Slaney*, 72 Cal. 363, 367 (1887) ("[A] party is presumed to know whatever he might with reasonable diligence have discovered; and when the fundamental facts upon which the alleged fraud rests, are matters of public record, open to his inspection, ignorance of the fraud will not excuse his laches."); *see also Whitman v. Walt Disney Prods., Inc.*, 148 F. Supp. 37, 39 (S.D. Cal. 1957) ("[D]iligence must be observed to escape a charge of laches.").

The Prosecution Team can offer no justification for its unreasonable delay. California courts have found unreasonable delays based on much shorter periods of time than the decades at issue here. *See, e.g., Vernon Fire Fighters Ass'n v. City of Vernon*, 223 Cal. Rptr. 871, 882 (Cal. Ct. App. 1986) ("A delay of over five years between the discharge of petitioners and the hearing in this case is unreasonable."); *Kampen*, 135 Cal. Rptr. 3d at 432 ("This delay of more than 10 years was clearly unreasonable."); *Piscioneri v. City of Ontario*, 116 Cal. Rptr. 2d 38, 46 (Cal. Ct. App. 2002) (noting that an "extreme delay" of 12 years "could easily support an ultimate finding of laches" on remand); *Brown v. State Personnel Bd.*, 213 Cal. Rptr. 53, 59 (Cal. Ct. App. 1985) ("[U]nless excused, a delay in the initiation of disciplinary proceedings for more than three years is unreasonable as a matter of law.").

Acquiescence. Once unreasonable delay has been established, laches may be invoked by demonstrating that the complaining party (here, the Board) acquiesced to the actions complained of. In the laches context, acquiescence is "a resting satisfied with[,] or submission to an existing state of things." *Lux v. Haggin*, 69 Cal. 255, 270 (Cal. 1886); *see also* Merriam Webster Online (defining acquiesce as "to accept, agree, or allow something to happen by staying silent or by not arguing"). Here, when the Board chose not to investigate Atlantic Richfield or its predecessors for the first thirty-five years it investigated the Mine Site, it acquiesced in Atlantic Richfield's position that it is not a Discharger. When the Board chose to take remedial actions at the Mine Site, without consulting or involving Atlantic Richfield, the Board acquiesced to the conclusion that Atlantic Richfield is not a Discharger. Certainly, when the Board chose not to pursue Atlantic Richfield alongside the Site owners in 1991 and 1997,[4] it acquiesced in the conclusion that Atlantic Richfield was not a Discharger. And most definitely, when the Board affirmatively said that it would *not* name Atlantic Richfield as a Discharger in 1999, the Board acquiesced to Atlantic Richfield's stated position that it is not a Discharger. In the words of Patrick Morris of the Board, "In response to your [Atlantic Richfield's] comments, we have removed [Atlantic Richfield] from the tentative WDRs." (Exhibit No. 152.) Laches prohibits the Board from now coming back to Atlantic Richfield complaining of circumstances to which it has already acquiesced.

Prejudice. Though the Board's acquiescence to Atlantic Richfield's position several times between 1958 and 2000 is sufficient (along with unreasonable delay) to invoke laches under California law, Atlantic Richfield can also demonstrate prejudice due to the Board's decades-long delay. Had the Board named IS&R and Anaconda as

[4] The Board's pursuit of, and settlement with, owners of the site are detailed in Atlantic Richfield's Prehearing Motion No. 2.

Dischargers at Walker Mine when it initially investigated the site in 1958, or after Atlantic Richfield donated Anaconda's records to the University of Wyoming in 1987, or when it prosecuted Robert Barry and the Calicopia Corporation in 1991, or even when it determined *not* to issue its Tentative Order for the Mine Site in 1999, more evidence would have been available to Atlantic Richfield, including witnesses with knowledge of mine operations, Walker Mining Company management practices and perhaps even the Walker Mining Company's own documents.[5] At a minimum, the witnesses identified above whose interview statements are contained in Exhibit No. 135—Nielsen, Luman, and Richards—could have been questioned concerning the involvement of Atlantic Richfield's predecessors, and likely numerous other then-living individuals could have provided information as well. However, all potential witnesses, to the best of Atlantic Richfield's knowledge, now appear to be deceased. And all three of the witnesses identified in the interview notes passed away *after* the Board's abortive attempt to name Atlantic Richfield as a discharger in 1999. (*See* Hamilton Declaration at ¶¶ 5-8.) Thus Atlantic Richfield is prejudiced not only generally by the passage of many decades since the mine was in operation, but specifically by the Board's decision to forego naming Atlantic Richfield in 1999/2000, only to reverse that decision now.

In sum, due to the combination of unreasonable delay, acquiescence, and prejudice here, the doctrine of laches bars the CAOs. The fact that this is an environmental case does not change the analysis. The remediation at Walker Mine will continue regardless of the outcome of this case, (*see* Exhibit No. 156, State Board order approving additional funding through 2015), and as described more fully in Atlantic Richfield's Prehearing Motions Nos. 2 and 5, the Board itself has legal responsibility for these Sites and there are other forums with jurisdiction to hear the Prosecution Team's claims.

CONCLUSION

For the foregoing reasons, Atlantic Richfield requests a ruling from the Board that, as a matter of law, the doctrine of laches requires that the Draft CAOs be withdrawn and this matter dismissed.

[5] The lack of Walker Mining Company records greatly prejudices Atlantic Richfield because it means that the only documents available will necessarily emphasize the limited scope of Walker Mine's operations in which IS&R and Anaconda had involvement without shedding any light on the numerous other aspects of the Walker Mine's operations in which IS&R and Anaconda were never consulted. (McNulty Report at pp. 13-14.)

Dated this 20th day of February, 2014.

DAVIS GRAHAM & STUBBS LLP

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Exhibit 51

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2014-XXXX

ATLANTIC RICHFIELD COMPANY
UNITED STATES DEPARTMENT OF AGRICULTURE,
UNITED STATES FOREST SERVICE

WALKER MINE TAILINGS
PLUMAS COUNTY

CLEANUP AND ABATEMENT ORDER NO. R5-2014-YYYY

ATLANTIC RICHFIELD COMPANY

WALKER MINE
PLUMAS COUNTY

PROSECUTION TEAM'S RESPONSE TO ATLANTIC RICHFIELD COMPANY'S PREHEARING MOTION NO. 5

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I. Introduction

Discharger Atlantic Richfield's (ARCO's) Prehearing Motion No. 5 requests dismissal of the Mine and Tailings CAOs on the basis that the Central Valley Water Board allegedly lacks jurisdiction to consider the CAOs because the Board is liable for the discharges, which in turn makes the CAOs contribution actions for which the Board lacks authority per Water Code section 13350(i). ARCO also claims that the CAOs are barred by the terms of the 2005 Consent Decree between ARCO and the Forest Service.

ARCO's motion should be denied because the Board is not liable for any discharges at either the Mine or Tailings sites, and thus the CAOs are not contribution actions in any sense. Moreover, Water Code section 13350(i) does not apply because the CAOs are brought under Water Code section 13304, not section 13350, and no party has incurred liability under section 13350 to date. Finally, the Consent Decree does not alter or affect the Board's Water Code authority at all, and in any event the Consent Decree only applies to the Tailings site.

II. The Board is not liable for the abating the conditions of pollution or nuisance at either site

ARCO claims that the Central Valley Water Board lacks authority to consider either of the proposed CAOs because the Board "is liable for abating the alleged nuisance conditions at the Sites." (ARCO's Prehearing Motion No. 5, at p. 1.) ARCO's claim is without merit and has been rebutted in the Prosecution Team's Response to Prehearing Motion No. 2, which is incorporated by reference here. Simply, the Board is not liable for pollution or nuisance conditions at the Tailings because the Board does not own the site, has never operated the site, and has never entered into any agreements regarding the site. The Board is not liable for pollution or nuisance conditions at the Mine because the Board does not own the site, has never conducted any pollution-causing activities at the site, and has never assumed any general liability for the site. The Board has acted only in a limited capacity under authority of Water Codes section 13305 to install the seal in the Mine's 700 level portal, which stopped discharges, and to take other minor actions which have not caused discharge. These actions do not trigger general liability.

ARCO's citations to two deliberative process memoranda prepared by Central Valley Water Board staff are red herrings that should be ignored.[1] In the 2011 memorandum, staff discusses the need to identify responsible parties for the Mine site. At that time, staff had only recently begun the archive record search that ultimately led to the evidence at issue here, and sought management approval to continue the search. In the 2013 memorandum, staff discusses the evidence obtained demonstrating ARCO's liability, and requests management approval to send the draft CAOs to ARCO for

[1] These memoranda were inadvertently disclosed to ARCO in January, 2013, in response to two Public Records Act requests submitted by ARCO in November, 2013. ARCO's requests sought the entire Board files on the Walker Mine, which goes back at least four decades and includes several thousand documents.

comment and potential settlement discussion. Board staff ultimately sent the drafts to ARCO in April, 2013, but was met with ARCO's continuing determined resistance.

ARCO misconstrues the 2011 and 2013 memoranda. In each, staff's references to potential Board liability refer only to the potential ongoing costs for monitoring the seal in the Mine's 700 level portal and maintaining the portal access tunnel. As described in the Response to Prehearing Motion No. 2, it is appropriate and proper to transfer that responsibility to ARCO through the Mine CAO. In any event, ARCO cannot cite authority for the proposition that internal, deliberative staff memoranda can bind the Board in any way, because no such authority exists. The Board has never assumed general liability for the conditions of pollution and nuisance at the Mine site.

III. The Mine and Tailings CAOs are not contribution actions

ARCO argues that the Mine and Tailings CAOs should be construed as contribution actions. (ARCO's Prehearing Motion No. 5, at pp. 1-2.) The proposed CAOs are not contribution actions because the Central Valley Water Board is not liable for the conditions of pollution and nuisance at either site, especially because the Board itself has never been sued or held liable as a discharger. (Co*oper Industries v. Aviall Services* (2004) 543 U.S. 157, 165-166.) In addition, the proposed CAOs no longer seek recovery of the Board's past costs involved in installing and monitoring the mine seal (see PT Response to ARCO's Prehearing Motion No. 8), and so cannot be considered contribution actions even by ARCO's strained analogy.

ARCO also argues that the CAOs are contribution actions under Water Code section 13350(i). (ARCO's Prehearing Motion No. 5, at p. 3.) The Mine and Tailings CAOs are not contribution actions under Water Code section 13350(i), because they arise under Water Code sections 13304 and 13267. By its terms, Water Code section 13350(i) provides only for contribution actions against other responsible parties where a discharger has been subject to civil liability or administrative civil liability under Water Code section 13350. The Central Valley Water Board is not a discharger at either site, and does not seek administrative civil liabilities under section 13350 in this proceeding. Moreover, no party has ever been subject to section 13350 liabilities for the sites.

IV. The Consent Decree does not shield ARCO from Water Code liability

a. By its terms, the Consent Decree does not bind the Board

ARCO argues that the 2005 Consent Decree (PT Exhibit 12) between it and the Forest Service must shield it from liability for the Tailings sites. (ARCO's Prehearing Motion No. 5, at p. 3.) ARCO properly concedes that the Consent Decree applies only to the Tailings site.[2] (ARCO's Prehearing Motion No. 5, at p. 3 [referencing only "the

[2] The Forest Service's Tailings Record of Decision and the 2005 Consent Decree apply only to the approximately 100-acre Tailings site on Plumas National Forest land. (ARCO Exhibit 145 [ROD], at Figures 2-3; PT Exhibit 12 [Consent Decree], at p. 8.) The Walker Mine site is separate from the Tailings site, about a mile away, located on

Prosecution Team's claims against Atlantic Richfield for the Tailings Site..."].) The Consent Decree has no bearing on the Mine site or the Mine CAO.

The Consent Decree does not affect the Central Valley Water Board's Water Code authority in any way. The Board was not a party to the underlying litigation, and it is not a signatory to the Consent Decree. It is a fundamental principle of American law that a party cannot be bound by a judgment in litigation where it was not a party. (*Hansberry v. Lee* (1940) 311 U.S. 32, 40.) In any event, the Consent Decree itself provides that it does not limit the rights of non-parties:

> Nothing in this Consent Decree shall be construed to create any rights in or grant any cause of action to, any person not a Party to this Consent Decree. The preceding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this decree may have under applicable law.

(Consent Decree, at § 18.) ARCO does not attempt to explain how the Central Valley Water Board's Water Code authority to issue the Mine and Tailings CAOs could be limited in light of this language.

The only possible qualification on the Central Valley Water Board's rights by the Consent Decree is the ability to seek contribution from ARCO under Section 113(f)(1). Section 113(f)(2) may limit the rights of potentially responsible, non-signatory parties to the narrow extent that they are precluded from seeking contribution from parties who have resolved their liability in an approved consent decree. However, this limitation is inapplicable here because the Board is not a responsible party at the Tailings and is not seeking any contribution.

b. The Consent Decree only resolves ARCO's liability as against the United States

The Consent Decree does not resolve ARCO's liability under the Water Code. California law enters into the Consent Decree only to the extent that ARCO has agreed to forgo any claims against the United States based on the California Constitution. (Consent Decree, at § 15.) But even if California's water quality laws were somehow within the Consent Decree, the effect on Central Valley Water Board's authority under them would be limited and narrowly defined.

When the United States and a settling defendant enter into a settlement agreement, the settling defendant is only relieved of their liability *to the United States*:

---

nearly 800 acres of private property. The Forest Service has never assumed any responsibility for the privately-owned mine, and there is no basis for finding that the Mine site falls within the "matters addressed" by the Consent Decree. (See *Akzo Coatings, Inc. v. Aigner Corp.* (7th Cir. 1994) 30 F.3d 761, 766.)

> Whenever the [EPA] has entered into an agreement under this section, the liability to the *United States* under this chapter of each party to the agreement...shall be limited as provided in the agreement pursuant to the covenant not to sue...

(CERCLA section 122(c)(1); 42 USC § 9622, subd. (c)(1) [emphasis added].)

CERCLA does not grant the Forest Service the power to relieve ARCO's California Water Code liability. Moreover, CERCLA favors and expressly provides for the simultaneous operation of state and federal law, except in those particular instances where compliance with state law is either impossible or contrary to the goals of CERCLA. (CERCLA sections 114(a); 42 USC § 9614, subd. (a); 302(d); 42 USC § 9652, subd. (d); 121(e)(4); 42 USC § 9621, subd (e)(4); see also *City of Merced v. Fields* (E.D.Cal. 1998) 997 F.Supp. 1326, 1335-36 [recognizing that CERCLA does not preempt state law causes of action].) There is no basis for any assertion that compliance with the Tailings CAO would run afoul of CERCLA in any way.

While it is true that Section 113(f)(2) contemplates that a settling defendant may also resolve liability to a state in a judicially approved settlement, this presupposes that the state is a party to the settlement. That is not the case here. Thus, the Board's authority has not been displaced or subordinated by the Consent Decree.

c. Paragraph 19 of the Consent Decree does not preclude the proposed Tailings CAO

ARCO claims that the Tailings CAO is barred because Paragraph 19 of the Consent Decree allegedly shields ARCO "from costs, damages, actions, or other claims (whether seeking contribution, indemnification, or however denominated) for matters addressed in this Consent Decree..." (ARCO Prehearing Motion No. 5, at p. 3.) But the scope of protection under this paragraph is limited to claims which are "provided by §113(f)(2), and any applicable law." The phrase "any applicable law" cannot resolve ARCO's Water Code liability, which was not at issue in the litigation underlying the Consent Decree. ARCO's immunity under CERCLA from the Consent Decree therefore stems solely from Section 113(f)(2), which only applies to Section 113(f)(1) contribution actions.[3]

[3] Section 113(f)(2) does not even shield ARCO from all potential *CERCLA* claims. (*United States v. Atlantic Research Corp.* (2007) 551 U.S. 128, 138-139 [holding that §113(f)(2) is not a shield potentially responsible parties from cost recovery actions under §107(a) because these are "clearly distinct remedies."]; see also *Waste Management of Pennsylvania Inc. v. City of New York* (M.D. PA 1995) 910 F. Supp. 1035, 1036.) ("[b]ut such a settling party is not entitled to protection against claims by non-settling parties who...have independently incurred costs in cleaning up a Superfund site"); and *U.S. v. Union Gas* (E.D. 1990) 743 F.Supp 1144, 1155-56 [third party plaintiff's counterclaim was not pre-empted by CERCLA's contribution protections, too broad of a reading of CERCLA's contribution protection clause would ultimately frustrate other claims raised under federal or state law, "a result clearly not intended by CERCLA."].)

V. Conclusion

For the reasons stated above, the Central Valley Water Board should deny Atlantic Richfield's Prehearing Motion No. 5.

For the Prosecution Team:

ANDREW TAURIAINEN
Senior Staff Counsel
MAYUMI OKAMOTO
Staff Counsel
Office of Enforcement

Exhibit 52

pwm

(ENDORSED)

FILED

JAN 02 1991

WARREN SLOCUM, County Clerk
LORNA SANDBERG
By _____
DEPUTY CLERK

PETTIT & MARTIN
JOHN P. MACMEEKEN
A. ROBERT ROSIN
101 California Street, 35th Floor
San Francisco, California 94111
Telephone: (415) 434-4000

Attorneys for Defendant
Calicopia Corporation

SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF SAN MATEO

THE PEOPLE OF THE STATE OF CALIFORNIA, Plaintiff, v. ANNE BENJAMIN BARRY, WALTER F. PETTIT, and ROBERT H. GOLDIE, in their capacity as co-executors of the Estate of Robert R. Barry and in their capacity as co-trustees of the Trust of Robert R. Barry, CALICOPIA CORPORATION, ANNE BENJAMIN BARRY, in her personal capacity, HENRY ROGER BARRY, and CYNTHIA BARRY BIDWELL, Defendants.	No. 340529 JUDGMENT PURSUANT TO STIPULATION

The above-entitled action came on regularly before the Honorable V. Gene McDonald sitting without a jury, on the JAN 02 1991 ~~day of December, 1990,~~ following conferences between the Court and counsel on August 10, 1990, August 21, 1990, August 22, 1990, October 31, 1990, and November 29, 1990. The Plaintiff, People of the State of California by and through the Regional

Water Quality Control Board, Central Valley Region (hereinafter "Board") appeared through John K. Van de Kamp, Attorney General for the State of California, R. H. Connett, Assistant Attorney General, and Edna Walz and Allen R. Crown, Deputy Attorneys General. Defendants Anne Benjamin (Rogers) Barry, Walter F. Pettit and Robert H. Goldie, in their capacity as co-executors of the Estate of Robert R. Barry, Deceased (hereinafter "Executors"), and in their capacity as co-trustees of the Trust of Robert R. Barry (hereinafter "Trustees"), and Defendant Anne Benjamin (Rogers) Barry (hereinafter "Barry"), in her personal capacity, appeared through Kenneth Drexler and Drexler and Leach; Defendants Calicopia Corporation, a Nevada corporation (hereinafter "Calicopia"), Cynthia B. Bidwell (hereinafter "Bidwell") and Henry Rogers Barry (hereinafter "Rogers"), appeared through Pettit & Martin, John P. Macmeeken, and A. Robert Rosin.

The action relates to water quality and related environmental problems at that certain property situated in the County of Plumas, State of California, consisting of patented and lode mining claims recorded in the name of and assessed to Calicopia, known as the Walker Mine and described more particularly in Exhibit A hereto (hereinafter, "the Property");

It appearing that the parties have entered into a Settlement Agreement which is intended as a complete disposition of this pending action, and good cause appearing therefor:

IT IS HEREBY ORDERED, ADJUDGED and DECREED as follows:

1. That Plaintiff State of California by and through the Regional Water Quality Control Board, Central Valley Region,

have judgment against defendants Executors, Trustees, Calicopia, Barry, Rogers, and Bidwell, jointly and severally in the amount of One Million Dollars ($1,000,000.00) plus interest at the rate earned by defendants from October 31, 1990, until the date of entry of this Judgment. Within five (5) days immediately after the entry of this Judgment, defendants shall pay said total cash sum in lawful money of the United States to the Board for the State Water Pollution Cleanup and Abatement Account.

2. The Board's agent for receipt of money, documents, or notice as provided in Paragraphs 1, 3, and 4 of this decree shall be Ms. Elizabeth Jennings, Esq., at State Water Resources Control Board, Office of the Chief Counsel, 901 P St, Room 411-A, Sacramento, California 95814. The Board shall provide written notice of any change in its agent for these purposes.

3. Within five (5) days of the entry of this Judgment, Calicopia, Trustees, and Barry shall deliver to the Board their negotiable promissory note, executed by each and all of them, jointly, as makers, in the form attached as Exhibit B hereto, in the principal sum of Three Hundred Thousand Dollars ($300,000.00), lawful money of the United States of America, to be paid eighteen (18) months after the entry of this Judgment. Said negotiable promissory note shall be secured by a deed of trust, in the form set forth in Exhibit C hereto, upon the real property of the Trustees at 155 Wildwood Way, Woodside, California 94062. Defendants shall not incur or permit the incurring of any further encumbrances or liens prior to five (5)

days after delivery to the Board of the deed of trust on the property.

4. Within five (5) days of the entry of this Judgment, Calicopia shall deliver to the Board its irrevocable assignment of its right to receive the sum of Two Hundred Thousand Dollars ($200,000.00), lawful money of the United States of America, of principal payments in accordance with that certain promissory note of Robert E. Sutton dated May, 1990, and which has not since that date been transferred or paid in whole or in part; a copy thereof is attached hereto as Exhibit D. Calicopia shall also simultaneously assign to the State Water Resources Control Board for the Cleanup and Abatement Account a two-thirds (2/3rds) interest in all security now and hereafter held by Calicopia for said note, including without limitation that note dated April 26, 1990, and attached hereto as Exhibit E, made by Jaw-Min Chang and Bih-Yueh Tzeng Chang in the principal amount of Four Hundred Thousand Dollars ($400,000) payable to the order of Robert E. Sutton and that Assignment of Deed of Trust, recorded in Book 1648, page 67 of Official Records of Imperial County. Said assignments shall be in the form set forth in Exhibit F, hereto. Said assignment shall be without recourse against defendants. Calicopia shall give prompt notice of all payments, presentments, notices and defaults which may occur with respect to said promissory note. Defendants shall not incur or permit the incurring of any lien or encumbrance prior to five (5) days after delivery to the Board of the assignment on the note and the deed of trust on the property.

5. Defendants Calicopia, Executors, Trustees, Barry, Bidwell and Rogers, their respective heirs, successors, assigns, officers, directors, employees, attorneys, agents, representatives, and each of them, are released, remised and forever discharged by the Board of and from all causes of action, claims, liabilities, demands and costs, of every kind and character, relating to regulatory provisions over which the Board has enforcement authority, arising out of or occasioned by any act or omission pertaining or related to the Property, which occurred up to and including August 22, 1990, including, without limitation, all claims which were or could have been asserted in this Action.

6. The defendants, their heirs (including any person who would be a defendant's heir had the defendant died intestate), and any State or Federal agency to which they may next convey the Property shall have no future liability to the Board under regulatory provisions over which the Board has enforcement authority by reason of the state or condition of the Property as of August 22, 1990, or by reason of any omission of any of defendants or any such State or Federal agency after that date with respect to said condition of the Property. Nothing herein contained shall release defendants or such transferees or any of them from any liability arising out of acts hereafter performed by them upon the Property.

7. Defendants Calicopia, Executors, Trustees, Barry, Bidwell and Rogers, their respective heirs, successors, assigns, officers, directors, employees, attorneys, agents, representatives, and each of them, are released, remised and

forever discharged by the Attorney General from any action for common law nuisance or pollution arising out of or occasioned by any act or omission pertaining or related to the Property, which occurred up to and including August 22, 1990.

8. The defendants, their heirs (including any person who would be a defendant's heir had the defendant died intestate), and any State or Federal agency to which they may next convey the Property shall have no future liability to the Attorney General for common law nuisance or pollution by reason of the state or condition of the Property as of August 22, 1990, or by reason of any omission of any of defendants or any such State or Federal agency after that date with respect to said condition of the Property. Nothing herein contained shall release defendants or such transferees or any of them from any liability arising out of acts hereafter performed by them upon the Property.

9. The Board and its agents shall have the right at all times to enter upon the Property to investigate environmental conditions thereon, to monitor discharges and water quality, and to conduct such remedial activities as it deems necessary or desirable for purposes of water quality control. It shall not commit waste, nor except as provided in Paragraph 11 of this Judgment, suffer or permit any lien to be imposed upon the Property by reason of any act or omission by it on or pertaining to the Property. The term "waste" as used in this paragraph shall not include anything which results from any approach to "abating a condition of pollution or nuisance" which is not unreasonable. "Abating a condition of pollution or

nuisance" shall include, but not be limited to, remedial activities, monitoring, investigating environmental conditions, and conducting feasibility studies. The Board shall indemnify, save, and hold harmless defendants and each of them from any loss, liability, or damages occasioned by or arising out of any act or omission of the Board upon the Property pursuant to any right granted to it hereunder.

10. Upon payment in accordance with Paragraph 1 of this Judgment, the present Lien for Abatement of Pollution at Nonoperating Industrial Location, recorded by The Board on January 28, 1988, in Volume 475, page 92 of Official Records of Plumas County, shall be discharged, and the Board shall forthwith record in the Office of the Recorder of Plumas County a release of lien in the form attached hereto as Exhibit G.

11. All costs which are not unreasonable costs incurred by the Board in abating any condition of pollution or nuisance upon the Property shall entitle the Board to a lien upon the Property, notice of which shall be recorded with the Recorder of Plumas County. "Abating a condition of pollution or nuisance" shall have the same meaning as that term is defined in Paragraph 9 of this Judgment. Such lien shall have the same force, effect, and priority as if it had been a judgment lien imposed upon real property which was not exempt from execution, except that it shall attach only to the Property, and shall continue for 10 years from the time of the recording of such notice unless sooner released or otherwise discharged. Should the Board record any notices of lien pursuant to this paragraph which affect the Property, or any part thereof, upon the request

of any of the defendants, the Board shall provide a written itemization of the expenses incurred by the Board which give rise to its lien. The lien created by this paragraph shall be co-extensive with the ownership interest of defendants or any of them in the Property.

12. In the event there exists a lien as contemplated in Paragraph 11, and timber, trees, or rights thereto are sold, transferred, or hypothecated, the amount of the proceeds which shall be applied to the lien shall be reduced by the following deductions: a) liability insurance premiums for the Property actually paid for the year by the legal owner, in an amount up to $5,000; and b) any direct costs actually paid by the legal owner of the property for the harvesting and by any compensation actually paid by the legal owner to the forester to supervise the harvesting, to the extent that these costs are reasonable and customary. Calicopia shall keep, and upon the request of the Board, shall produce its records relating to costs.

13. The respective parties hereto shall have no responsibility for the property of any other person upon the Property. No party hereto shall be deemed an insurer, bailee or custodian of any property of any other person upon the Property.

14. The respective parties hereto recognize that trespassing is a problem of the Property and that persons trespassing upon the Property can suffer serious injury and significant property damage. The Board and Calicopia shall cooperate in locking gates and doors, and shall discuss other security problems or measures as necessary in an attempt to resolve those between themselves. The Board and Calicopia shall

advise each other generally about activities to be undertaken on the Property, and shall communicate as necessary to attempt to avoid interference with the activities of the Board or Calicopia. The Board shall endeavor in the exercise of its authorized rights and privileges hereunder, not to unreasonably intrude upon and interfere with any lawful use and employment of the Property. Defendants shall cooperate with the Board to the end that the lawful activities of any of them on the Property do not intrude unreasonably upon or interfere with the rights of the Board under this Judgment.

15. The respective parties shall each bear their own costs and attorneys' fees incurred in connection with this Action.

16. Upon payment in accordance with Paragraph 1 of this Judgment and the execution and delivery of the promissory note and deed of trust in accordance with Paragraph 2 of this Judgment, and delivery of the assignment and assignment of the security in accordance with Paragraph 3, the Board shall file in the Estate of Robert R. Barry, Deceased, written notice of the withdrawal of its creditor's claim on file therein. Thereafter, Executors may petition the Court for and secure the issuance of decrees of partial or final distribution.

17. This Court reserves jurisdiction over the respective parties to this Action in order that it may upon motion resolve any controversy that may arise as to the rights and obligations of the respective parties under this Judgment, and to issue any orders as may be necessary to enforce them.

18. The parties hereto have entered into a valid and subsisting Settlement Agreement which is hereby approved by the Court.

DATED: JAN 02 1991

V. GENE McDONALD

JUDGE OF THE SUPERIOR COURT

79740

Exhibit 53

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

3443 Routier Road, Suite A
Sacramento, CA 95827-3003
Phone: (916) 255-3000
Fax: (916) 255-3015

Cal/EPA

Pete Wilson, *Governor*

17 March 1998

CERTIFIED MAIL
Z 684 995 573

Cedar Point Properties
c/o Daniel Kennedy
800 Cynthia Lane
Paradise, CA 95969

CLEANUP AND ABATEMENT ACCOUNT LIEN, WALKER MINE PROPERTY, PLUMAS COUNTY

As described in the enclosed notice of lien, a lien has been placed on the Walker Mine real property (including timber harvestable or harvested for commercial sale) pursuant to Water Code Section 13304(c) in the amount of $238,334. The lien is for the amount of costs expended to date from the State Water Pollution Cleanup and Abatement Account on cleanup activities at the property described above. This notice has been sent to you because you are the current owner of record.

In order to release this lien or reduce its amount, you must file a petition in the appropriate court of law no later than 45 days from the date of receipt of the attached notice. In the alternative, the State Water Resources Control Board, which administers the Cleanup Account, will release the lien if you pay the lien amount. To discuss payment arrangements or if you have any other questions, please contact William Marshall at (916) 255-3140.

Jack E. DelConte

JACK E. DEL CONTE
Supervising Engineer

Enclosure

cc: Frances McChesney, OCC, SWRCB
Mark Harvey, RWQCB, Redding
Carl Leverenz, Chico

PWM

BOOK 734 PAGE 165

RECORDED AT REQUEST OF State Water Resources Control Board

at 20 min. past 10 M.

1740 MAR 13 1998

PLUMAS COUNTY, CALIFORNIA
JUDITH WELLS
Fee $ 6 Recorder

Plumas County Recorder's Office
Room 102
520 Main Street
Quincy, CA 95971

Please return conformed copy to:

Regional Water Quality Control Board, Central Valley Region
3443 Routier Road, Suite A
Sacramento, CA 95827-3003

Attn.: Patrick Morris (916) 255-3121

LIEN NOTICE SENT MAR 13 1998
CALIF. GOV. CODE 27281

RECEIVED
SACRAMENTO
CVRWQCB
98 MAR 25 PM 1:36

RECORDING REQUESTED BY AND RETURN TO:	*FOR RECORDER'S USE ONLY*
State Water Resources Control Board P.O. Box 100 Sacramento, CA 95812-0100 Contact: Frances L. McChesney (916) 657-2106	
NOTICE OF LIEN	

AFFECTED PARTIES ARE NOTIFIED THAT

1. A lien is created by this notice under Water Code Section 13304(c).

2. The name and address of the lien claimant is:

   State Water Resources Control Board
   P.O. Box 100
   Sacramento, CA 95812-0100

3. The name and last known address of the owner of record of the real property that is subject to the lien is:

   Cedar Point Properties
   c/o Daniel Kennedy
   800 Cynthia Lane
   Paradise, CA 95969

4. A description of the real property (including timber harvestable or harvested for commercial sale) on which the condition was abated and to which the lien attaches is as follows:

   Walker Mine Property, Plumas County
   Assessor's Parcel Numbers 009-080-01, 009-090-01, and 009-100-09

5. The amount of the lien at the time of the notice is:

   $238,334

Date: March 6, 1998

FRANCES L. McCHESNEY
TYPE OR PRINT NAME OF ATTORNEY

Frances L. McChesney
SIGNATURE OF ATTORNEY

NOTICE In order to release this lien or reduce its amount, the owner must file a petition in the appropriate court of law no later than 45 days from the date of receipt of this notice.

Walker Mine property lien-

This is an updated estimate of the funds expended on Walker Mine. The amount for the proposed lien was included in the 4 November 1997 Memorandum from Gary Carlton to Frances McChesney. This revised amount includes work completed at the site in 1997.

	1984-1990 SRK (design, CQA)	$ 100,000.00
CA 18	mine seal construction, misc	$ 296,317.03
CA 69	1992-1995 Site Assessment, Tunnel Rehab.	$ 753,617.80
CA 69	1997 Tunnel Rehab	$ 474,973.00
CA 69	1997 Monitoring Well	$ 102,293.31
CA 69	Misc. Invoices	$ 11,132.47
	total	$ 1,738,333.61
	1991 Settlement	(1,500,000)
	net lien	($238,334)

Exhibit 54

BILL LOCKYER
Attorney General of the State of California
MARY HACKENBRACHT
Senior Assistant Attorney General
CHRISTA L. SHAW, State Bar No. 215845
Deputy Attorney General
1300 I Street
P.O. Box 944255
Sacramento, CA 94244-2550
Telephone: (916) 324-5163
Facsimile: (916) 327-2319
Attorneys for Plaintiffs

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF PLUMAS

PEOPLE OF THE STATE OF CALIFORNIA, ex rel. CALIFORNIA REGIONAL WATER QUALITY, CONTROL BOARD, CENTRAL VALLEY REGION; and the STATE OF CALIFORNIA WATER RESOURCES CONTROL BOARD on behalf of the CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL VALLEY REGION, Plaintiffs, v. CEDAR POINT PROPERTIES, INC., a, California Corporation; DANIEL R. KENNEDY, individually and as President of Cedar Point Properties, Inc., and DOES I - XXX, Defendants.	Case No.: 19897 **JUDGMENT**

Plaintiffs and Defendant DANIEL R. KENNEDY having stipulated that the Court may make and enter this Judgment, and the corporate powers of Defendant CEDAR POINT PROPERTIES, INC., having been suspended, and good cause appearing therefor, it is hereby adjudged, ordered and decreed as follows:

1. The timber harvest at the Walker Mine Property by Defendant CEDAR POINT PROPERTIES, INC., pursuant to a written settlement agreement previously entered into by and among Plaintiffs, CEDAR POINT PROPERTIES, INC., and DANIEL R. KENNEDY (the

"Settlement Agreement") and/or pursuant to a previous stipulated injunction previously entered by this Court (the "Stipulated Injunction"), has been completed.

2. Defendant CEDAR POINT PROPERTIES, INC., shall conduct no further timber harvest at the Walker Mine Property.

3. Defendant DANIEL R. KENNEDY shall not, whether in his individual capacity or through his agents or family members, or through any other legal entity existing in the present or future, have any further or future financial interest in activities on the Walker Mine Property. "Financial interest" includes, but is not limited to, direct or indirect profits or income from activities including, but not limited to, timber harvesting, Christmas tree production and harvesting, production of other agricultural crops, and conduct of recreational activities.

4. The amount presently held in the escrow account pursuant to the Settlement Agreement and the Stipulated Injunction is approximately $119,609.78. Such amount represents the total of (a) the logger's withhold pursuant to Section VI(B)(1) of the Settlement Agreement and/or Paragraph 3(A) of the Stipulated Injunction in the amount of approximately $17,302.18, and (b) the amount to be used by CEDAR POINT PROPERTIES, INC. ("CEDAR POINT") pursuant to the Settlement Agreement and/or the Stipulated Injunction, for remedial activities at the Walker Mine Property, in the amount of approximately $102,307.60.

5. The amount of $17,302.18, representing the logger's withhold, shall be distributed from the Escrow Account as follows:

A. The held back funds will be distributed from the Escrow Account to the State of California Department of Justice (DOJ), where they will be deposited in the Attorney General's Trust Fund (the DOJ Account) to be held on behalf of the Regional Board.

B. The held back funds will be distributed from the DOJ Account on demand and documentation by the staff of the Regional Water Quality Control Board, Central Valley Region ("Regional Board"), to be used only for timber restocking and/or other timber harvesting-related remediation of the Walker Mine Property, related activities and

expenditures, and reasonable DOJ attorneys' fees that may be incurred in representing the Regional Board related to its possession and/or use of the held back funds.

6. Due to the suspended corporate status of CEDAR POINT, the funds remaining in the Escrow Account after distribution of the logger's hold-back, which total approximately $102,307.60, plus any additional amount that may remain in the Escrow Account as the result of accrual of interest, shall be distributed to the Regional Water Quality Control Board, Central Valley Region ("Regional Board"), to be deposited in a segregated account of the State Water Resources Control Board Cleanup and Abatement Account and to be used only for "remedial activities" (as defined in the Settlement Agreement and/or the Stipulated Injunction) at the Walker Mine Property, or expenditures and/or activities related to the conduct of remedial activities at the Walker Mine Property, consistent with California Water Code, Division 7.

7. The Regional Board, its employees, agents, and contractors, may freely enter the Walker Mine Property and conduct any monitoring, remediation, or related activities as may be deemed necessary or desirable in the judgment of the Regional Board.

8. Defendant DANIEL R. KENNEDY is hereby released from any and all claims and liabilities in connection with this action.

9. The complaint in this proceeding is hereby dismissed with prejudice as to Defendant DANIEL R. KENNEDY.

10. The complaint in this proceeding is hereby dismissed without prejudice as to Defendant CEDAR POINT PROPERTIES, INC.

Dated: FEB 16 2004, 2004

GARRETT OLNEY

JUDGE OF THE SUPERIOR COURT

Exhibit 55

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 97-082

APPROVAL OF FUNDS FROM THE STATE WATER POLLUTION CLEANUP AND ABATEMENT ACCOUNT TO CONTINUE MONITORING AND MAINTENANCE OF THE ACID MINE DRAINAGE ABATEMENT PROJECT AT WALKER MINE

WHEREAS:

1. Discharges of acid mine drainage from Walker Mine can impair beneficial uses of Dolly Creek, Little Grizzly Creek and the Feather River; and

2. In settlement of a lawsuit against the former owner, $1,500,000 was added to previous allocations from the State Water Pollution Cleanup and Abatement Account (Account) for cleanup activities at Walker Mine; and

3. The Regional Water Quality Control Board, Central Valley Region, (Regional Water Quality Control Board) has expended all Account funds allocated for Walker Mine except for $266,200; and

4. The Regional Water Quality Control Board has determined there are sufficient funds allocated for 1997. However additional funding of $1,200,000 is needed to continue monitoring and maintenance for the next 10 years; and

5. The Regional Water Quality Control Board has requested $1,200,000 over a ten (10) year period from the Account for activities detailed in the Operations and Maintenance Procedures for Walker Mine; and

6. The Regional Water Quality Control Board has resolved that before using funds from the Account the Executive Officer is directed to seek funding from any responsible party; and

7. The Regional Water Quality Control Board has resolved that if funds are expended the Executive Officer is directed to seek reimbursement from any responsible party; and

8. The Account is currently over committed. To insure that it remains solvent, any major projects funded by the Account must be segmented; and

9. It has been determined that an additional commitment of $111,000 per year will not jeopardize the security of the Account.

THEREFORE BE IT RESOLVED THAT:

The State Water Resources Control Board:

1. Allocates up to $1,200,000 from the Account over a ten (10) year period to the Regional Water Quality Control Board to operate and maintain the Acid Mine Drainage Abatement Project at Walker Mine in accordance with the Operation and Maintenance Procedures adopted by the Regional Water Quality Control Board.

2. The Regional Water Quality Control Board will segment major procurement to the degree possible, and before entering any contract in excess of $250,000, will obtain approval from the Executive Director to ensure sufficient funds are in the Account to cover the contract.

3. The unused portions of the Account funds previously allocated to Walker Mine must be expended before these additional funds may be expended.

CERTIFICATION

The undersigned, Administrative Assistant to the Board, does hereby certify that the forgoing is a full, true, correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on September 18, 1997.

Maureen Marché
Administrative Assistant to the Board

Exhibit 56

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

REGION 5
SACRAMENTO

WALKER MINE
ACID MINE DRAINAGE ABATEMENT PROJECT
PLUMAS COUNTY

OPERATIONS AND MAINTENANCE PROCEDURES

MAY 1997

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WALKER MINE
ACID MINE DRAINAGE ABATEMENT PROJECT
PLUMAS COUNTY

OPERATIONS AND MAINTENANCE PROCEDURES

I. INTRODUCTION

In 1987, the Regional Board, as part of an enforcement action against the Calicopia Corporation, placed a mine seal in Walker Mine. The mine seal stopped the discharge of acid mine drainage from within the mine to Little Grizzly Creek, allowing restoration of about ten miles of prime trout habitat. This previously sterile stream is a valuable resource to this intensely recreated area of Plumas County. Subsequent to the installation of the seal the Regional Board won a $1.5 million judgment against Calicopia. This money has been used to maintain the seal and protect the water quality benefits that result from the seal. However, in the near future, these funds will expire. The purpose of these Operations and Maintenance Procedures is to document future costs of about $111,000 annually to maintain this water quality improvement. The mine seal has held back a pressure of 670 tons, well within the maximum working pressure of the seal. Continued maintenance is critical to the ability of the seal to continue to hold back polluted water from the mine.

II. BACKGROUND

The Walker Mine is an 800-acre inactive copper mine in east-central Plumas County about 15 miles northeast of Quincy. The mine is at an elevation of about 6,180 feet. Active mining took place between 1915 and 1941. The mine contained five major orebodies ranging from 600 to 1,400 feet long and 10 to 100 feet thick, with a typical thickness on the order of 50 feet.

The mine is estimated to contain about 13 miles of tunnels and 3,500 feet of vertical shafts. Total void volume in the mine has been estimated to be between 330 and 543 million gallons.

The mine is in the upper end of the Little Grizzly Creek Basin. The Walker Mine has surface drainage and portal drainage to Dolly Creek, a tributary to Little Grizzly Creek. Little Grizzly Creek is approximately 15 miles long.

Average annual precipitation ranges from 50 inches on the higher western mountains to 25 inches in Genesee Valley. The mine site is subject to heavy snowfall in winter and is generally inaccessible to motor vehicles from November through April. Dirt roads

traversing the drainage basin are closed throughout most of the late fall, winter, and early spring.

Since the Walker Mine closure in 1941, the site has discharged acid and heavy metals directly into Dolly Creek. The discharge to surface waters eliminated aquatic life downstream in Dolly Creek and Little Grizzly Creek for a distance of about ten miles. Only through dilution at the confluence with Indian Creek was the quality of these waters improved sufficiently for aquatic life. The Regional Board began investigating specific pollutants discharging from the Walker Mine Site in 1957. These investigations indicated that the mine portal was a primary source of pollution in Dolly Creek and Little Grizzly Creek.

A secondary source of pollution is the non-point surface run-off from springs, rainfall, and/or snowmelt that has passed through mine waste piles and an unlined settling pond that are immediately south of the portal. Oxidation of pyrite and other sulfide minerals resulted in the production of acid and mobilization of heavy metals. These Operations and Maintenance Procedures do not involve mine wastes outside of the underground mine. Due to the expense of remediating these materials and the low level of metals discharged from them, the waste piles have not been remediated.

In November 1987, the Regional Board installed an engineered concrete mine seal 2,675 feet from the 700-level adit portal (See Figure 1). This seal was installed to prevent direct discharge of acid mine drainage from the underground ore zone to the surface waters of Dolly Creek.

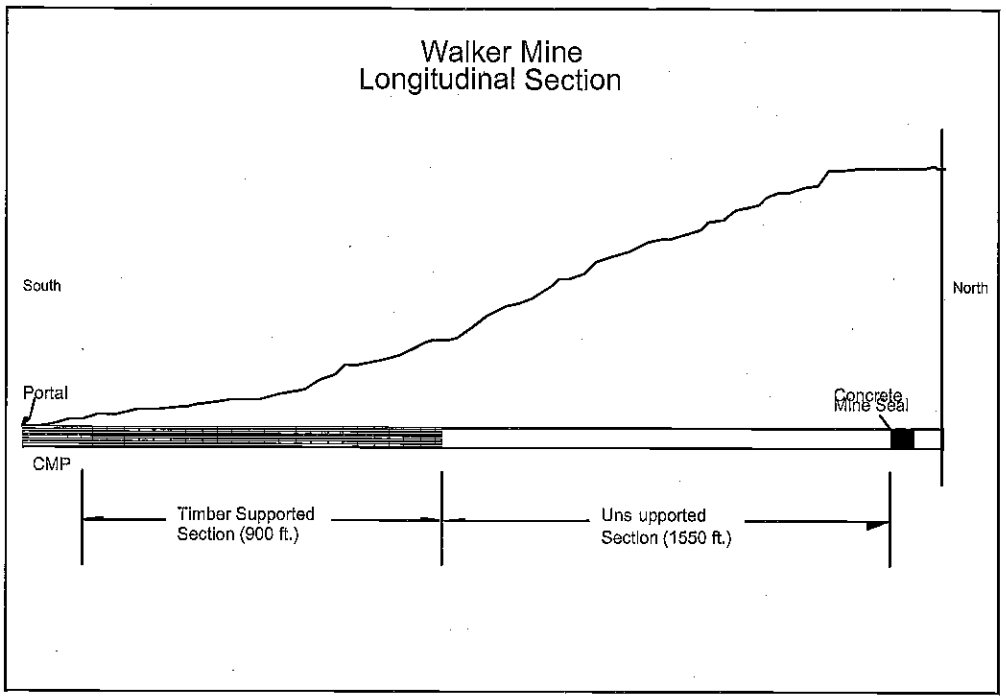

Figure 1: Walker Mine Longitudinal Section

Since construction, the mine seal has successfully eliminated the direct discharge of acid mine drainage from the underground ore zone. Prior to the mine seal construction, the portal discharge averaged 420 gpm. After the installation of the mine seal, there was no flow passing the mine seal. The post-1987 portal flows consists of minor surface water infiltration which enters and drains from the portal. The mine seal project resulted in a 98 percent reduction in copper loading in Dolly Creek. In addition to the reduction of acid mine drainage flow, copper concentrations from the portal have decreased to 0.25 mg/l after the seal installation, as shown in Figure 2.

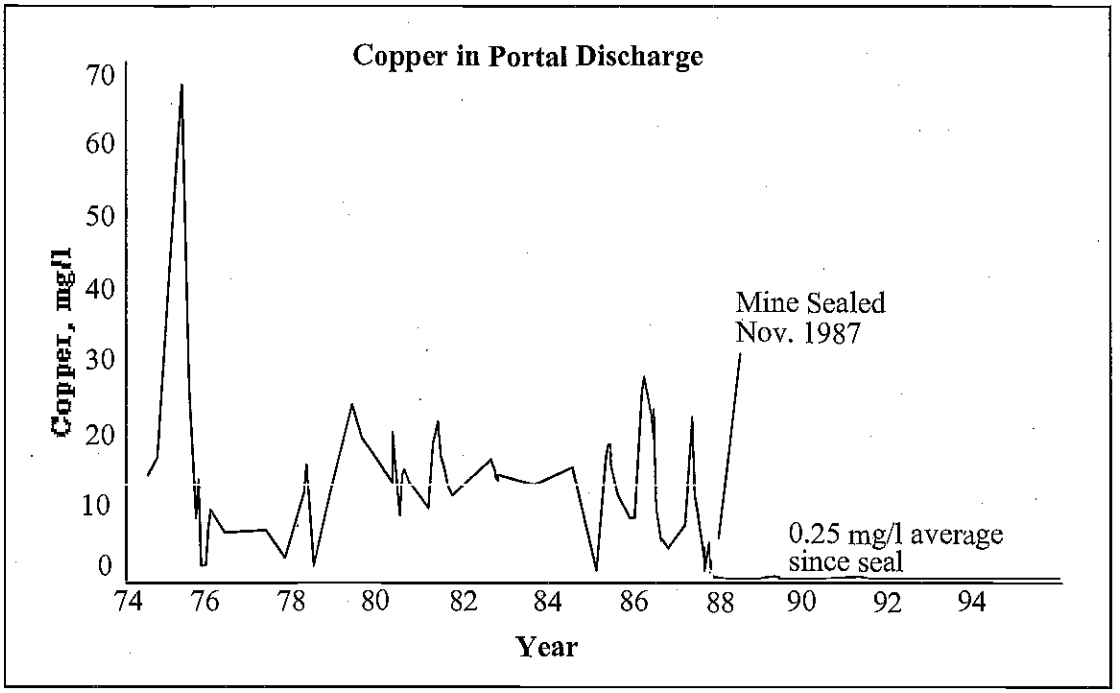

Figure 2: Walker Mine Copper Concentrations in Portal Discharge

The performance of the seal is and will be continually monitored for effectiveness and leakage. The hydrostatic pressure is continuously monitored with a pressure transmitter and data recording equipment. The hydrostatic pressure against the back of the seal since the installation of the concrete seal is shown in Figure 3. The dark line shows actual pressure data, while the light line shows inferred water elevations.

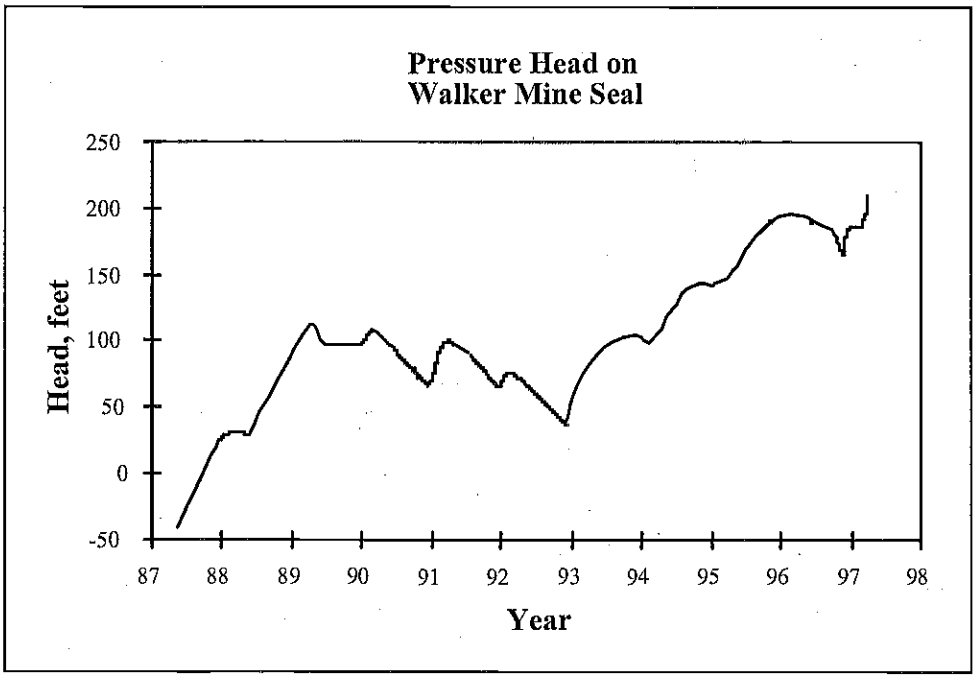

Figure 3: Pressure Head on Walker Mine Seal

The concrete seal is designed to hold back a pressure head of 500 feet. However, the maximum working pressure is 400 feet due to the possibility of discharges to surface waters. This maximum working pressure is derived from the elevation difference between the main portal and the Piute shaft portal (a higher elevation adit where the mine could discharge to surface waters). Should the water elevation within the mine reach 350 feet, the Board must consider the need to discharge and treat mine water to prevent degradation of the Ward and Nye Creek watersheds.

The purpose of these operations and maintenance procedures is to identify the work required to maintain the mine seal and prevent discharge of pollutants to surface waters. These operations and maintenance procedures cover the mine seal, the access tunnel, drainage structures, inspections, and water quality monitoring of Little Grizzly Creek and Ward Creek. An annual report shall be prepared for the Board by 1 February of each year summarizing water quality data, and the integrity of the mine seal and tunnel. The operations and maintenance procedures shall be revised and updated as necessary once every 5 years.

III. MINE STRUCTURES

There are various mine structures that must be maintained in order to successfully maintain the Walker Mine seal. These include the mine portal, corrugated metal pipe, and access tunnel, all three of which provide access to the mine seal. Figure 3 shows the relative locations of these structures. Additional features are surface water diversion structures which divert surface water from entering the mine.

Portal

The Walker Mine portal structure is at the main 700 level adit. The portal is an original structure constructed of concrete. The portal door is 3/8" steel plate and has two keyed locks to prevent unauthorized entry. Sections of the concrete and steel door show indications of damage from vandalism and forced entry. Railroad tracks begin outside the portal and continue to the mine seal. The tracks have been useful in providing a method for moving timbers, muck, and equipment into and out of the mine.

Drainage structures (primarily piping) exist both inside and outside the mine portal. The piping drains ground water and mine water from inside the mine to a discharge point that flows into a sedimentation basin. Inside the mine, the drainage system is a channel that flows on the western edge of the access tunnel. Mine debris can accumulate in the drainage structures which must be periodically cleaned to allow proper drainage.

Corrugated Metal Pipe

Immediately inside the portal is 187 feet of 10-foot diameter corrugated metal pipe (CMP). The CMP was installed in 1995 when the outer portion of the adit collapsed due to heavy snow loads. The CMP is installed between the existing concrete portal and the concrete arch of a fire door. The floor of the CMP is covered with gravel. Drainage pipes are imbedded in the gravel to convey ground water out of the portal.

Access Tunnel

The access tunnel from the portal/CMP to the mine seal consists of both 900 feet of tunnel supported by mining timbers and 1550 feet of tunnel that is competent rock that requires no support. The timbered section provides passive support of loose rock. The age of the mining timbers varies, with some of the supports being original timber sets.

When the mine was sealed in 1987, natural ventilation through the adit was restricted. Due to the very wet conditions in this section of the tunnel, the humidity in the adit increased, thus increasing decay rate of the existing untreated wood. This has shortened the life of the timber sets and accelerated their replacement schedule. In 1995, 380

contiguous feet of the timbered section of the adit were rehabilitated with new timber sets. New timbers sets are made with pressure treated mining timbers to resist rot and decay. The next 520 feet of timbers are being rehabilitated in 1997. Timber sets require periodic inspection and replacement as sets fail. The Board contracts with construction contractors for this work.

Mine Seal

A mine seal was installed in the main 700 level adit of Walker Mine to reduce the flow of acidic mine waters from the main portal. The seal is 2675 feet inward from the mine portal. This site was selected for the mine seal because it minimizes potential seepage around the seal, provides a structurally competent area for the concrete plug, and allows access to valves and instrumentation at the seal. The seal was designed for a pressure head of 500 feet. The seal is about 12 feet in diameter and 15 feet in length. The concrete mixture is composed of a type II Portland cement, pozzolan, plasticizers, sand, and aggregate with maximum size of 3/4".

Two 4-inch diameter stainless steel drainage pipes are installed in the seal. The flanged pipes are attached to stainless steel valves. An analog pressure gage connected to the pipe continuously measures the hydraulic pressure on the back of the seal. In addition, a pressure transducer is coupled to the pipe assembly, as shown in Figure 4. Four conductor wire from the pressure transmitter is routed to the portal area where it is connected to a series of batteries (four 12-volt, 34-amp-hour lead acid batteries) and data logging electronic instrumentation.

Subsidence Areas

The subsidence areas are above the Walker Mine and provide a direct pathway for rainfall and snowmelt to enter the mine workings. Two localized subsidence, or sinkhole, areas exist over the underground mine workings. The areas are north of portal area on a hillside at an elevation of about 6800 feet. The subsidence areas are identified as the Central and Piute areas, with numerous sink holes at each location. The approximate total sinkhole volume is 19,000 cubic yards.

In the 1980's and planned for 1997, the Regional Board retained contractor services to construct surface water diversion channels around much of the subsidence areas. The ditches divert surface water from entering the mine in order to lower the elevation of water stored behind the mine seal and reduce the possibility of an acid mine water discharge to surface waters.

The surface water diversion channels consist of unlined surface water diversion channels and subsurface drains. There are about 2350 feet of existing diversion structures. The diversion channels are mainly V-section ditches. An additional 1175 feet of diversion ditches and 2125 feet of subsurface drains are planned to be constructed in 1997. The

subsurface drains are to be constructed with perforated plastic pipe and drainage gravel enclosed with geofabric. The subsurface drains will be about 5-feet in depth and 2-feet wide. The subsurface structures will drain into the diversions channels.

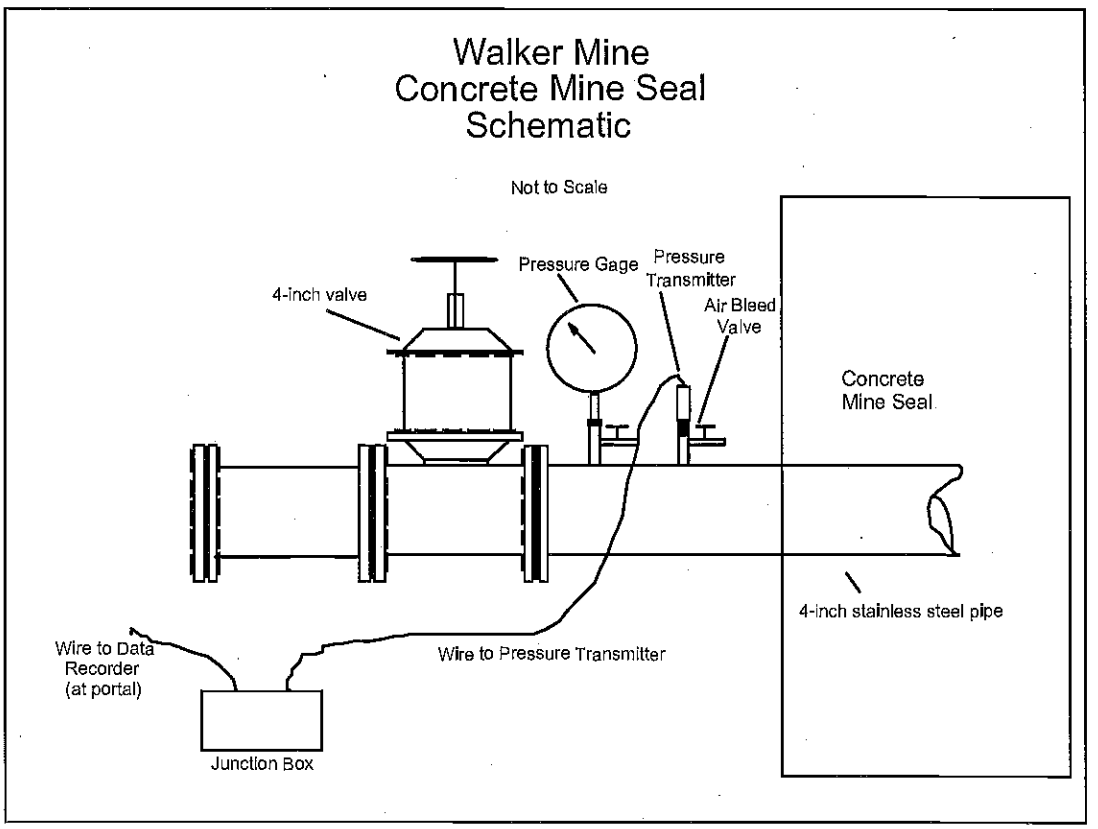

Figure 4: Walker Mine Valves and Piping at Mine Seal

The diversion channels accumulate debris and sediment from storm events and require periodic cleaning of the ditches so that surface water can be drained from the subsidence areas.

Monitoring Well

A mine water monitoring well will be installed above Walker Mine near Road 24N09 on the Walker Mine property. The monitoring well will intersects the mine workings about 2000 feet behind the mine seal. The monitoring well is about 900 feet deep and is screened in a mine stope. The monitoring well will be used to investigate water elevation and chemistry in the mine behind the seal.

The monitoring well installation is a joint project between the Regional Board and the U.S. Department of Energy. Originally the Board had worked with the U.S. Bureau of

Mines, however the U.S. Bureau of Mines has been absorbed within the Department of Energy. The U.S. Bureau of Mines has provided funding and stainless steel casing for the well project.

IV. MAINTENANCE PROGRAM

Regional Board staff shall continue to maintain the mine seal and surface water diversion structures at the Walker Mine site. This periodic maintenance program addresses safe mine entry, mine seal accessibility and integrity, surface water quality monitoring, surface water erosion, and vandalism. Regional Board staff shall conduct site inspections, monitor water quality, identify problems, and develop and manage contracts for repair and replacement of site structures.

A. Inspection Schedule

Regional Board staff shall inspect the Walker Mine twice per year. The inspections shall include seal, access tunnel, and drainage structure inspections as required above. Both inspections shall include water quality monitoring. The first inspection shall be made soon after access to the site is available in late Spring. The second inspection shall be made in the fall before snow limits access to the site. Additional inspections may be required to meet with the Board's contractors and observe any work being done on the mine.

Vandalism damage shall be repaired as soon as possible to maintain security of the portal door.

B. Monitoring Program

Concrete Seal

The performance of the seal shall be continually monitored for effectiveness, leakage, and hydrostatic pressure.

1. Concrete

   The concrete seal has a 100-year design life span. Due to the exposure of the seal to acidic conditions, Board staff must periodically check the competency of the concrete. Tests may be by non-destructive methods or by coring the concrete as determined by the Engineer. Board staff shall review the competence of the concrete in the seal at least once every ten years. Staff shall make visual inspections of the concrete seal annually. Staff shall note

locations of water seepage and discoloration along the roof and walls of the tunnel.

2. Piping and Valves

   The piping and valves in the mine seal are stainless steel. Board staff shall inspect all exposed piping and valves at least annually to detect any visible corrosion. Seepage around the piping shall be noted. Components that are not stainless steel shall be properly protected to prevent corrosion.

3. Rock Support

   Board staff shall visually inspect the rock surrounding the seal annually. Water Seepage from around the seal shall be noted and its location recorded. The size and color of mineral deposits around the seal shall be noted.

4. Seal Pressure

   Pressure monitoring equipment shall continuously monitor the seal pressure. The pressure monitoring equipment consists of a pressure transmitter and data recording computer. The pressure data recording computer shall be kept near the inside of the mine portal. Staff shall download the data during the spring and fall inspections and evaluate the seal pressure upon returning to the Regional Board office. Staff shall bring fully charged batteries to each inspection and return the used batteries for recharging.

Access Tunnel

1. Unsupported Rock

   A mining safety person, under contract to the Board, shall examine and scale the unsupported rock section prior to access by Board staff. Since Board staff or their representatives will be accessing the mine seal on a yearly basis, mining safety person shall examine the unsupported section annually. This examination shall include sounding and scaling of loose or dangerous rock. Any rock scaled to the floor of the access tunnel shall be left in place until it becomes hazardous or impairs access to the seal. At that time, all loose or fallen rock shall be removed. Staff shall note locations of water seepage from the roof and walls of the tunnel.

   The railroad tracks in the access tunnel shall be maintained in working order by efforts to avoid damage. Any damage occurring due to rockfalls or corrosion will not be repaired as a routine operations and maintenance procedure.

2. Timbered Section

   Regional Board staff shall inspect the timbered support section of the access tunnel annually. The inspection shall consist of noting damaged and fallen timbers, coring of suspect timbers to determine depth of decay, and noting seepage locations in roof and walls. Visual inspections shall note: 1) crushing of footblocks beneath posts, 2) splitting of the post bottoms, 3) splitting or crushing at the post-to-cap junction, 4) splitting or crushing of the cap, 5) movement of the set out of alignment, and 6) splitting or crushing of lagging. Timbered supports shall be replaced when it is determined that they will not provide sufficient overhead and lateral support for the following year. The design life of timbers installed in the mine is 15 years. It is anticipated that one-third of the timber sets will be replaced every 5-years. Staff shall inspect timbers annually to determine the extent of decay and to ensure that the current replacement schedule is adequate. Regional Board staff shall contract with underground construction contractors for replacement of timbers.

3. Corrugated Metal Pipe

   Board staff shall inspect the corrugated metal pipe annually to detect any corrosion, seepage, deflection, physical damage or structural failures occurring in the metal pipe. Progressive deflection of the CMP usually precedes pipe failure. Staff shall monitor and record the pipe height (diameter) at joint locations between CMP sections to measure deflections. Measurements shall be made to the nearest 0.1 foot. Subsequent measurements shall be compared to monitor pipe deflection.

4. Ventilation Fan

   Board staff shall run the ventilation fan at least once per year during the mine seal inspection or more often if needed to determine its status. The fan shall be stored in the mine and shall be protected from moisture to the extent possible. A portable rental generator will be used to power the fan. The generator shall be capable of providing 3-phase, 240 volts, with a minimum power 12 kilowatts.

Drainage Structures

1. Mine Portal Area

   Board staff shall inspect the drainage structures inside and outside the mine portal annually to determine if they are in working condition and are capable

of carrying design flows. Staff shall note any areas where drainage backs up and is not able to freely flow. Drainage structures shall be cleaned as required to ensure capability of carrying design flows.

2. Subsidence Areas

The diversion channels will require periodic maintenance to maintain the flow capacity for which they were designed. They will require maintenance periodically or after a large storm event deposits soil and debris in the channels. Some years will require more maintenance than others. Board staff shall inspect drainage ditches constructed around the subsidence areas annually to review their ability to divert surface water away from subsidence areas. Board staff shall inspect for erosion and sedimentation problems. Diversion ditches shall be cleaned and reshaped as required to ensure their ability to carry design flows.

C. Water Quality Monitoring Program

Board staff shall monitor drainages in the Ward Creek and Nye Creek twice per year to determine if water stored in the mine has seeped to these watersheds. Board staff shall also monitor Dolly Creek watershed below the mine portal and above and below the Forest Service Tailings to track metal concentrations from the onsite and offsite tailings area. Historic water quality data will be maintained and reviewed annually for trends.

The monitoring program shall consist of 25 surface water monitoring locations (as shown on Figure 5) and one mine water monitoring well. The surface water monitoring locations and sampling frequency are listed in Table 1. Surface water locations shall be sampled and analyzed for the monitoring parameters listed in Table 2. Portal discharge (gpm) shall be estimated.

The mine water monitoring well is located north of the portal. The elevation of the mine water shall be measured. The mine water shall be collected from the screened interval of the monitoring well. The monitoring well shall be sampled and analyzed for the monitoring parameters listed in Table 2.

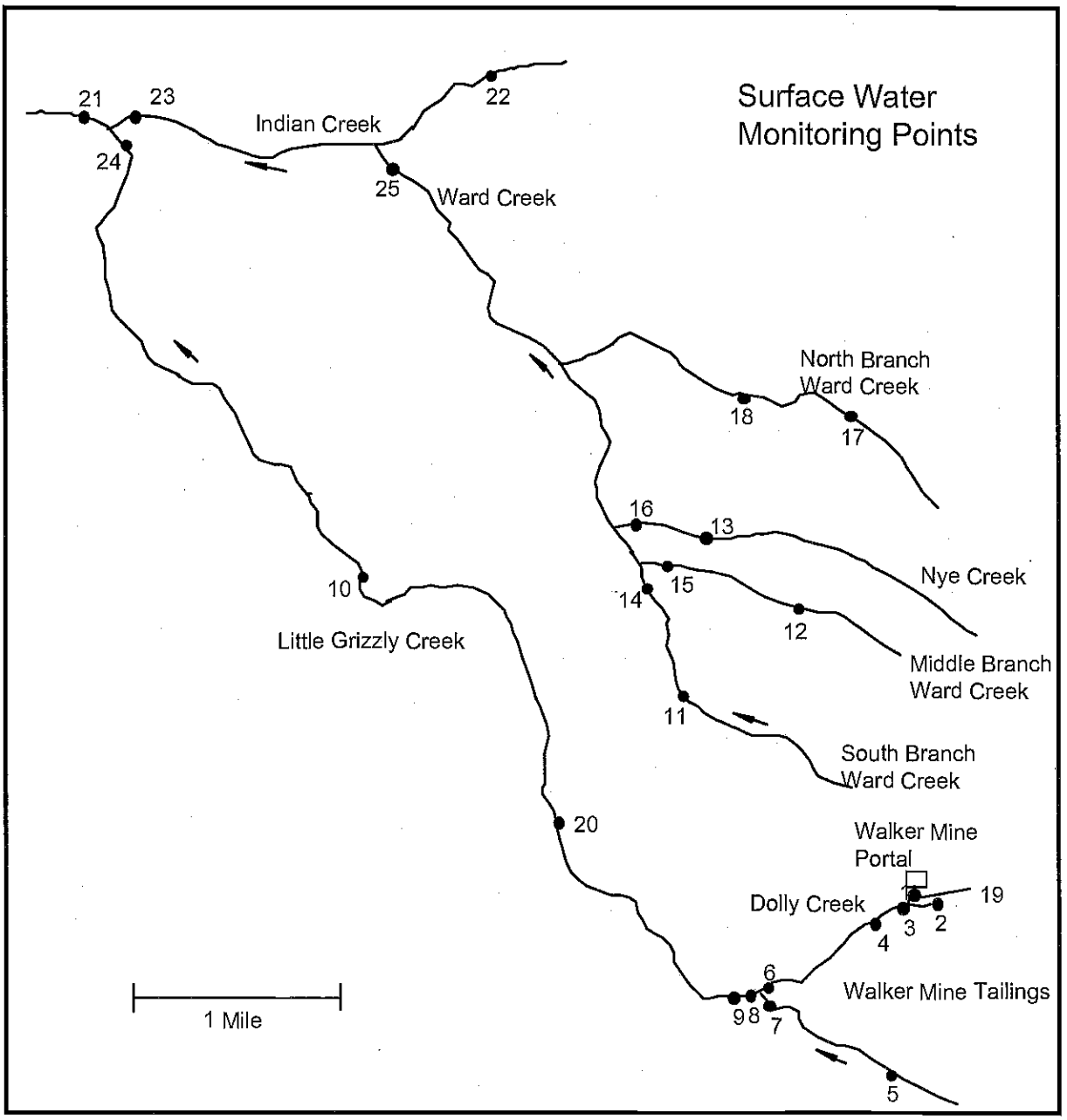

Figure 5: Walker Mine Surface Water Monitoring Points

Table 1
MONITORING STATIONS AND DESCRIPTIONS

Semi-Annual

Sample ID	Description/ Location
1. Portal	Mine Discharge at Portal
2. DC Upstream	Dolly Creek upstream of mine at Road 24N09
3. DC Downstream	Dolly Creek below mine access road
4. DC @48" culvert	Dolly Creek - 100 feet above 48" culvert on Road 112 (Walker Mine Road)
5. LGC upstream	Little Grizzly Creek upstream of tailings at Road 24N60
6. USFS dam	USFS dam on Dolly Creek
7. LGC above DC	Little Grizzly Creek 50 feet above confluence with Dolly Creek
8. LGC below DC	50 feet below confluence of Little Grizzly Creek and Dolly Creek
9. LGC @ Browns Cabin	Little Grizzly Creek at Browns Cabin
10. LGC @25N05Y	Little Grizzly Creek upstream of Road 25N05Y
11. S. Br. Ward Creek @ 25N42	South Branch Ward Creek at Road 25N42
12. Mid. Br. Ward Creek @ 25N42	Middle Branch Ward Creek at Road 25N42
13. Nye Creek @ 25N42	Nye Creek at Road 25N42
14. So. Br. Ward Creek @ 25N32Y	South Branch Ward Creek at Road 25N32Y
15. Mid. Br. Ward Creek @ 25N32Y	Middle Branch Ward Creek at Road 25N32Y
16. Nye Creek @ 25N32Y	Nye Creek at Road 25N32Y
17. No. Br. Ward Creek @ 25N42	North Branch Ward Creek at Road 25N42
18. No. Br. Ward Creek @ 25N32Y	North Branch Ward Creek at Road 25N32Y
19. Settling Pond Discharge	Settling Pond Discharge downstream portal

Table 1
MONITORING STATIONS AND DESCRIPTIONS
(Continued)

Annual

Sample ID	Description/ Location
20. LGC @ Far West	Little Grizzly Creek at the Far West townsite
21. IC downstream of LGC	Indian Creek downstream of confluence with Little Grizzly Creek
22. IC @ Road 112	Indian Creek at Road 112
23. IC upstream of LGC	Indian Creek upstream of confluence with Little Grizzly Creek
24. LGC upstream of IC	Little Grizzly Creek upstream of confluence with Indian Creek
25. Ward Creek @ Genesee Valley	Ward Creek at Genesee Valley floor

Table 2
MONITORING PARAMETERS

Field Parameters	Temperature pH Specific Conductance
Laboratory parameters	General Minerals[1]: alkalinity, calcium, sodium, chloride, sulfate, total hardness, total dissolved solids Dissolved metals : copper, zinc, arsenic[2], iron, aluminum Total metals: copper, zinc, arsenic[2], iron, aluminum

[1] Annual Monitoring Parameters
[2] Portal discharge only

V. ESTIMATED COSTS

Following are cost estimates for annual and periodic maintenance activities described in the Operations and Maintenance Plan.

Annual Maintenance/Monitoring:

Task	Annualized Staff Hours[1]	Costs[2]	Contract Costs	Annualized Costs[3]
Report reviews, contract preparation, report preparation, other overhead (e.g., annual reports, funding..	1000			
Staff Inspection	80	$ 500		$ 500
Safety inspection	40		$ 1,500	$ 1,500
Site Security (steel entrance door/locks/gates/signs)	20	$ 500		$ 500
Generator rental	10	$ 1,000		$ 1,000
Water Quality Monitoring (sampling, equipment, lab analytical costs)	16	$ 4,000		$ 4,000
Total	1166			$ 7,500

As Required Maintenance (2-3 years):

Removal of fallen rock inside timbered and unsupported sections	50		$ 8,000	$ 4,078
Diversion ditch maintenance	25		$10,000	$ 5,098
Drainage structures at portal area	25		$ 2000	$ 1,020
Data logger (batteries)	10	$ 750		$ 382
Total	110			$ 10,578

5-Year Maintenance

Timber support replacement	100		$ 300,000	$64,796
Pressure transducer replacement/ data logger replacement (and associated piping)	10	$ 3000		$ 648
Seal/concrete testing (Non-destructive)	40		$15,000	$ 3,240
Ventilation fan/ducting replacement/rehabilitation	30		$10, 000	$ 2,160
Total	180			$70,844

Long Term Maintenance

Concrete seal replacement	10		$ 500,000	$ 22,380
Total Annualized Hours/Costs	1466			$ 111,302

Notes:

[1] Staff time (in hours) is time required to complete tasks, including field time and contract preparation.

[2] Costs for equipment, supplies, fuel, etc. for the corresponding task. Does not include staff costs.

[3] Annualized cost computed using 4% annual inflation factor.

Exhibit 57

WALKER MINE, PLUMAS COUNTY
MONITORING STATIONS, DESCRIPTIONS, AND COORDINATES

Semi-Annual

Sample ID	Description/ Location	Latitude	Longitude
WM-1 Portal	Mine Discharge at Portal	39.96577	-120.66536
WM-2 DC Upstream	Dolly Creek upstream of mine at Road 24N09	39.96589	-120.66423
WM-3 DC Downstream	Dolly Creek below mine access road	39.96334	-120.66708
WM-4 DC @48" culvert	Dolly Creek - 100 feet above 48" culvert on Road 112 (Walker Mine Road)	39.96235	-120.67114
WM-5 LGC upstream	Little Grizzly Creek upstream of tailings at Road 24N60	39.94747	-120.66784
WM-6 USFS dam	USFS dam on Dolly Creek	39.95554	-120.68500
WM-7A DC above new USFS realignment	Dolly Creek - 50 feet upstream of USFS realignment across the tailings impoundment	39.95935	-120.67435
WM-7B DC realignment above LGC	Dolly Creek realignment across the tailings - 50 feet above confluence with Little Grizzly Creek	39.95444	-120.68122
WM-7C LGC upstream of DC realignment	Little Grizzly Creek - 50 feet upstream of USFS realignment of Dolly Creek across the tailings	39.95409	-120.68140
WM-9 LGC @ Browns Cabin	Little Grizzly Creek at Browns Cabin	39.95502	-120.68829
WM-10 LGC @25N05Y	Little Grizzly Creek upstream of Road 25N05Y		
WM-11 S. Br. Ward Creek @ 25N42	South Branch Ward Creek at Road 25N42		
WM-12 Mid. Br. Ward Creek @ 25N42	Middle Branch Ward Creek at Road 25N42		
WM-13 Nye Creek @ 25N42	Nye Creek at Road 25N42		
WM-14 So. Br. Ward Creek @ 25N32Y	South Branch Ward Creek at Road 25N32Y		
WM-15 Mid. Br. Ward Creek @ 25N32Y	Middle Branch Ward Creek at Road 25N32Y		
WM-16 Nye Creek @ 25N32Y	Nye Creek at Road 25N32Y		
WM-17 No. Br. Ward Creek @ 25N42	North Branch Ward Creek at Road 25N42		
WM-18 No. Br. Ward Creek @ 25N32Y	North Branch Ward Creek at Road 25N32Y		
WM-19 Settling Pond Discharge	Settling Pond Discharge downstream portal	39.96444	-120.66644
WM-20 LGC @ Far West	Little Grizzly Creek at Far West townsite	39.97195	-120.71088
WM-21 IC downstream of LGC	Indian Creek downstream of confluence with Little Grizzly Creek		
WM-22 IC @ Road 112	Indian Creek at Road 112		
WM-23 IC upstream of LGC	Indian Creek upstream of confluence with Little Grizzly Creek		
WM-24 LGC upstream of IC	Little Grizzly Creek upstream of confluence with Indian Creek		
WM-25 Ward Creek @ Genesee Valley	Ward Creek at Genesee Valley floor		
MW-30 Plug	Pool at base of Plug	NA	NA

Revised by BJB June 2011

Exhibit 58

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

August 22, 2006

CLS Work Order #: CPF0001
COC #: 71797

Steve Rosenbaum
CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Project Name: Walker Mine

Enclosed are the results of analyses for samples received by the laboratory on 06/01/06 07:30. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES

CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Project: Walker Mine
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPF0001
COC #: 71797

CLS - Labs CHAIN OF CUSTODY CLS ID No.: CPF0001 LOG NO. 71797

REPORT TO:
NAME AND ADDRESS: Leticia Valadez
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670
PROJECT MANAGER: Steve Rosenbaum PHONE #: 916-464-4631
PROJECT NAME: Walker Mine - PCA 13180
SAMPLED BY: Jeff Huggins/Steve Rosenbaum
JOB DESCRIPTION:
SITE LOCATION: Plumas Co., CA

CLIENT JOB NUMBER:

DESTINATION LABORATORY:
☑ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA 95742
☐ OTHER

ANALYSIS REQUESTED
PRESERVATIVES: Bio Group 7 + Total Metals 11 + Dissolved Metals + General Minerals

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID:
COMPOSITE:
FIELD CONDITIONS:

TURN AROUND TIME: 1 DAY | 2 DAY | 5 DAY | 10 DAY
SPECIAL INSTRUCTIONS OR ALT. ID:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	
5-31	10:45	WM-5 LGC U/S	W	3	Plastic	3/2	X
5-31	11:10	WM-3 DC D/S					
	11:35	WM-1 PORTAL					
	11:50	WM-2 DC U/S					
*	13:20	WM-19 POND					
*	13:30	WM-20 DUMP					
	17:10	WM-9 LGC AT BROWNS (AM)					

Need Low Detection Limits for Metals

INVOICE TO:
P.O. #
QUOTE #

* Note: These two samples likely have elevated Copper (Cu) levels

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCl (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
Jeff Huggins	Jeff Huggins/CVRWQCB	6-1-06/1130		

RECD AT LAB VIA: SHIPPED BY ☐ FED X ☐ UPS ☐ OTHER
DATE / TIME: 6/1/06 0930
CONDITIONS / COMMENTS: 3C
AIR BILL #

CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Project: Walker Mine
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPF0001
COC #: 71797

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WM-5 LGC U/S (CPF0001-01) Water	**Sampled: 05/31/06 10:45**		**Received: 06/01/06 07:30**						
Total Alkalinity	**21**	5.0	mg/L	1	CP04112	06/02/06	06/02/06	EPA 310.1	
Bicarbonate as CaCO3	**21**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.69**	0.50	"	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Specific Conductance (EC)	**56**	1.0	µmhos/cm	"	CP04078	06/01/06	06/01/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP04061	06/01/06	06/01/06	EPA 425.1	
Calcium	**7.1**	1.0	"	"	CP04232	06/07/06	06/07/06	200.7/2340B	
Magnesium	**2.3**	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**2.9**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**27**	1.0	"	"	"	"	"	"	
pH	**7.22**		pH Units	"	CP04052	06/01/06	06/01/06	EPA 150.1	
Sulfate as SO4	ND	0.50	mg/L	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Total Dissolved Solids	**52**	10	"	"	CP04108	06/02/06	06/02/06	EPA 160.1	
WM-3 DC D/S (CPF0001-02) Water	**Sampled: 05/31/06 11:10**		**Received: 06/01/06 07:30**						
Total Alkalinity	**44**	5.0	mg/L	1	CP04112	06/02/06	06/02/06	EPA 310.1	
Bicarbonate as CaCO3	**44**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.72**	0.50	"	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Specific Conductance (EC)	**76**	1.0	µmhos/cm	"	CP04078	06/01/06	06/01/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP04061	06/01/06	06/01/06	EPA 425.1	
Calcium	**9.8**	1.0	"	"	CP04232	06/07/06	06/07/06	200.7/2340B	
Magnesium	**4.4**	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**2.2**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**43**	1.0	"	"	"	"	"	"	
pH	**7.56**		pH Units	"	CP04052	06/01/06	06/01/06	EPA 150.1	
Sulfate as SO4	**1.4**	0.50	mg/L	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Total Dissolved Solids	**78**	10	"	"	CP04108	06/02/06	06/02/06	EPA 160.1	

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CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Project: Walker Mine
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPF0001
COC #: 71797

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WM-1 Portal (CPF0001-03) Water Sampled: 05/31/06 11:35 Received: 06/01/06 07:30									
Total Alkalinity	**62**	5.0	mg/L	1	CP04112	06/02/06	06/02/06	EPA 310.1	
Bicarbonate as CaCO3	**62**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.85**	0.50	"	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Specific Conductanee (EC)	**110**	1.0	µmhos/cm	"	CP04078	06/01/06	06/01/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP04061	06/01/06	06/01/06	EPA 425.1	
Calcium	**15**	1.0	"	"	CP04232	06/07/06	06/07/06	200.7/2340B	
Magnesium	**5.4**	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**4.9**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**60**	1.0	"	"	"	"	"	"	
pH	**6.88**		pH Units	"	CP04052	06/01/06	06/01/06	EPA 150.1	
Sulfate as SO4	**1.5**	0.50	mg/L	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Total Dissolved Solids	**100**	10	"	"	CP04108	06/02/06	06/02/06	EPA 160.1	
WM-2 DC U/S (CPF0001-04) Water Sampled: 05/31/06 11:50 Received: 06/01/06 07:30									
Total Alkalinity	**69**	5.0	mg/L	1	CP04112	06/02/06	06/02/06	EPA 310.1	
Bicarbonate as CaCO3	**69**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.77**	0.50	"	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Specific Conductance (EC)	**120**	1.0	µmhos/cm	"	CP04078	06/01/06	06/01/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP04061	06/01/06	06/01/06	EPA 425.1	
Calcium	**16**	1.0	"	"	CP04232	06/07/06	06/07/06	200.7/2340B	
Magnesium	**7.5**	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**2.8**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**71**	1.0	"	"	"	"	"	"	
pH	**7.76**		pH Units	"	CP04052	06/01/06	06/01/06	EPA 150.1	
Sulfate as SO4	ND	0.50	mg/L	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Total Dissolved Solids	**98**	10	"	"	CP04108	06/02/06	06/02/06	EPA 160.1	

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Project: Walker Mine
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Project Manager: Steve Rosenbaum

CLS Work Order #: CPF0001
COC #: 71797

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WM-19 Pond (CPF0001-05) Water	**Sampled: 05/31/06 13:20**		**Received: 06/01/06 07:30**						
Total Alkalinity	**25**	5.0	mg/L	1	CP04112	06/02/06	06/02/06	EPA 310.1	
Bicarbonate as CaCO3	**25**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.74**	0.50	"	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Specific Conductance (EC)	**130**	1.0	µmhos/cm	"	CP04078	06/01/06	06/01/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP04061	06/01/06	06/01/06	EPA 425.1	
Calcium	**18**	1.0	"	"	CP04232	06/07/06	06/07/06	200.7/2340B	
Magnesium	**3.6**	1.0	"	"	"	"	"	"	
Potassium	**1.6**	1.0	"	"	"	"	"	"	
Sodium	**2.7**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**61**	1.0	"	"	"	"	"	"	
pH	**6.72**		pH Units	"	CP04052	06/01/06	06/01/06	EPA 150.1	
Sulfate as SO4	**52**	1.0	mg/L	2	CP04174	06/06/06	06/06/06	EPA 300.0	
Total Dissolved Solids	**120**	10	"	1	CP04108	06/02/06	06/02/06	EPA 160.1	
WM-20 Dump (CPF0001-06) Water	**Sampled: 05/31/06 13:30**		**Received: 06/01/06 07:30**						
Total Alkalinity	**38**	5.0	mg/L	1	CP04113	06/02/06	06/02/06	EPA 310.1	
Bicarbonate as CaCO3	**38**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.75**	0.50	"	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Specific Conductance (EC)	**94**	1.0	µmhos/cm	"	CP04078	06/01/06	06/01/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP04061	06/01/06	06/01/06	EPA 425.1	
Calcium	**12**	1.0	"	"	CP04232	06/07/06	06/07/06	200.7/2340B	
Magnesium	**4.3**	1.0	"	"	"	"	"	"	
Potassium	**1.1**	1.0	"	"	"	"	"	"	
Sodium	**3.6**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**49**	1.0	"	"	"	"	"	"	
pH	**7.35**		pH Units	"	CP04052	06/01/06	06/01/06	EPA 150.1	
Sulfate as SO4	**11**	0.50	mg/L	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Total Dissolved Solids	**90**	10	"	"	CP04108	06/02/06	06/02/06	EPA 160.1	

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Project: Walker Mine
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Project Manager: Steve Rosenbaum

CLS Work Order #: CPF0001
COC #: 71797

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WM-9 LGC At Browns Cabin (CPF0001-07) Water	**Sampled: 05/31/06 17:10**		**Received: 06/01/06 07:30**						
Total Alkalinity	**35**	5.0	mg/L	1	CP04113	06/02/06	06/02/06	EPA 310.1	
Bicarbonate as CaCO3	**35**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.68**	0.50	"	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Specific Conductance (EC)	**58**	1.0	µmhos/cm	"	CP04078	06/01/06	06/01/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP04061	06/01/06	06/01/06	EPA 425.1	
Calcium	**8.1**	1.0	"	"	CP04232	06/07/06	06/07/06	200.7/2340B	
Magnesium	**2.5**	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**2.9**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**31**	1.0	"	"	"	"	"	"	
pH	**7.68**		pH Units	"	CP04052	06/01/06	06/01/06	EPA 150.1	
Sulfate as SO4	**1.4**	0.50	mg/L	"	CP04174	06/06/06	06/06/06	EPA 300.0	
Total Dissolved Solids	**62**	10	"	"	CP04108	06/02/06	06/02/06	EPA 160.1	

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COC #: 71797

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WM-5 LGC U/S (CPF0001-01) Water Sampled: 05/31/06 10:45 Received: 06/01/06 07:30									
Aluminum	**90**	20	µg/L	1	CP04060	06/01/06	06/01/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	**120**	50	"	"	"	"	"	"	
Zinc	**3.1**	2.0	"	"	"	"	"	"	
WM-3 DC D/S (CPF0001-02) Water Sampled: 05/31/06 11:10 Received: 06/01/06 07:30									
Aluminum	**100**	20	µg/L	1	CP04060	06/01/06	06/01/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	**33**	1.0	"	"	"	"	"	"	
Iron	**180**	50	"	"	"	"	"	"	
Zinc	**5.4**	2.0	"	"	"	"	"	"	
WM-1 Portal (CPF0001-03) Water Sampled: 05/31/06 11:35 Received: 06/01/06 07:30									
Aluminum	ND	20	µg/L	1	CP04060	06/01/06	06/01/06	EPA 200.8	
Arsenic	**21**	2.0	"	"	"	"	"	"	
Copper	**140**	1.0	"	"	"	"	"	"	
Iron	**55**	50	"	"	"	"	"	"	
Zinc	**84**	2.0	"	"	"	"	"	"	
WM-2 DC U/S (CPF0001-04) Water Sampled: 05/31/06 11:50 Received: 06/01/06 07:30									
Aluminum	**91**	20	µg/L	1	CP04060	06/01/06	06/01/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	**66**	50	"	"	"	"	"	"	
Zinc	**2.3**	2.0	"	"	"	"	"	"	

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Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WM-19 Pond (CPF0001-05) Water Sampled: 05/31/06 13:20 Received: 06/01/06 07:30									
Aluminum	**270**	40	µg/L	2	CP04060	06/01/06	06/01/06	EPA 200.8	
Arsenic	ND	2.0	"	1	"	"	"	"	
Copper	**2300**	100	"	100	"	"	"	"	
Iron	**170**	50	"	1	"	"	"	"	
Zinc	**180**	2.0	"	"	"	"	"	"	
WM-20 Dump (CPF0001-06) Water Sampled: 05/31/06 13:30 Received: 06/01/06 07:30									
Aluminum	**47**	20	µg/L	1	CP04060	06/01/06	06/01/06	EPA 200.8	
Arsenic	**2.2**	2.0	"	"	"	"	"	"	
Copper	**450**	5.0	"	5	"	"	"	"	
Iron	**90**	50	"	1	"	"	"	"	
Zinc	**35**	2.0	"	"	"	"	"	"	
WM-9 LGC At Browns Cabin (CPF0001-07) Water Sampled: 05/31/06 17:10 Received: 06/01/06 07:30									
Aluminum	**77**	20	µg/L	1	CP04060	06/01/06	06/01/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	**35**	1.0	"	"	"	"	"	"	
Iron	**180**	50	"	"	"	"	"	"	
Zinc	**5.6**	2.0	"	"	"	"	"	"	

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Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WM-5 LGC U/S (CPF0001-01) Water Sampled: 05/31/06 10:45 Received: 06/01/06 07:30									
Aluminum	**66**	20	µg/L	1	CP04247	06/07/06	06/07/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	**77**	50	"	"	"	"	"	"	
Zinc	ND	2.0	"	"	"	"	"	"	
WM-3 DC D/S (CPF0001-02) Water Sampled: 05/31/06 11:10 Received: 06/01/06 07:30									
Aluminum	**88**	20	µg/L	1	CP04247	06/07/06	06/07/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	**24**	2.0	"	"	"	"	"	"	
Iron	**89**	50	"	"	"	"	"	"	
Zinc	**4.8**	2.0	"	"	"	"	"	"	
WM-1 Portal (CPF0001-03) Water Sampled: 05/31/06 11:35 Received: 06/01/06 07:30									
Aluminum	ND	20	µg/L	1	CP04247	06/07/06	06/07/06	EPA 200.8	
Arsenic	**23**	5.0	"	"	"	"	"	"	
Copper	**130**	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	"	"	
Zinc	**76**	2.0	"	"	"	"	"	"	
WM-2 DC U/S (CPF0001-04) Water Sampled: 05/31/06 11:50 Received: 06/01/06 07:30									
Aluminum	**83**	20	µg/L	1	CP04247	06/07/06	06/07/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	"	"	
Zinc	ND	2.0	"	"	"	"	"	"	

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Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WM-19 Pond (CPF0001-05) Water Sampled: 05/31/06 13:20 Received: 06/01/06 07:30									
Aluminum	**120**	20	µg/L	1	CP04247	06/07/06	06/07/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	**2400**	200	"	100	"	"	"	"	
Iron	**81**	50	"	1	"	"	"	"	
Zinc	**160**	2.0	"	"	"	"	"	"	
WM-20 Dump (CPF0001-06) Water Sampled: 05/31/06 13:30 Received: 06/01/06 07:30									
Aluminum	**38**	20	µg/L	1	CP04247	06/07/06	06/07/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	**480**	10	"	5	"	"	"	"	
Iron	**65**	50	"	1	"	"	"	"	
Zinc	**33**	2.0	"	"	"	"	"	"	
WM-9 LGC At Browns Cabin (CPF0001-07) Water Sampled: 05/31/06 17:10 Received: 06/01/06 07:30									
Aluminum	**58**	20	µg/L	1	CP04247	06/07/06	06/07/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	**30**	2.0	"	"	"	"	"	"	
Iron	**140**	50	"	"	"	"	"	"	
Zinc	**3.9**	2.0	"	"	"	"	"	"	

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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP04061 - General Preparation										
Blank (CP04061-BLK1)				Prepared & Analyzed: 06/01/06						
Methylene Blue Active Substances	ND	0.10	mg/L							
LCS (CP04061-BS1)				Prepared & Analyzed: 06/01/06						
Methylene Blue Active Substances	0.528	0.10	mg/L	0.500		106	80-120			
LCS Dup (CP04061-BSD1)				Prepared & Analyzed: 06/01/06						
Methylene Blue Active Substances	0.501	0.10	mg/L	0.500		100	80-120	5.25	20	
Matrix Spike (CP04061-MS1)		Source: CPE0912-02		Prepared & Analyzed: 06/01/06						
Methylene Blue Active Substances	0.566	0.10	mg/L	0.500	0.12	89.2	75-125			
Matrix Spike Dup (CP04061-MSD1)		Source: CPE0912-02		Prepared & Analyzed: 06/01/06						
Methylene Blue Active Substances	0.599	0.10	mg/L	0.500	0.12	95.8	75-125	5.67	25	
Batch CP04078 - General Preparation										
Blank (CP04078-BLK1)				Prepared & Analyzed: 06/01/06						
Specific Conductance (EC)	ND	1.0	µmhos/cm							
Batch CP04108 - General Preparation										
Blank (CP04108-BLK1)				Prepared & Analyzed: 06/02/06						
Total Dissolved Solids	ND	10	mg/L							
Batch CP04112 - General Preparation										
Blank (CP04112-BLK1)				Prepared & Analyzed: 06/02/06						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							

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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP04113 - General Preparation										
Blank (CP04113-BLK1)				Prepared & Analyzed: 06/02/06						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							
Batch CP04174 - General Prep										
Blank (CP04174-BLK1)				Prepared & Analyzed: 06/06/06						
Sulfate as SO4	ND	0.50	mg/L							
Chloride	ND	0.50	"							
LCS (CP04174-BS1)				Prepared & Analyzed: 06/06/06						
Chloride	1.98	0.50	mg/L	2.00		99.0	80-120			
Sulfate as SO4	4.75	0.50	"	5.00		95.0	80-120			
LCS Dup (CP04174-BSD1)				Prepared & Analyzed: 06/06/06						
Chloride	1.98	0.50	mg/L	2.00		99.0	80-120	0.00	20	
Sulfate as SO4	4.73	0.50	"	5.00		94.6	80-120	0.422	20	
Matrix Spike (CP04174-MS1)		**Source: CPF0001-01**		Prepared & Analyzed: 06/06/06						
Sulfate as SO4	4.81	0.50	mg/L	5.00	ND	96.2	75-125			
Chloride	2.24	0.50	"	2.00	0.69	77.5	75-125			
Matrix Spike Dup (CP04174-MSD1)		**Source: CPF0001-01**		Prepared & Analyzed: 06/06/06						
Sulfate as SO4	4.82	0.50	mg/L	5.00	ND	96.4	75-125	0.208	25	
Chloride	2.24	0.50	"	2.00	0.69	77.5	75-125	0.00	25	

CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Project: Walker Mine
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPF0001
COC #: 71797

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP04232 - 6010A/No Digestion										
Blank (CP04232-BLK1)				Prepared & Analyzed: 06/07/06						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	"							
Potassium	ND	1.0	"							
Sodium	ND	1.0	"							
Hardness as CaCO3	ND	1.0	"							
LCS (CP04232-BS1)				Prepared & Analyzed: 06/07/06						
Calcium	ND	1.0	mg/L				80-120			A-COM
Magnesium	ND	1.0	"				80-120			A-COM
Potassium	ND	1.0	"				80-120			A-COM
Sodium	0.0439	1.0	"				80-120			A-COM
LCS Dup (CP04232-BSD1)				Prepared & Analyzed: 06/07/06						
Calcium	ND	1.0	mg/L				80-120		20	A-COM
Magnesium	ND	1.0	"				80-120		20	A-COM
Potassium	ND	1.0	"				80-120		20	A-COM
Sodium	0.0476	1.0	"				80-120	8.09	20	A-COM
Matrix Spike (CP04232-MS1)	**Source: CPF0001-01**			Prepared & Analyzed: 06/07/06						
Calcium	28.1	1.0	mg/L	20.0	7.1	105	75-125			
Magnesium	21.6	1.0	"	20.0	2.3	96.5	75-125			
Potassium	17.8	1.0	"	20.0	ND	89.0	75-125			
Sodium	20.7	1.0	"	20.0	2.9	89.0	75-125			
Matrix Spike Dup (CP04232-MSD1)	**Source: CPF0001-01**			Prepared & Analyzed: 06/07/06						
Calcium	27.8	1.0	mg/L	20.0	7.1	104	75-125	1.07	25	
Magnesium	21.3	1.0	"	20.0	2.3	95.0	75-125	1.40	25	
Potassium	17.1	1.0	"	20.0	ND	85.5	75-125	4.01	25	
Sodium	20.2	1.0	"	20.0	2.9	86.5	75-125	2.44	25	

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11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Project: Walker Mine
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPF0001
COC #: 71797

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP04060 - EPA 3020A										
Blank (CP04060-BLK1)				Prepared & Analyzed: 06/01/06						
Aluminum	ND	20	µg/L							
Arsenic	ND	2.0	"							
Copper	ND	1.0	"							
Iron	ND	50	"							
Zinc	ND	2.0	"							
LCS (CP04060-BS1)				Prepared & Analyzed: 06/01/06						
Aluminum	99.8	20	µg/L	100		99.8	80-120			
Arsenic	94.2	2.0	"	100		94.2	80-120			
Copper	94.6	1.0	"	100		94.6	80-120			
Iron	104	50	"	100		104	80-120			
Zinc	93.2	2.0	"	100		93.2	80-120			
LCS Dup (CP04060-BSD1)				Prepared & Analyzed: 06/01/06						
Aluminum	95.8	20	µg/L	100		95.8	80-120	4.09	20	
Arsenic	90.1	2.0	"	100		90.1	80-120	4.45	20	
Copper	88.7	1.0	"	100		88.7	80-120	6.44	20	
Iron	97.4	50	"	100		97.4	80-120	6.55	20	
Zinc	91.8	2.0	"	100		91.8	80-120	1.51	20	
Matrix Spike (CP04060-MS1)		**Source: CPF0001-01**		Prepared & Analyzed: 06/01/06						
Aluminum	173	20	µg/L	100	90	83.0	75-125			
Arsenic	89.3	2.0	"	100	ND	89.3	75-125			
Copper	87.6	1.0	"	100	0.66	86.9	75-125			
Iron	199	50	"	100	120	79.0	75-125			
Zinc	92.3	2.0	"	100	3.1	89.2	75-125			
Matrix Spike Dup (CP04060-MSD1)		**Source: CPF0001-01**		Prepared & Analyzed: 06/01/06						
Aluminum	175	20	µg/L	100	90	85.0	75-125	1.15	25	
Arsenic	89.4	2.0	"	100	ND	89.4	75-125	0.112	25	
Copper	88.5	1.0	"	100	0.66	87.8	75-125	1.02	25	
Iron	201	50	"	100	120	81.0	75-125	1.00	25	
Zinc	90.6	2.0	"	100	3.1	87.5	75-125	1.86	25	

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11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Project: Walker Mine
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPF0001
COC #: 71797

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch CP04060 - EPA 3020A

CALIFORNIA LABORATORY SERVICES

08/22/06 09:27

CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Project: Walker Mine
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPF0001
COC #: 71797

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP04247 - EPA 3020A										
Blank (CP04247-BLK1)				Prepared & Analyzed: 06/07/06						
Aluminum	ND	20	µg/L							
Arsenic	ND	5.0	"							
Copper	ND	2.0	"							
Iron	ND	50	"							
Zinc	ND	2.0	"							
LCS (CP04247-BS1)				Prepared & Analyzed: 06/07/06						
Aluminum	103	20	µg/L	100		103	80-120			
Arsenic	107	5.0	"	100		107	80-120			
Copper	95.7	2.0	"	100		95.7	80-120			
Iron	104	50	"	100		104	80-120			
Zinc	95.7	2.0	"	100		95.7	80-120			
LCS Dup (CP04247-BSD1)				Prepared & Analyzed: 06/07/06						
Aluminum	101	20	µg/L	100		101	80-120	1.96	20	
Arsenic	104	5.0	"	100		104	80-120	2.84	20	
Copper	94.4	2.0	"	100		94.4	80-120	1.37	20	
Iron	104	50	"	100		104	80-120	0.00	20	
Zinc	91.5	2.0	"	100		91.5	80-120	4.49	20	
Matrix Spike (CP04247-MS1)		**Source: CPF0147-01**		Prepared & Analyzed: 06/07/06						
Aluminum	104	20	µg/L	100	ND	104	75-125			
Arsenic	118	5.0	"	100	1.6	116	75-125			
Copper	94.4	2.0	"	100	ND	94.4	75-125			
Iron	115	50	"	100	16	99.0	75-125			
Zinc	98.7	2.0	"	100	1.4	97.3	75-125			
Matrix Spike Dup (CP04247-MSD1)		**Source: CPF0147-01**		Prepared & Analyzed: 06/07/06						
Aluminum	101	20	µg/L	100	ND	101	75-125	2.93	25	
Arsenic	114	5.0	"	100	1.6	112	75-125	3.45	25	
Copper	89.9	2.0	"	100	ND	89.9	75-125	4.88	25	
Iron	115	50	"	100	16	99.0	75-125	0.00	25	
Zinc	95.2	2.0	"	100	1.4	93.8	75-125	3.61	25	

CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Project: Walker Mine
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPF0001
COC #: 71797

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

Batch CP04247 - EPA 3020A

CRWQCB - Sacramento	Project: Walker Mine	
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	**CLS Work Order #: CPF0001**
Rancho Cordova, CA 95670-6114	Project Manager: Steve Rosenbaum	COC #: 71797

Notes and Definitions

A-COM	LCS and LCSD were not spiked. Batch was accepted based on acceptable MS/MSD recoveries and RPD's.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Exhibit 59

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD

INSPECTION REPORT

30 October 2006

DISCHARGER:	**Walker Mine**
LOCATION & COUNTY:	Walker Mine, Plumas County
CONTACT(S):	**None**
INSPECTION DATE:	24-25 October 2006
INSPECTED BY:	Steve Rosenbaum/Jeff Huggins
ACCOMPANIED BY:	NA

OBSERVATIONS AND COMMENTS:

Board staff performed the annual fall inspection of the Walker Mine in Plumas County as required by Walker Mine Operations and Maintenance Procedures, dated June 1997.

MINE STRUCTURES

At the Walker Mine Portal area, hundreds of spent shell cartridges from handguns, rifles, and shotguns were strewn over the ground. The portal door at the mine entrance was securely locked upon our arrival, but had several new bullet holes that had penetrated the steel door. Inspection of the ventilation fan, the ventilation ducting and the Telog pressure data recorder showed no apparent damage from the shooting. There was some evidence of minor vandalism of the concreted stone around the entry into the mine.

Board staff downloaded and analyzed pressure data from the Telog data recorder during the inspection. The Telog data recorder is connected via a 2,500-foot long electronic cable to a Druck pressure sensor at the mine seal. Two times per day the data recorder measures and stores an electronic current measurement (mAmps) from the Druck pressure sensor. This data is converted mathematically by Board staff to feet of pressure head on the mine seal[1]. At the time of the inspection, a current measurement of 8.32 mAmps (196 feet of pressure head) was recorded. A maximum pressure head of 232 feet was recorded from 20 June through 12 July 2006 due to snowmelt recharging the mine workings.

The batteries that power the Druck pressure sensor recorder were removed and replaced with recently purchased batteries during this inspection. All four of the heavy-duty locks on the portal doors were securely locked upon leaving the mine portal.

The drainage channel inside the corrugated section of the mine tunnel was working effectively and was not obstructed. The drainage channel between the mine portal and the waste dump was cleared of one minor obstruction. Board Staff did not perform an inspection of the access

[1] (Note: The Druck pressure sensor is scaled to transmit 4 to 20 mAmps for 0 to 300 psi).

tunnel beyond the corrugated metal pipe (187 feet into the main drift). The timbered section, the unsupported section, and the mine seal were not inspected this year.

WATER QUALITY MONITORING

Surface water samples were taken from all but three of the usual sampling locations. There was no discharge from the settling pond (sample location number 19), thus no sample was taken from this location. Sample location number 10 was not sampled because of time constraints, and sample location number 23 was omitted. The South Branch of Ward Creek (sample location number 11) was dry. However sufficient water was present in a small pool at the culvert outfall to obtain a sample. All of the other sample locations had sufficient surface water to sample. Laboratory results are pending.

SUBSIDENCE AREAS

Staff inspected the diversion channel structures in the area of the Piute Pit workings. There was no water flowing in the diversion channels at the time of the inspection and it appeared that they have been dry for some time. Some cracking of the gunnited channels is starting to become evident and void spaces can be seen between the native ground and the channel walls in some areas that we inspected.

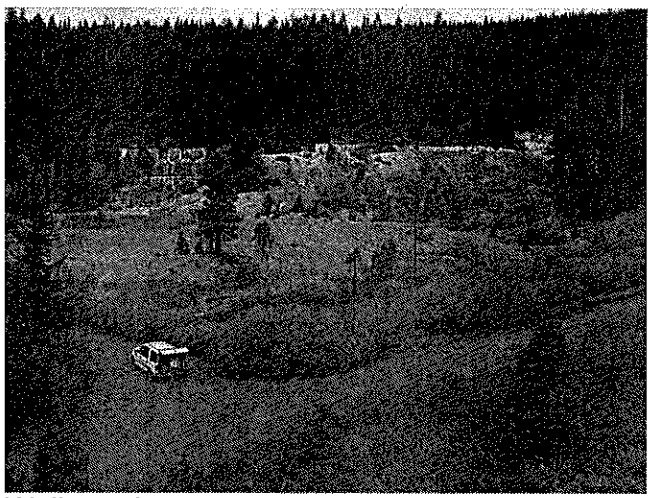
SUMMARY:

A semi annual inspection was made of the Walker Mine site. Surface water monitoring was performed and water pressure measurements on the mine seal were obtained. New batteries were installed for the data logger. Drainage channels at the mine portal and Piute Pit workings were inspected and some maintenance issues were identified.

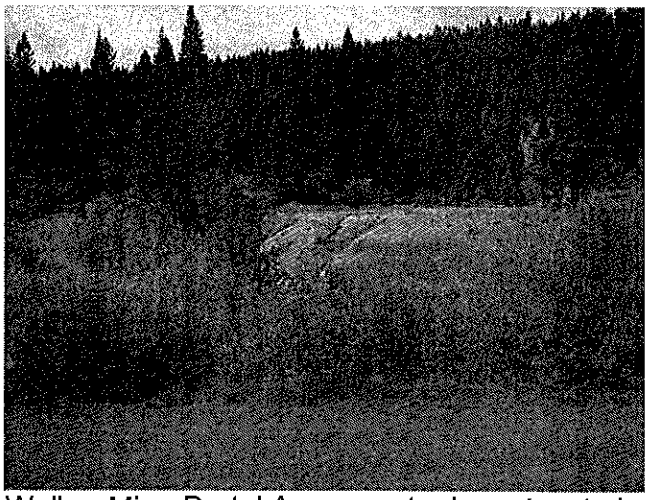
RECOMMENDATIONS:

Shooting through the steel portal door continues to be a source of risk to the data logger and batteries. A simple solution would be to stack 3 to 4 concrete ready mix bags (90 lb bags) in front of the data logger and battery container. The stainless steel piping and valves at the mine seal should be inspected and physically tested to ensure their operability in accordance with the Board's Operations and Maintenance Plan for the Walker Mine.

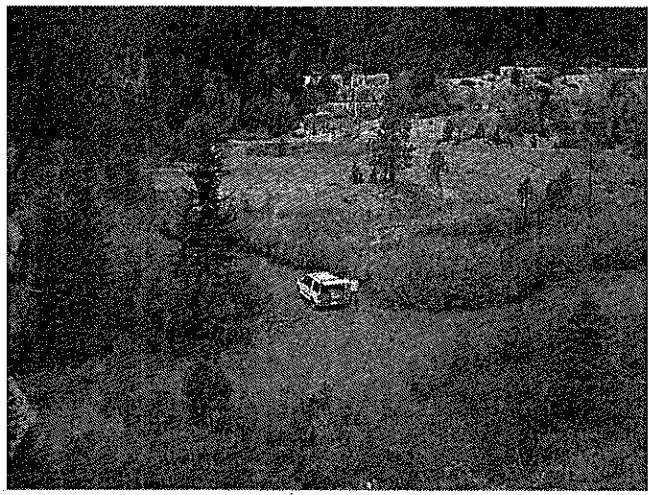
The flexible bag ducting outboard of the ventilation fan needs to be replaced before the next underground inspection. A thorough inspection of the access tunnel and the mine seal needs to be performed in the spring. The Federal Mine Safety and Health Administration (MSHA) and Cal-OSHA will on occasion provide underground mine safety inspection services if requested. A request for this service should be made early next spring and preparation for a through underground inspection should begin at the same time.



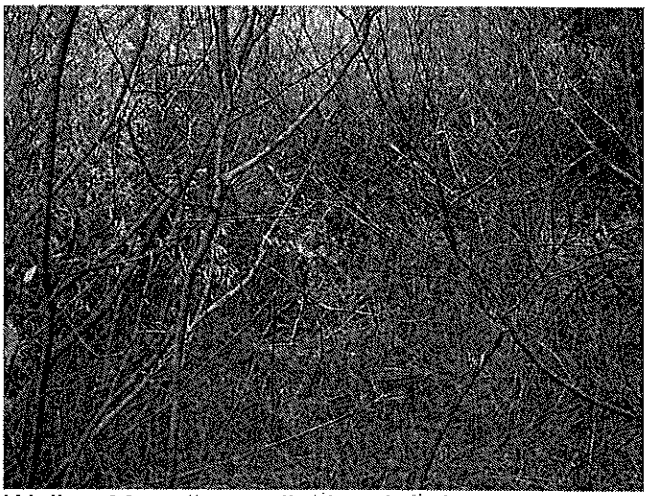
Walker Mine Portal Area.



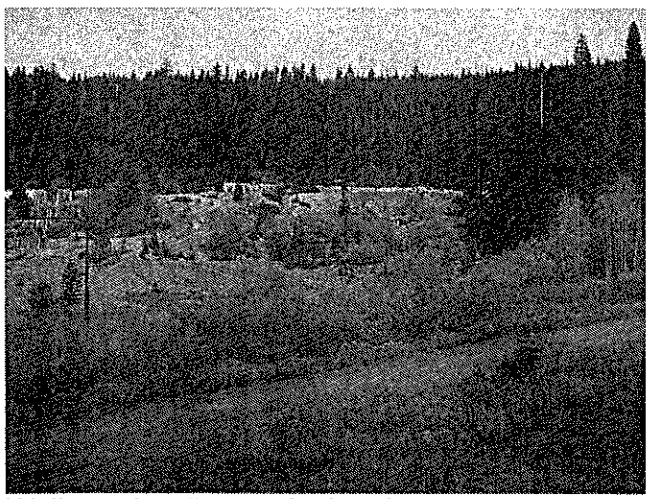
Walker Mine Portal Area, waste dump located up gradient of Dolly Creek.



Walker Mine #3. Dolly Creek drainage is located just forward of the vehicle.

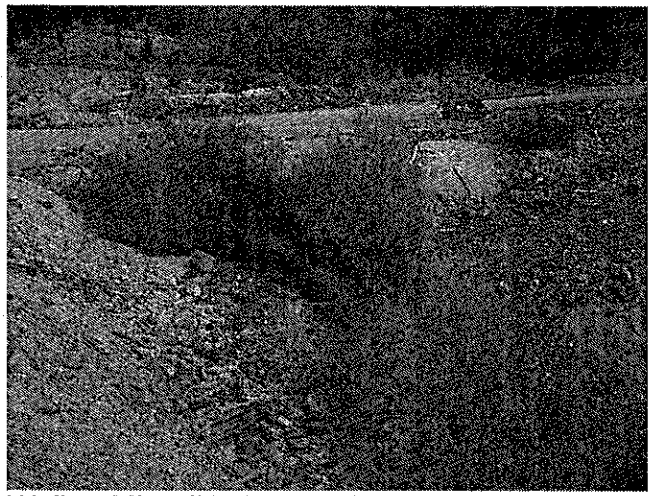


Walker Mine #3. Dolly Creek below mine access road.

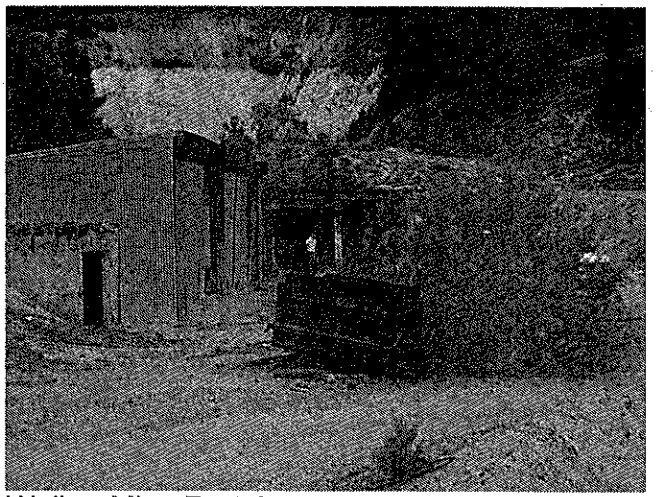


Walker Mine #3. Dolly Creek Drainage.

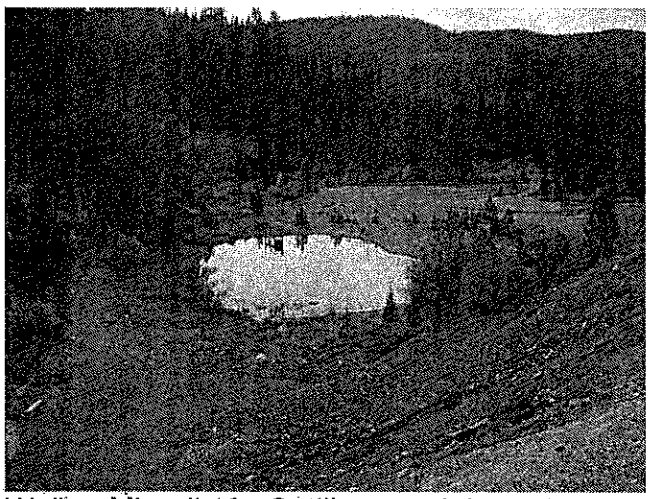
Walker Mine #3. Dolly Creek below mine access road.



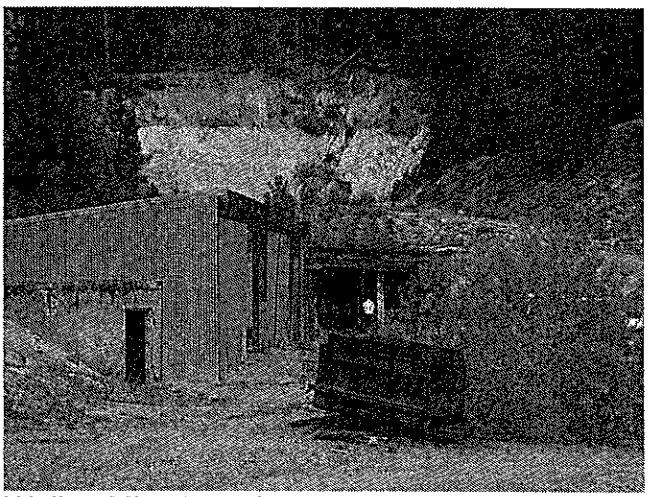
Walker Mine #1. Portal discharge sampling location.



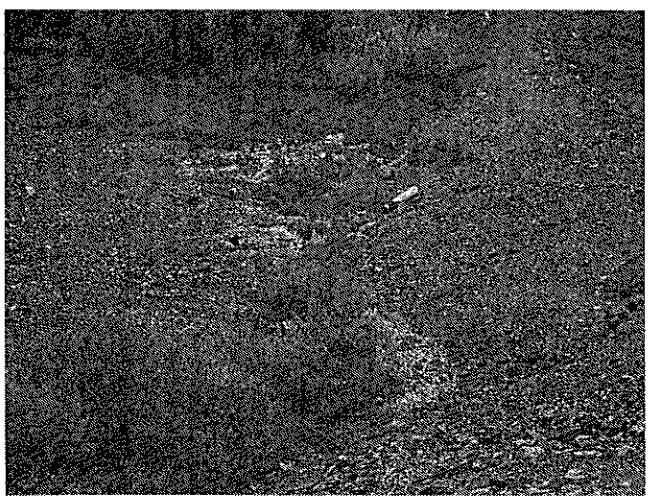
Walker Mine Portal.



Walker Mine # 19. Settling pond downstream of mine portal.



Walker Mine Portal.



Walker Mine #19 area.

Walker Mine #11. South Branch of Ward Creek at USFS Road 25N42.

Walker Mine # 11, South Branch of Ward Creek (Road 25N42) Culvert Outlet. South Branch of Ward Creek was dry, however a small pool existed at the culvert outlet and this became the sample point.

Walker Mine #11. South Branch of Ward Creek, Culvert Outlet Pool.

Exhibit 60

CLS - Labs

CHAIN OF CUSTODY CLS ID No.; WO 10852 1/2 LOG NO. 74271

REPORT TO:

NAME AND ADDRESS: LETICIA VALADEZ - RWQCB
11020 SUN CENTER DRIVE #200
RANCHO CORDOVA 95670
PROJECT MANAGER: STEVE ROSENBAUM PHONE# 916-464-4631
PROJECT NAME: WALKER MINE - PCA 13180
SAMPLED BY: JEFF HUGGINS / S. ROSENBAUM
JOB DESCRIPTION:
SITE LOCATION: PLUMAS COUNTY

CLIENT JOB NUMBER:

DESTINATION LABORATORY:
☑ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742
☐ OTHER

PRESERVATIVES: 3/2

ANALYSIS REQUESTED: BIO Group 7

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID:

COMPOSITE:
BIO Group 7 is TOTAL METALS + DISSOLVED METALS + GEN MIN

FIELD CONDITIONS:

TURN AROUND TIME: 1 DAY | 2 DAY | 5 DAY | 10 DAY (X)

SPECIAL INSTRUCTIONS OR ALT. ID:

	DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	SPECIAL INSTRUCTIONS OR ALT. ID:
1	10/24	12:30	5 - LGC U/S	W	3	Plastic	< 5 ppb Cu Typically
2		12:40	3 - DC D/S				< 50 ppb Cu MAYBE
3		13:00	1 - PORTAL				> 100 ppb Cu Typically
4		13:10	2 - DC U/S				< 5 ppb Cu
5		15:30	9 - LGC Browns (ABIN)				NEED LOW DETECTION LAB
6		16:00	8 - LGC BDC				LIMITS FOR METALS
7		16:10	7 - LGC ADC				FOR MOST SAMPLES
8		16:20	6 - USFS DAM				> 100 ppb Cu
9		1640	20 - LGC CFW				INVOICE TO: LETICIA
10		1700	12 - NBWC at 25N42				
11		1725	13 - NYECK AT 25N42				
12		1730	17 - NBWC AT 25N42				P.O. #
							QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
J/HS. Huggins	Jeff S. Huggins CVRWQCB	10-26-06 7:45		

RECD AT LAB BY: DATE / TIME: 10-26-6 0745 CONDITIONS / COMMENTS:

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER AIR BILL #

CLS - Labs

CHAIN OF CUSTODY CLS ID No.; 111082 2/2 LOG NO. 74270

REPORT TO:

NAME AND ADDRESS: LETICIA VALADEZ - RWQCB
11020 SUN CENTER DRIVE, STE200
RANCHO CORDOVA CA 95670
PROJECT MANAGER: STEVE ROSENBAUM PHONE#: 916 464-4631
PROJECT NAME: WALKER MINE - PCA 13180
SAMPLED BY: JEFF HUGGINS / STEVE ROSENBAUM
JOB DESCRIPTION:
SITE LOCATION: PLUMAS COUNTY

CLIENT JOB NUMBER:

DESTINATION LABORATORY
☑ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742
☐ OTHER

PRESERVATIVES: Bio Group 1

ANALYSIS REQUESTED

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID:
COMPOSITE:
FIELD CONDITIONS:

TURN AROUND TIME: 1 DAY | 2 DAY | 5 DAY | 10 DAY

SPECIAL INSTRUCTIONS OR ALT. ID:

	DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	ANALYSIS REQUESTED	TURN AROUND TIME	SPECIAL INSTRUCTIONS
13	10-25-06	0915	4- DC @ 48" Culvert	W	3	P	3/2		10	NEED LOW
14		0940	11- SBWC @ 25N42					X		DETECTION LIMITS
15		1120	18- NBWC @ 25N32Y							FOR METALS
16		1140	16- NYECK @ 25N32Y							
17		1150	15- MBWC @ 25N32Y							
18		1200	14- SBWC @ 25N32Y							
19		1310	25- WARD CK AT GENESEE							
20		1330	22- IC AT RD 112							
21		1400	24- LGC U/S IC							INVOICE TO: LETICIA
22		1430	21- IC D/S LGC							

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

P.O. #
QUOTE #

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
Jeff S. Huggins	Jeff S. Huggins CVRWQCB	10-26-06 07:45		

REC'D AT LAB BY: DATE / TIME: 10-26-6 0745 CONDITIONS / COMMENTS:

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER AIR BILL #

LAB

CALIFORNIA LABORATORY SERVICES

11/10/06 14:53

CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
5-LGC U/S (CPJ1082-01) Water	**Sampled: 10/24/06 12:30**	**Received: 10/26/06 07:45**							
Total Alkalinity	80	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	80	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	0.62	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	150	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	16	1.0	"	"	CP08313	10/26/06	10/26/06	200.7/2340B	
Magnesium	7.2	1.0	"	"	"	"	"	"	
Potassium	2.0	1.0	"	"	"	"	"	"	
Sodium	5.2	1.0	"	"	"	"	"	"	
Hardness as CaCO3	69	1.0	"	"	"	"	"	"	
pH	7.51	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	ND	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	100	10	"	"	CP08353	10/27/06	10/30/06	EPA 160.1	
3-DC D/S (CPJ1082-02) Water	**Sampled: 10/24/06 12:40**	**Received: 10/26/06 07:45**							
Total Alkalinity	72	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	72	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	0.56	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	140	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	15	1.0	"	"	CP08313	10/26/06	10/26/06	200.7/2340B	
Magnesium	7.7	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	3.3	1.0	"	"	"	"	"	"	
Hardness as CaCO3	69	1.0	"	"	"	"	"	"	
pH	7.69	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	1.1	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	82	10	"	"	CP08353	10/27/06	10/30/06	EPA 160.1	
1-Portal (CPJ1082-03) Water	**Sampled: 10/24/06 13:00**	**Received: 10/26/06 07:45**							
Total Alkalinity	81	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	81	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	0.62	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	120	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
1-Portal (CPJ1082-03) Water Sampled: 10/24/06 13:00 Received: 10/26/06 07:45									
Methylene Blue Active Substances	ND	0.10	mg/L	1	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**12**	1.0	"	"	CP08313	10/26/06	10/26/06	200.7/2340B	
Magnesium	**5.0**	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**5.3**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**52**	1.0	"	"	"	"	"	"	
pH	**7.42**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	**0.80**	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	**53**	10	"	"	CP08353	10/27/06	10/30/06	EPA 160.1	
2-DC U/S (CPJ1082-04) Water Sampled: 10/24/06 13:10 Received: 10/26/06 07:45									
Total Alkalinity	**82**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**82**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.58**	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	**150**	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**19**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**9.1**	1.0	"	"	"	"	"	"	
Potassium	**1.0**	1.0	"	"	"	"	"	"	
Sodium	**3.2**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**84**	1.0	"	"	"	"	"	"	
pH	**7.82**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	ND	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	**91**	10	"	"	CP08353	10/27/06	10/30/06	EPA 160.1	
9-LGC Brown's Cabin (CPJ1082-05) Water Sampled: 10/24/06 15:30 Received: 10/26/06 07:45									
Total Alkalinity	**76**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**76**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.60**	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	**160**	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**21**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**7.0**	1.0	"	"	"	"	"	"	
Potassium	**1.6**	1.0	"	"	"	"	"	"	
Sodium	**4.7**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**82**	1.0	"	"	"	"	"	"	

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
9-LGC Brown's Cabin (CPJ1082-05) Water	**Sampled: 10/24/06 15:30**		**Received: 10/26/06 07:45**						
pH	7.92	0.001	pH Units	1	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	8.9	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	100	10	"	"	CP08353	10/27/06	10/30/06	EPA 160.1	
8-LGC BDC (CPJ1082-06) Water	**Sampled: 10/24/06 16:00**		**Received: 10/26/06 07:45**						
Total Alkalinity	74	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	74	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	0.60	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	160	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	21	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	7.1	1.0	"	"	"	"	"	"	
Potassium	1.6	1.0	"	"	"	"	"	"	
Sodium	4.7	1.0	"	"	"	"	"	"	
Hardness as CaCO3	82	1.0	"	"	"	"	"	"	
pH	7.91	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	9.0	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	120	10	"	"	CP08353	10/27/06	10/30/06	EPA 160.1	
7-LGC ADC (CPJ1082-07) Water	**Sampled: 10/24/06 16:10**		**Received: 10/26/06 07:45**						
Total Alkalinity	76	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	76	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	0.61	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	180	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	25	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	6.5	1.0	"	"	"	"	"	"	
Potassium	2.1	1.0	"	"	"	"	"	"	
Sodium	5.5	1.0	"	"	"	"	"	"	
Hardness as CaCO3	89	1.0	"	"	"	"	"	"	
pH	7.72	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	16	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	110	10	"	"	CP08353	10/27/06	10/30/06	EPA 160.1	
6-USFS DAM (CPJ1082-08) Water	**Sampled: 10/24/06 16:20**		**Received: 10/26/06 07:45**						
Total Alkalinity	72	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	72	5.0	"	"	"	"	"	"	

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
6-USFS DAM (CPJ1082-08) Water	**Sampled: 10/24/06 16:20**		**Received: 10/26/06 07:45**						
Carbonate as CaCO3	ND	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.58**	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	**150**	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**17**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**7.6**	1.0	"	"	"	"	"	"	
Potassium	**1.1**	1.0	"	"	"	"	"	"	
Sodium	**3.7**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	75	1.0	"	"	"	"	"	"	
pH	7.98	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	**2.2**	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	**81**	10	"	"	CP08353	10/27/06	10/30/06	EPA 160.1	
20-LGC CFW (CPJ1082-09) Water	**Sampled: 10/24/06 16:40**		**Received: 10/26/06 07:45**						
Total Alkalinity	**80**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**80**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.72**	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	**170**	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**23**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**5.9**	1.0	"	"	"	"	"	"	
Potassium	**1.8**	1.0	"	"	"	"	"	"	
Sodium	**8.1**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**81**	1.0	"	"	"	"	"	"	
pH	**8.01**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	**11**	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	**140**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
12-MBWC at 25N42 (CPJ1082-10) Water	**Sampled: 10/24/06 17:00**		**Received: 10/26/06 07:45**						
Total Alkalinity	**12**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**12**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.54**	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	**25**	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**2.5**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
12-MBWC at 25N42 (CPJ1082-10) Water	**Sampled: 10/24/06 17:00**		**Received: 10/26/06 07:45**						
Magnesium	**1.0**	1.0	mg/L	1	CP08314	10/26/06	10/26/06	200.7/2340B	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**1.1**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**11**	1.0	"	"	"	"	"	"	
pH	**6.29**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	ND	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	**42**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
13-NYECK at 25N42 (CPJ1082-11) Water	**Sampled: 10/24/06 17:25**		**Received: 10/26/06 07:45**						
Total Alkalinity	**51**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**51**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.61**	0.50	"	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Specific Conductance (EC)	**92**	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**12**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**4.9**	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**2.5**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**49**	1.0	"	"	"	"	"	"	
pH	**7.24**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	ND	0.50	mg/L	"	CP08339	10/27/06	10/27/06	EPA 300.0	
Total Dissolved Solids	**89**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
17-NBWC at 25N42 (CPJ1082-12) Water	**Sampled: 10/24/06 17:30**		**Received: 10/26/06 07:45**						
Total Alkalinity	**48**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**48**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.60**	0.50	"	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**160**	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**21**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**8.3**	1.0	"	"	"	"	"	"	
Potassium	**1.7**	1.0	"	"	"	"	"	"	
Sodium	**3.9**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**86**	1.0	"	"	"	"	"	"	
pH	**7.78**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	HT-1
Sulfate as SO4	**0.55**	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
17-NBWC at 25N42 (CPJ1082-12) Water	**Sampled: 10/24/06 17:30**		**Received: 10/26/06 07:45**						
Total Dissolved Solids	**130**	10	mg/L	1	CP08382	10/30/06	10/30/06	EPA 160.1	
4-DC @ 48"Culvert (CPJ1082-13) Water	**Sampled: 10/25/06 09:15**		**Received: 10/26/06 07:45**						
Total Alkalinity	**75**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**75**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.56**	0.50	"	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**140**	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**17**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**8.3**	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**3.4**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**78**	1.0	"	"	"	"	"	"	
pH	**7.79**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	
Sulfate as SO4	**1.0**	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Total Dissolved Solids	**110**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
11-SBWC @ 25N42 (CPJ1082-14) Water	**Sampled: 10/25/06 09:40**		**Received: 10/26/06 07:45**						
Total Alkalinity	**26**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**26**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.65**	0.50	"	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**140**	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**6.4**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**1.9**	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**2.6**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**24**	1.0	"	"	"	"	"	"	
pH	**7.06**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	
Sulfate as SO4	ND	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Total Dissolved Solids	**62**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
18-NBWC@25N32Y (CPJ1082-15) Water	**Sampled: 10/25/06 11:20**		**Received: 10/26/06 07:45**						
Total Alkalinity	**82**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**82**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
18-NBWC@25N32Y (CPJ1082-15) Water	**Sampled: 10/25/06 11:20**		**Received: 10/26/06 07:45**						
Chloride	**0.59**	0.50	mg/L	1	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**150**	1.0	µmhos/cm	"	CP08330	10/26/06	10/26/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**20**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**7.8**	1.0	"	"	"	"	"	"	
Potassium	**1.7**	1.0	"	"	"	"	"	"	
Sodium	**3.9**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**81**	1.0	"	"	"	"	"	"	
pH	**7.97**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	
Sulfate as SO4	**0.64**	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Total Dissolved Solids	**110**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
16-Nyeck @ 25N32Y (CPJ1082-16) Water	**Sampled: 10/25/06 11:40**		**Received: 10/26/06 07:45**						
Total Alkalinity	**74**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**74**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.58**	0.50	"	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**140**	1.0	µmhos/cm	"	CP08355	10/27/06	10/27/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**19**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**7.0**	1.0	"	"	"	"	"	"	
Potassium	**1.2**	1.0	"	"	"	"	"	"	
Sodium	**3.3**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**75**	1.0	"	"	"	"	"	"	
pH	**7.90**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	
Sulfate as SO4	ND	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Total Dissolved Solids	**100**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
15-MBWC@25N32Y (CPJ1082-17) Water	**Sampled: 10/25/06 11:50**		**Received: 10/26/06 07:45**						
Total Alkalinity	**73**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**73**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.58**	0.50	"	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**130**	1.0	µmhos/cm	"	CP08355	10/27/06	10/27/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**18**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**6.9**	1.0	"	"	"	"	"	"	
Potassium	**1.2**	1.0	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
15-MBWC@25N32Y (CPJ1082-17) Water	**Sampled: 10/25/06 11:50 Received: 10/26/06 07:45**								
Sodium	**3.3**	1.0	mg/L	1	CP08314	10/26/06	10/26/06	200.7/2340B	
Hardness as CaCO3	**74**	1.0	"	"	"	"	"	"	
pH	**7.91**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	
Sulfate as SO4	ND	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Total Dissolved Solids	**100**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
14-SBWC@25N32Y (CPJ1082-18) Water	**Sampled: 10/25/06 12:00 Received: 10/26/06 07:45**								
Total Alkalinity	**120**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**120**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.63**	0.50	"	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**230**	1.0	µmhos/cm	"	CP08355	10/27/06	10/27/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**46**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**3.5**	1.0	"	"	"	"	"	"	
Potassium	ND	1.0	"	"	"	"	"	"	
Sodium	**2.9**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**130**	1.0	"	"	"	"	"	"	
pH	**7.95**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	
Sulfate as SO4	**5.5**	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Total Dissolved Solids	**140**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
25-WARD Ck at Genesee (CPJ1082-19) Water	**Sampled: 10/25/06 13:10 Received: 10/26/06 07:45**								
Total Alkalinity	**81**	5.0	mg/L	1	CP08349	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**81**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.64**	0.50	"	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**160**	1.0	µmhos/cm	"	CP08355	10/27/06	10/27/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**21**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**6.7**	1.0	"	"	"	"	"	"	
Potassium	**1.2**	1.0	"	"	"	"	"	"	
Sodium	**5.0**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**81**	1.0	"	"	"	"	"	"	
pH	**7.78**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	
Sulfate as SO4	**2.7**	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Total Dissolved Solids	**84**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
22-IC at RD112 (CPJ1082-20) Water	**Sampled: 10/25/06 13:30 Received: 10/26/06 07:45**								

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CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova CA, 95670-6114

Project: Walker Mine-PCA 13180
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPJ1082
COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
22-IC at RD112 (CPJ1082-20) Water	**Sampled: 10/25/06 13:30**		**Received: 10/26/06 07:45**						
Total Alkalinity	**68**	5.0	mg/L	1	CP08350	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**68**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**1.5**	0.50	"	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**140**	1.0	µmhos/cm	"	CP08355	10/27/06	10/27/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08316	10/26/06	10/26/06	EPA 425.1	
Calcium	**17**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**5.7**	1.0	"	"	"	"	"	"	
Potassium	**1.8**	1.0	"	"	"	"	"	"	
Sodium	**7.1**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**67**	1.0	"	"	"	"	"	"	
pH	**7.63**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	
Sulfate as SO4	**2.8**	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Total Dissolved Solids	**100**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
24-LGC U/S IC (CPJ1082-21) Water	**Sampled: 10/25/06 14:00**		**Received: 10/26/06 07:45**						
Total Alkalinity	**79**	5.0	mg/L	1	CP08350	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**79**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**0.70**	0.50	"	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**160**	1.0	µmhos/cm	"	CP08355	10/27/06	10/27/06	EPA 120.1	
Methylene Blue Active Substances	ND	0.10	mg/L	"	CP08342	10/27/06	10/27/06	EPA 425.1	
Calcium	**26**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**5.1**	1.0	"	"	"	"	"	"	
Potassium	**1.2**	1.0	"	"	"	"	"	"	
Sodium	**5.2**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**85**	1.0	"	"	"	"	"	"	
pH	**7.86**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	
Sulfate as SO4	**6.9**	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Total Dissolved Solids	**110**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	
21-IC D/S LGC (CPJ1082-22) Water	**Sampled: 10/25/06 14:30**		**Received: 10/26/06 07:45**						
Total Alkalinity	**69**	5.0	mg/L	1	CP08350	10/27/06	10/27/06	EPA 310.1	
Bicarbonate as CaCO3	**69**	5.0	"	"	"	"	"	"	
Carbonate as CaCO3	ND	5.0	"	"	"	"	"	"	
Hydroxide as CaCO3	ND	5.0	"	"	"	"	"	"	
Chloride	**1.3**	0.50	"	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Specific Conductance (EC)	**140**	1.0	µmhos/cm	"	CP08355	10/27/06	10/27/06	EPA 120.1	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
21-IC D/S LGC (CPJ1082-22) Water	**Sampled: 10/25/06 14:30 Received: 10/26/06 07:45**								
Methylene Blue Active Substances	ND	0.10	mg/L	1	CP08342	10/27/06	10/27/06	EPA 425.1	
Calcium	**18**	1.0	"	"	CP08314	10/26/06	10/26/06	200.7/2340B	
Magnesium	**5.5**	1.0	"	"	"	"	"	"	
Potassium	**1.6**	1.0	"	"	"	"	"	"	
Sodium	**6.5**	1.0	"	"	"	"	"	"	
Hardness as CaCO3	**68**	1.0	"	"	"	"	"	"	
pH	**7.42**	0.001	pH Units	"	CP08299	10/26/06	10/26/06	EPA 150.1	
Sulfate as SO4	**3.1**	0.50	mg/L	"	CP08370	10/30/06	10/30/06	EPA 300.0	
Total Dissolved Solids	**100**	10	"	"	CP08382	10/30/06	10/30/06	EPA 160.1	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
5-LGC U/S (CPJ1082-01) Water Sampled: 10/24/06 12:30 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	470	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
3-DC D/S (CPJ1082-02) Water Sampled: 10/24/06 12:40 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	8.0	1.0	"	"	"	"	"	"	
Iron	620	50	"	"	"	"	11/02/06	"	
Zinc	3.0	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
1-Portal (CPJ1082-03) Water Sampled: 10/24/06 13:00 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	28	2.0	"	"	"	"	"	"	
Copper	100	1.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	45	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
2-DC U/S (CPJ1082-04) Water Sampled: 10/24/06 13:10 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	63	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
9-LGC Brown's Cabin (CPJ1082-05) Water Sampled: 10/24/06 15:30 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	28	1.0	"	"	"	"	"	"	
Iron	660	50	"	"	"	"	11/02/06	"	
Zinc	3.2	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
8-LGC BDC (CPJ1082-06) Water Sampled: 10/24/06 16:00 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
8-LGC BDC (CPJ1082-06) Water	**Sampled: 10/24/06 16:00**		**Received: 10/26/06 07:45**						
Arsenic	ND	2.0	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Copper	**29**	1.0	"	"	"	"	"	"	
Iron	**720**	50	"	"	"	"	11/02/06	"	
Zinc	**3.6**	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
7-LGC ADC (CPJ1082-07) Water	**Sampled: 10/24/06 16:10**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	**470**	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
6-USFS DAM (CPJ1082-08) Water	**Sampled: 10/24/06 16:20**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	**62**	1.0	"	"	"	"	"	"	
Iron	**910**	50	"	"	"	"	11/02/06	"	
Zinc	**4.7**	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
20-LGC CFW (CPJ1082-09) Water	**Sampled: 10/24/06 16:40**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	**7.2**	1.0	"	"	"	"	"	"	
Iron	**130**	50	"	"	"	"	11/02/06	"	
Zinc	**2.2**	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
12-MBWC at 25N42 (CPJ1082-10) Water	**Sampled: 10/24/06 17:00**		**Received: 10/26/06 07:45**						
Aluminum	**37**	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	**2.8**	1.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
13-NYECK at 25N42 (CPJ1082-11) Water	**Sampled: 10/24/06 17:25**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
13-NYECK at 25N42 (CPJ1082-11) Water	**Sampled: 10/24/06 17:25**		**Received: 10/26/06 07:45**						
Copper	ND	1.0	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	**5.2**	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
17-NBWC at 25N42 (CPJ1082-12) Water	**Sampled: 10/24/06 17:30**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
4-DC @ 48"Culvert (CPJ1082-13) Water	**Sampled: 10/25/06 09:15**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	**8.3**	1.0	"	"	"	"	"	"	
Iron	**330**	50	"	"	"	"	11/02/06	"	
Zinc	**3.0**	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
11-SBWC @ 25N42 (CPJ1082-14) Water	**Sampled: 10/25/06 09:40**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	**1.7**	1.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	**7.3**	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
18-NBWC@25N32Y (CPJ1082-15) Water	**Sampled: 10/25/06 11:20**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
16-Nyeck @ 25N32Y (CPJ1082-16) Water	**Sampled: 10/25/06 11:40**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova CA, 95670-6114

Project: Walker Mine-PCA 13180
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPJ1082
COC #: 74271,74270

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
16-Nyeck @ 25N32Y (CPJ1082-16) Water	**Sampled: 10/25/06 11:40**		**Received: 10/26/06 07:45**						
Iron	ND	50	µg/L	1	CP08320	10/26/06	11/02/06	EPA 200.8	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
15-MBWC@25N32Y (CPJ1082-17) Water	**Sampled: 10/25/06 11:50**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
14-SBWC@25N32Y (CPJ1082-18) Water	**Sampled: 10/25/06 12:00**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	**1.0**	1.0	"	"	"	"	"	"	
Iron	**71**	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
25-WARD Ck at Genesee (CPJ1082-19) Water	**Sampled: 10/25/06 13:10**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
22-IC at RD112 (CPJ1082-20) Water	**Sampled: 10/25/06 13:30**		**Received: 10/26/06 07:45**						
Aluminum	**61**	20	µg/L	1	CP08320	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	**660**	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
24-LGC U/S IC (CPJ1082-21) Water	**Sampled: 10/25/06 14:00**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08321	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	**2.3**	1.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
24-LGC U/S IC (CPJ1082-21) Water	**Sampled: 10/25/06 14:00**		**Received: 10/26/06 07:45**						
Zinc	ND	2.0	µg/L	1	CP08321	10/26/06	10/30/06	EPA 200.8	
21-IC D/S LGC (CPJ1082-22) Water	**Sampled: 10/25/06 14:30**		**Received: 10/26/06 07:45**						
Aluminum	**56**	20	µg/L	1	CP08321	10/26/06	10/30/06	EPA 200.8	
Arsenic	ND	2.0	"	"	"	"	"	"	
Copper	ND	1.0	"	"	"	"	"	"	
Iron	**580**	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
5-LGC U/S (CPJ1082-01) Water Sampled: 10/24/06 12:30 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	**320**	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
3-DC D/S (CPJ1082-02) Water Sampled: 10/24/06 12:40 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	**4.9**	2.0	"	"	"	"	"	"	
Iron	**220**	50	"	"	"	"	11/02/06	"	
Zinc	**2.1**	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
1-Portal (CPJ1082-03) Water Sampled: 10/24/06 13:00 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	**17**	5.0	"	"	"	"	"	"	
Copper	**84**	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	**44**	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
2-DC U/S (CPJ1082-04) Water Sampled: 10/24/06 13:10 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
9-LGC Brown's Cabin (CPJ1082-05) Water Sampled: 10/24/06 15:30 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	**20**	2.0	"	"	"	"	"	"	
Iron	**390**	50	"	"	"	"	11/02/06	"	
Zinc	**2.9**	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
8-LGC BDC (CPJ1082-06) Water Sampled: 10/24/06 16:00 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
8-LGC BDC (CPJ1082-06) Water Sampled: 10/24/06 16:00 Received: 10/26/06 07:45									
Arsenic	ND	5.0	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Copper	**21**	2.0	"	"	"	"	"	"	
Iron	**410**	50	"	"	"	"	11/02/06	"	
Zinc	**2.9**	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
7-LGC ADC (CPJ1082-07) Water Sampled: 10/24/06 16:10 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	**210**	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
6-USFS DAM (CPJ1082-08) Water Sampled: 10/24/06 16:20 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	**44**	2.0	"	"	"	"	"	"	
Iron	600	50	"	"	"	"	11/02/06	"	
Zinc	**4.2**	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
20-LGC CFW (CPJ1082-09) Water Sampled: 10/24/06 16:40 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	**5.2**	2.0	"	"	"	"	"	"	
Iron	76	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
12-MBWC at 25N42 (CPJ1082-10) Water Sampled: 10/24/06 17:00 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	**2.5**	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	**6.9**	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
13-NYECK at 25N42 (CPJ1082-11) Water Sampled: 10/24/06 17:25 Received: 10/26/06 07:45									
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova CA, 95670-6114

Project: Walker Mine-PCA 13180
Project Number: PCA 13180
Project Manager: Steve Rosenbaum

CLS Work Order #: CPJ1082

COC #: 74271,74270

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
13-NYECK at 25N42 (CPJ1082-11) Water	**Sampled: 10/24/06 17:25**		**Received: 10/26/06 07:45**						
Copper	ND	2.0	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
17-NBWC at 25N42 (CPJ1082-12) Water	**Sampled: 10/24/06 17:30**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
4-DC @ 48"Culvert (CPJ1082-13) Water	**Sampled: 10/25/06 09:15**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	**5.4**	2.0	"	"	"	"	"	"	
Iron	**160**	50	"	"	"	"	11/02/06	"	
Zinc	**2.1**	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
11-SBWC @ 25N42 (CPJ1082-14) Water	**Sampled: 10/25/06 09:40**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	**7.4**	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
18-NBWC@25N32Y (CPJ1082-15) Water	**Sampled: 10/25/06 11:20**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
16-Nyeck @ 25N32Y (CPJ1082-16) Water	**Sampled: 10/25/06 11:40**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
16-Nyeck @ 25N32Y (CPJ1082-16) Water	**Sampled: 10/25/06 11:40**		**Received: 10/26/06 07:45**						
Iron	ND	50	µg/L	1	CP08344	10/27/06	11/02/06	EPA 200.8	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
15-MBWC@25N32Y (CPJ1082-17) Water	**Sampled: 10/25/06 11:50**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
14-SBWC@25N32Y (CPJ1082-18) Water	**Sampled: 10/25/06 12:00**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
25-WARD Ck at Genesee (CPJ1082-19) Water	**Sampled: 10/25/06 13:10**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08344	10/27/06	10/31/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	ND	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/31/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
22-IC at RD112 (CPJ1082-20) Water	**Sampled: 10/25/06 13:30**		**Received: 10/26/06 07:45**						
Aluminum	**20**	20	µg/L	1	CP08345	10/27/06	10/30/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	**420**	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	
24-LGC U/S IC (CPJ1082-21) Water	**Sampled: 10/25/06 14:00**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08345	10/27/06	10/30/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	50	50	"	"	"	"	11/02/06	"	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
24-LGC U/S IC (CPJ1082-21) Water	**Sampled: 10/25/06 14:00**		**Received: 10/26/06 07:45**						
Zinc	ND	2.0	µg/L	1	CP08345	10/27/06	10/30/06	EPA 200.8	
Cadmium	ND	0.50	"	"	"	"	"	"	
21-IC D/S LGC (CPJ1082-22) Water	**Sampled: 10/25/06 14:30**		**Received: 10/26/06 07:45**						
Aluminum	ND	20	µg/L	1	CP08345	10/27/06	10/30/06	EPA 200.8	
Arsenic	ND	5.0	"	"	"	"	"	"	
Copper	ND	2.0	"	"	"	"	"	"	
Iron	**350**	50	"	"	"	"	11/02/06	"	
Zinc	ND	2.0	"	"	"	"	10/30/06	"	
Cadmium	ND	0.50	"	"	"	"	"	"	

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08299 - General Preparation										
Duplicate (CP08299-DUP1)		**Source: CPJ1071-02**		Prepared & Analyzed: 10/26/06						
pH	7.23	0.001	pH Units		7.19			0.555	20	
Duplicate (CP08299-DUP2)		**Source: CPJ1082-22**		Prepared & Analyzed: 10/26/06						
pH	7.46	0.001	pH Units		7.42			0.538	20	
Batch CP08313 - 6010A/No Digestion										
Blank (CP08313-BLK1)				Prepared & Analyzed: 10/26/06						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	"							
Potassium	ND	1.0	"							
Sodium	ND	1.0	"							
Hardness as CaCO3	ND	1.0	"							
LCS (CP08313-BS1)				Prepared & Analyzed: 10/26/06						
Calcium	10.8	1.0	mg/L	10.0		108	80-120		20	
Magnesium	10.4	1.0	"	10.0		104	80-120		20	
Potassium	10.6	1.0	"	10.0		106	80-120		20	
Sodium	10.3	1.0	"	10.0		103	80-120		20	
LCS Dup (CP08313-BSD1)				Prepared & Analyzed: 10/26/06						
Calcium	10.9	1.0	mg/L	10.0		109	80-120	0.922	20	
Magnesium	10.4	1.0	"	10.0		104	80-120	0.00	20	
Potassium	10.5	1.0	"	10.0		105	80-120	0.948	20	
Sodium	10.1	1.0	"	10.0		101	80-120	1.96	20	
Matrix Spike (CP08313-MS1)		**Source: CPJ0986-01**		Prepared & Analyzed: 10/26/06						
Calcium	34.0	1.0	mg/L	10.0	24	100	75-125		25	
Magnesium	23.8	1.0	"	10.0	14	98.0	75-125		25	
Potassium	13.3	1.0	"	10.0	2.3	110	75-125		25	
Sodium	35.2	1.0	"	10.0	25	102	75-125		25	

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08313 - 6010A/No Digestion										
Matrix Spike Dup (CP08313-MSD1)		**Source: CPJ0986-01**		Prepared & Analyzed: 10/26/06						
Calcium	34.6	1.0	mg/L	10.0	24	106	75-125	1.75	25	
Magnesium	23.8	1.0	"	10.0	14	98.0	75-125	0.00	25	
Potassium	12.8	1.0	"	10.0	2.3	105	75-125	3.83	25	
Sodium	34.6	1.0	"	10.0	25	96.0	75-125	1.72	25	
Batch CP08314 - 6010A/No Digestion										
Blank (CP08314-BLK1)				Prepared & Analyzed: 10/26/06						
Calcium	ND	1.0	mg/L							
Magnesium	ND	1.0	"							
Potassium	ND	1.0	"							
Sodium	ND	1.0	"							
Hardness as CaCO3	ND	1.0	"							
LCS (CP08314-BS1)				Prepared & Analyzed: 10/26/06						
Calcium	10.3	1.0	mg/L	10.0		103	80-120		20	
Magnesium	9.60	1.0	"	10.0		96.0	80-120		20	
Potassium	9.05	1.0	"	10.0		90.5	80-120		20	
Sodium	8.99	1.0	"	10.0		89.9	80-120		20	
LCS Dup (CP08314-BSD1)				Prepared & Analyzed: 10/26/06						
Calcium	10.4	1.0	mg/L	10.0		104	80-120	0.966	20	
Magnesium	9.65	1.0	"	10.0		96.5	80-120	0.519	20	
Potassium	9.09	1.0	"	10.0		90.9	80-120	0.441	20	
Sodium	9.03	1.0	"	10.0		90.3	80-120	0.444	20	
Matrix Spike (CP08314-MS1)		**Source: CPJ1082-04**		Prepared & Analyzed: 10/26/06						
Calcium	28.9	1.0	mg/L	10.0	19	99.0	75-125		25	
Magnesium	19.0	1.0	"	10.0	9.1	99.0	75-125		25	
Potassium	10.9	1.0	"	10.0	1.0	99.0	75-125		25	
Sodium	13.0	1.0	"	10.0	3.2	98.0	75-125		25	

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	CLS Work Order #: CPJ1082
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08314 - 6010A/No Digestion										
Matrix Spike Dup (CP08314-MSD1)		**Source: CPJ1082-04**		Prepared & Analyzed: 10/26/06						
Calcium	28.4	1.0	mg/L	10.0	19	94.0	75-125	1.75	25	
Magnesium	19.0	1.0	"	10.0	9.1	99.0	75-125	0.00	25	
Potassium	11.0	1.0	"	10.0	1.0	100	75-125	0.913	25	
Sodium	13.0	1.0	"	10.0	3.2	98.0	75-125	0.00	25	
Batch CP08316 - General Preparation										
Blank (CP08316-BLK1)				Prepared & Analyzed: 10/26/06						
Methylene Blue Active Substances	ND	0.10	mg/L							
LCS (CP08316-BS1)				Prepared & Analyzed: 10/26/06						
Methylene Blue Active Substances	0.513	0.10	mg/L	0.500		103	80-120		20	
LCS Dup (CP08316-BSD1)				Prepared & Analyzed: 10/26/06						
Methylene Blue Active Substances	0.499	0.10	mg/L	0.500		99.8	80-120	2.77	20	
Matrix Spike (CP08316-MS1)		**Source: CPJ1046-10**		Prepared & Analyzed: 10/26/06						
Methylene Blue Active Substances	0.417	0.10	mg/L	0.500	ND	83.4	75-125		25	
Matrix Spike Dup (CP08316-MSD1)		**Source: CPJ1046-10**		Prepared & Analyzed: 10/26/06						
Methylene Blue Active Substances	0.413	0.10	mg/L	0.500	ND	82.6	75-125	0.964	25	
Batch CP08330 - General Preparation										
Blank (CP08330-BLK1)				Prepared & Analyzed: 10/26/06						
Specific Conductance (EC)	ND	1.0	µmhos/cm							

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08339 - General Prep										
Blank (CP08339-BLK1)				Prepared & Analyzed: 10/27/06						
Sulfate as SO4	ND	0.50	mg/L							
Chloride	ND	0.50	"							
LCS (CP08339-BS1)				Prepared & Analyzed: 10/27/06						
Sulfate as SO4	5.16	0.50	mg/L	5.00		103	80-120		20	
Chloride	2.02	0.50	"	2.00		101	80-120		20	
LCS Dup (CP08339-BSD1)				Prepared & Analyzed: 10/27/06						
Chloride	2.03	0.50	mg/L	2.00		102	80-120	0.494	20	
Sulfate as SO4	5.20	0.50	"	5.00		104	80-120	0.772	20	
Matrix Spike (CP08339-MS1)		**Source: CPJ1091-01**		Prepared & Analyzed: 10/27/06						
Sulfate as SO4	22.1	0.50	mg/L	5.00	17	102	75-125		25	
Chloride	11.6	0.50	"	2.00	8.8	140	75-125		25	QM-4X
Matrix Spike Dup (CP08339-MSD1)		**Source: CPJ1091-01**		Prepared & Analyzed: 10/27/06						
Chloride	10.7	0.50	mg/L	2.00	8.8	95.0	75-125	8.07	25	
Sulfate as SO4	22.0	0.50	"	5.00	17	100	75-125	0.454	25	
Batch CP08342 - General Preparation										
Blank (CP08342-BLK1)				Prepared & Analyzed: 10/27/06						
Methylene Blue Active Substances	ND	0.10	mg/L							
LCS (CP08342-BS1)				Prepared & Analyzed: 10/27/06						
Methylene Blue Active Substances	0.484	0.10	mg/L	0.500		96.8	80-120		20	

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08342 - General Preparation										
LCS Dup (CP08342-BSD1)				Prepared & Analyzed: 10/27/06						
Methylene Blue Active Substances	0.477	0.10	mg/L	0.500		95.4	80-120	1.46	20	
Matrix Spike (CP08342-MS1)		Source: CPJ1082-21		Prepared & Analyzed: 10/27/06						
Methylene Blue Active Substances	0.484	0.10	mg/L	0.500	ND	96.8	75-125		25	
Matrix Spike Dup (CP08342-MSD1)		Source: CPJ1082-21		Prepared & Analyzed: 10/27/06						
Methylene Blue Active Substances	0.478	0.10	mg/L	0.500	ND	95.6	75-125	1.25	25	
Batch CP08349 - General Preparation										
Blank (CP08349-BLK1)				Prepared & Analyzed: 10/27/06						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							
Batch CP08350 - General Preparation										
Blank (CP08350-BLK1)				Prepared & Analyzed: 10/27/06						
Total Alkalinity	ND	5.0	mg/L							
Bicarbonate as CaCO3	ND	5.0	"							
Carbonate as CaCO3	ND	5.0	"							
Hydroxide as CaCO3	ND	5.0	"							
Batch CP08353 - General Preparation										
Blank (CP08353-BLK1)				Prepared: 10/27/06 Analyzed: 10/30/06						
Total Dissolved Solids	ND	10	mg/L							

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08355 - General Preparation										
Blank (CP08355-BLK1)				Prepared & Analyzed: 10/27/06						
Specific Conductance (EC)	ND	1.0	µmhos/cm							
Batch CP08370 - General Prep										
Blank (CP08370-BLK1)				Prepared & Analyzed: 10/30/06						
Sulfate as SO4	ND	0.50	mg/L							
Chloride	ND	0.50	"							
LCS (CP08370-BS1)				Prepared & Analyzed: 10/30/06						
Chloride	2.02	0.50	mg/L	2.00		101	80-120		20	
Sulfate as SO4	5.16	0.50	"	5.00		103	80-120		20	
LCS Dup (CP08370-BSD1)				Prepared & Analyzed: 10/30/06						
Sulfate as SO4	5.21	0.50	mg/L	5.00		104	80-120	0.964	20	
Chloride	2.03	0.50	"	2.00		102	80-120	0.494	20	
Matrix Spike (CP08370-MS1)		Source: CPJ1082-12		Prepared & Analyzed: 10/30/06						
Chloride	2.33	0.50	mg/L	2.00	0.60	86.5	75-125		25	
Sulfate as SO4	5.67	0.50	"	5.00	0.55	102	75-125		25	
Matrix Spike Dup (CP08370-MSD1)		Source: CPJ1082-12		Prepared & Analyzed: 10/30/06						
Sulfate as SO4	5.90	0.50	mg/L	5.00	0.55	107	75-125	3.98	25	
Chloride	2.40	0.50	"	2.00	0.60	90.0	75-125	2.96	25	
Batch CP08382 - General Preparation										
Blank (CP08382-BLK1)				Prepared & Analyzed: 10/30/06						
Total Dissolved Solids	ND	10	mg/L							

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08320 - EPA 3020A										
Blank (CP08320-BLK1)				Prepared: 10/26/06 Analyzed: 10/30/06						
Aluminum	ND	20	µg/L							
Arsenic	ND	2.0	"							
Copper	ND	1.0	"							
Iron	ND	50	"							
Zinc	ND	2.0	"							
Cadmium	ND	0.50	"							
LCS (CP08320-BS1)				Prepared: 10/26/06 Analyzed: 10/30/06						
Aluminum	105	20	µg/L	100		105	80-120		20	
Arsenic	99.6	2.0	"	100		99.6	80-120		20	
Copper	104	1.0	"	100		104	80-120		20	
Iron	97.0	50	"	100		97.0	80-120		20	
Zinc	111	2.0	"	100		111	80-120		20	
Cadmium	10.3	0.50	"	10.0		103	80-120		20	
LCS Dup (CP08320-BSD1)				Prepared: 10/26/06 Analyzed: 10/30/06						
Aluminum	105	20	µg/L	100		105	80-120	0.00	20	
Arsenic	101	2.0	"	100		101	80-120	1.40	20	
Copper	103	1.0	"	100		103	80-120	0.966	20	
Iron	107	50	"	100		107	80-120	9.80	20	
Zinc	113	2.0	"	100		113	80-120	1.79	20	
Cadmium	10.2	0.50	"	10.0		102	80-120	0.976	20	
Matrix Spike (CP08320-MS1)	**Source: CPJ1082-01**			Prepared: 10/26/06 Analyzed: 10/30/06						
Aluminum	120	20	µg/L	100	17	103	75-125		25	
Arsenic	110	2.0	"	100	ND	110	75-125		25	
Copper	96.2	1.0	"	100	0.33	95.9	75-125		25	
Iron	611	50	"	100	470	141	75-125		25	QM-7
Zinc	110	2.0	"	100	1.2	109	75-125		25	
Cadmium	11.2	0.50	"	10.0	ND	112	75-125		25	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08320 - EPA 3020A										
Matrix Spike Dup (CP08320-MSD1)	**Source: CPJ1082-01**			Prepared: 10/26/06 Analyzed: 10/30/06						
Aluminum	120	20	µg/L	100	17	103	75-125	0.00	25	
Arsenic	106	2.0	"	100	ND	106	75-125	3.70	25	
Copper	92.9	1.0	"	100	0.33	92.6	75-125	3.49	25	
Iron	590	50	"	100	470	120	75-125	3.50	25	
Zinc	105	2.0	"	100	1.2	104	75-125	4.65	25	
Cadmium	10.9	0.50	"	10.0	ND	109	75-125	2.71	25	
Batch CP08321 - EPA 3020A										
Blank (CP08321-BLK1)				Prepared: 10/26/06 Analyzed: 10/30/06						
Aluminum	ND	20	µg/L							
Arsenic	ND	2.0	"							
Copper	ND	1.0	"							
Iron	ND	50	"							
Zinc	ND	2.0	"							
LCS (CP08321-BS1)				Prepared: 10/26/06 Analyzed: 10/30/06						
Aluminum	115	20	µg/L	100		115	80-120		20	
Arsenic	96.7	2.0	"	100		96.7	80-120		20	
Copper	100	1.0	"	100		100	80-120		20	
Iron	86.9	50	"	100		86.9	80-120		20	
Zinc	103	2.0	"	100		103	80-120		20	
LCS Dup (CP08321-BSD1)				Prepared: 10/26/06 Analyzed: 10/30/06						
Aluminum	115	20	µg/L	100		115	80-120	0.00	20	
Arsenic	95.8	2.0	"	100		95.8	80-120	0.935	20	
Copper	100	1.0	"	100		100	80-120	0.00	20	
Iron	102	50	"	100		102	80-120	16.0	20	
Zinc	101	2.0	"	100		101	80-120	1.96	20	

CALIFORNIA LABORATORY SERVICES

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CRWQCB - Sacramento 11020 Sun Center Drive, Ste. 200 Rancho Cordova CA, 95670-6114	Project: Walker Mine-PCA 13180 Project Number: PCA 13180 Project Manager: Steve Rosenbaum	**CLS Work Order #: CPJ1082** COC #: 74271,74270

Metals by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08321 - EPA 3020A										
Matrix Spike (CP08321-MS1)	**Source: CPJ1082-21**			Prepared: 10/26/06 Analyzed: 10/30/06						
Aluminum	111	20	µg/L	100	ND	111	75-125		25	
Arsenic	94.3	2.0	"	100	ND	94.3	75-125		25	
Copper	95.5	1.0	"	100	2.3	93.2	75-125		25	
Iron	138	50	"	100	30	108	75-125		25	
Zinc	104	2.0	"	100	1.2	103	75-125		25	
Matrix Spike Dup (CP08321-MSD1)	**Source: CPJ1082-21**			Prepared: 10/26/06 Analyzed: 10/30/06						
Aluminum	111	20	µg/L	100	ND	111	75-125	0.00	25	
Arsenic	92.1	2.0	"	100	ND	92.1	75-125	2.36	25	
Copper	94.2	1.0	"	100	2.3	91.9	75-125	1.37	25	
Iron	131	50	"	100	30	101	75-125	5.20	25	
Zinc	102	2.0	"	100	1.2	101	75-125	1.94	25	

CALIFORNIA LABORATORY SERVICES

11/10/06 14:53

CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08344 - EPA 3020A										
Blank (CP08344-BLK1)				Prepared: 10/27/06 Analyzed: 10/31/06						
Aluminum	ND	20	µg/L							
Arsenic	ND	5.0	"							
Copper	ND	2.0	"							
Iron	ND	50	"							
Zinc	ND	2.0	"							
Cadmium	ND	0.50	"							
LCS (CP08344-BS1)				Prepared: 10/27/06 Analyzed: 10/31/06						
Aluminum	105	20	µg/L	100		105	80-120		20	
Arsenic	88.0	5.0	"	100		88.0	80-120		20	
Copper	102	2.0	"	100		102	80-120		20	
Iron	93.0	50	"	100		93.0	80-120		20	
Zinc	106	2.0	"	100		106	80-120		20	
Cadmium	9.27	0.50	"	10.0		92.7	80-120		20	
LCS Dup (CP08344-BSD1)				Prepared: 10/27/06 Analyzed: 10/31/06						
Aluminum	102	20	µg/L	100		102	80-120	2.90	20	
Arsenic	85.4	5.0	"	100		85.4	80-120	3.00	20	
Copper	98.2	2.0	"	100		98.2	80-120	3.80	20	
Iron	101	50	"	100		101	80-120	8.25	20	
Zinc	104	2.0	"	100		104	80-120	1.90	20	
Cadmium	9.39	0.50	"	10.0		93.9	80-120	1.29	20	
Matrix Spike (CP08344-MS1)	Source: CPJ1082-19			Prepared: 10/27/06 Analyzed: 10/31/06						
Aluminum	108	20	µg/L	100	ND	108	75-125		25	
Arsenic	82.1	5.0	"	100	ND	82.1	75-125		25	
Copper	105	2.0	"	100	0.70	104	75-125		25	
Iron	153	50	"	100	13	140	75-125		25	QM-7
Zinc	117	2.0	"	100	ND	117	75-125		25	
Cadmium	9.96	0.50	"	10.0	ND	99.6	75-125		25	

CALIFORNIA LABORATORY SERVICES

11/10/06 14:53

CRWQCB - Sacramento 11020 Sun Center Drive, Ste. 200 Rancho Cordova CA, 95670-6114	Project: Walker Mine-PCA 13180 Project Number: PCA 13180 Project Manager: Steve Rosenbaum	**CLS Work Order #: CPJ1082** COC #: 74271,74270

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08344 - EPA 3020A										
Matrix Spike Dup (CP08344-MSD1)	Source: CPJ1082-19			Prepared: 10/27/06 Analyzed: 10/31/06						
Aluminum	107	20	µg/L	100	ND	107	75-125	0.930	25	
Arsenic	80.7	5.0	"	100	ND	80.7	75-125	1.72	25	
Copper	105	2.0	"	100	0.70	104	75-125	0.00	25	
Iron	130	50	"	100	13	117	75-125	16.3	25	
Zinc	118	2.0	"	100	ND	118	75-125	0.851	25	
Cadmium	9.90	0.50	"	10.0	ND	99.0	75-125	0.604	25	
Batch CP08345 - EPA 3020A										
Blank (CP08345-BLK1)				Prepared: 10/27/06 Analyzed: 10/30/06						
Aluminum	ND	20	µg/L							
Arsenic	ND	5.0	"							
Copper	ND	2.0	"							
Iron	ND	50	"							
Zinc	ND	2.0	"							
Cadmium	ND	0.50	"							
LCS (CP08345-BS1)				Prepared: 10/27/06 Analyzed: 10/30/06						
Aluminum	109	20	µg/L	100		109	80-120		20	
Arsenic	94.8	5.0	"	100		94.8	80-120		20	
Copper	96.8	2.0	"	100		96.8	80-120		20	
Iron	85.5	50	"	100		85.5	80-120		20	
Zinc	99.1	2.0	"	100		99.1	80-120		20	
Cadmium	10.0	0.50	"	10.0		100	80-120		20	
LCS Dup (CP08345-BSD1)				Prepared: 10/27/06 Analyzed: 10/30/06						
Aluminum	107	20	µg/L	100		107	80-120	1.85	20	
Arsenic	93.4	5.0	"	100		93.4	80-120	1.49	20	
Copper	95.3	2.0	"	100		95.3	80-120	1.56	20	
Iron	95.0	50	"	100		95.0	80-120	10.5	20	
Zinc	100	2.0	"	100		100	80-120	0.904	20	
Cadmium	9.61	0.50	"	10.0		96.1	80-120	3.98	20	

CALIFORNIA LABORATORY SERVICES

11/10/06 14:53

CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch CP08345 - EPA 3020A										
Matrix Spike (CP08345-MS1)	**Source: CPJ1119-03**			Prepared: 10/27/06 Analyzed: 10/30/06						
Aluminum	125	20	µg/L	100	31	94.0	75-125		25	
Arsenic	86.6	5.0	"	100	3.0	83.6	75-125		25	
Copper	258	2.0	"	100	180	78.0	75-125		25	
Iron	333	50	"	100	220	113	75-125		25	
Zinc	143	2.0	"	100	54	89.0	75-125		25	
Cadmium	10.0	0.50	"	10.0	ND	100	75-125		25	
Matrix Spike Dup (CP08345-MSD1)	**Source: CPJ1119-03**			Prepared: 10/27/06 Analyzed: 10/30/06						
Aluminum	129	20	µg/L	100	31	98.0	75-125	3.15	25	
Arsenic	86.6	5.0	"	100	3.0	83.6	75-125	0.00	25	
Copper	260	2.0	"	100	180	80.0	75-125	0.772	25	
Iron	347	50	"	100	220	127	75-125	4.12	25	QM-7
Zinc	143	2.0	"	100	54	89.0	75-125	0.00	25	
Cadmium	10.3	0.50	"	10.0	ND	103	75-125	2.96	25	

CALIFORNIA LABORATORY SERVICES

11/10/06 14:53

CRWQCB - Sacramento	Project: Walker Mine-PCA 13180	**CLS Work Order #: CPJ1082**
11020 Sun Center Drive, Ste. 200	Project Number: PCA 13180	
Rancho Cordova CA, 95670-6114	Project Manager: Steve Rosenbaum	COC #: 74271,74270

Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
HT-1	The sample was received outside of the EPA recommended holding time.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Exhibit 61

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD

INSPECTION REPORT

19 June 2007

DISCHARGER: **Walker Mine**

LOCATION & COUNTY: Walker Mine, Plumas County

CONTACT(S): **None**

INSPECTION DATE: 11–12 June 2007

INSPECTED BY: Steve Rosenbaum/Jeff Huggins

ACCOMPANIED BY: NA

OBSERVATIONS AND COMMENTS:

Board staff performed the annual spring inspection of the Walker Mine in Plumas County as required by Walker Mine Operations and Maintenance Procedures (June 1997). A photo log of the inspection is attached.

MINE STRUCTURES

Board staff arrived on site at the Walker Mine Portal area at 10:00am. The portal door at the mine entrance was securely locked. There was some evidence of minor vandalism of the wooden planking (Photo 14) that covers the drainage conduit at the entry into the mine and one of the portal door locks. There were several new bullet holes in the steel portal door (Photo 15). Inspection of the ventilation fan, the ventilation ducting and the Telog pressure data recorder showed no apparent damage from the shooting. However, ventilation ducting suspended with large plastic zip ties from the 200 station to the 700 station has fallen to the ground and is unusable for ventilation purposes.

Board staff downloaded and analyzed pressure data from the Telog data recorder during the inspection. The Telog data recorder is connected via a 2,500-foot long electronic cable to a Druck pressure sensor at the mine seal. Once per day the data recorder measures and stores an electronic current measurement (mAmps) from the Druck pressure sensor. This data is converted mathematically by Board staff to feet of pressure head on the mine seal[1]. At the time of the inspection, a current measurement of 7.56 mAmps (163 feet of pressure head) was recorded. The maximum pressure head has continued to fall since the last inspection (24–25 October 2006). At that time a pressure head was 196 feet was recorded above the mine seal due to water and snowmelt recharging the mine workings.

The old batteries that power the Druck pressure sensor recorder were removed and replaced with new batteries during this inspection. As mentioned above, Board staff did perform a brief inspection of the access tunnel from the 200 station to the 700 station in order to assess the condition of the ventilation ducting beyond the corrugated metal pipe (187 feet into the main drift). Board staff did note that some timbered sections in the area between the 200 station

[1] (Note: The Druck pressure sensor is scaled to transmit 4 to 20 mAmps for 0 to 300 psi).

Approved:		

and the 700 station are in need of replacement. The complete timbered section, the unsupported section, and the mine seal were not inspected during the site visit.

The drainage channel inside the corrugated section of the mine tunnel was working effectively and was not obstructed. All four of the heavy-duty locks on the portal doors were securely locked upon leaving the mine portal.

WATER QUALITY MONITORING

Surface water samples were taken from 18 of the 25 sampling locations. There was no discharge from the settling pond (Photo 9), thus no sample was taken from this location (sample location number 19). All of the sample locations had sufficient surface water to sample, however water flow in general was low (Photo 2). Laboratory results are pending.

SUBSIDENCE AREAS

Staff inspected the diversion channel structures in the area of the Central and Piute orebody workings. There was very little water flowing in the diversion channels at the time of the inspection and it appeared that water flow has been minimal for some time. Some fallen trees and debris are partially obstructing the Central orebody diversion ditches (Photos 23–25). A vertical ventilation shaft was identified above the Central orebody (Photo 27–29). This shaft is unprotected and open at least several hundred feet deep. This shaft represents a high risk to anyone who unknowingly comes across the area.

SUMMARY:

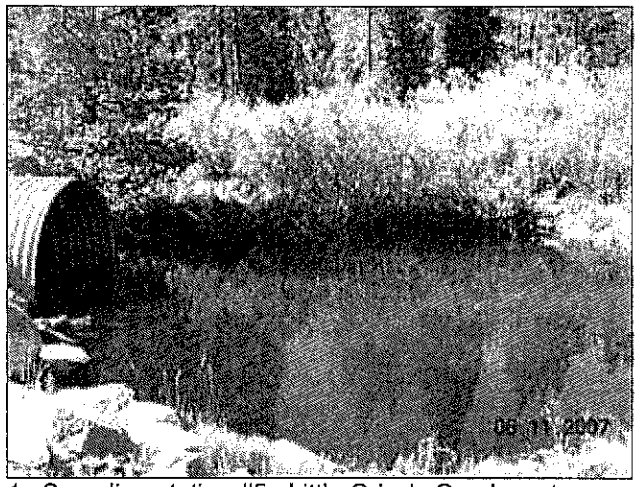
A semi annual inspection was made of the Walker Mine site. Surface water monitoring was performed and water pressure measurements on the mine seal were obtained. New batteries were installed for the data logger. A brief inspection was made of the access tunnel from the 200 station to the 700 station in order to determine the extent of the fallen ventilation ducting. Drainage channels at the mine portal and Piute and Central orebody areas were inspected, and a vertical air shaft above the Central orebody was identified as a high risk area.

RECOMMENDATIONS:

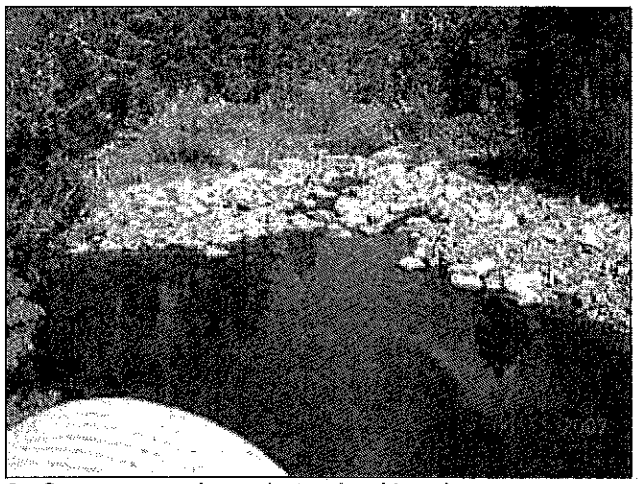
At the Walker Mine portal, the ventilation ducting must be reinstalled properly between the 200 to 700 foot stations before any underground inspection can take place. An experience underground mine contractor should perform this work. Additionally, the timbered section and the unsupported section of the main access tunnel need to be inspected for signs of ground support deterioration. The mine seal and stainless steel piping and valves need to be inspected and physically tested to ensure their operability in accordance with the Board's Operations and Maintenance Plan for the Walker Mine.

The Central orebody diversion ditch needs to be cleared of fallen trees and debris in order to contain runoff within the shotcrete channel and prevent overflow and potential erosion of the surrounding area. This work could be accomplished using a small hand crew.

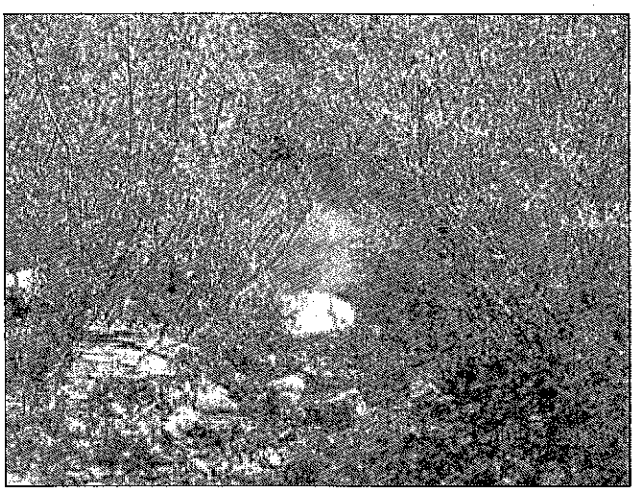
Finally, the open ventilation shaft identified above the Central orebody must be guarded or plugged. Board staff will contact the California Department of Conservation Office of Mine Reclamation, Abandoned Mine Lands Unit to request that they immediately act upon this information.



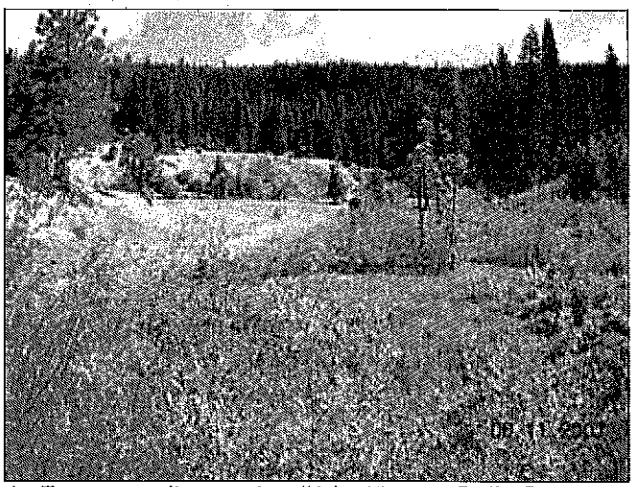
1. Sampling station #5. Little Grizzly Creek upstream of tailings at Road 24N60.



2. Same as previous photo. Looking downstream.

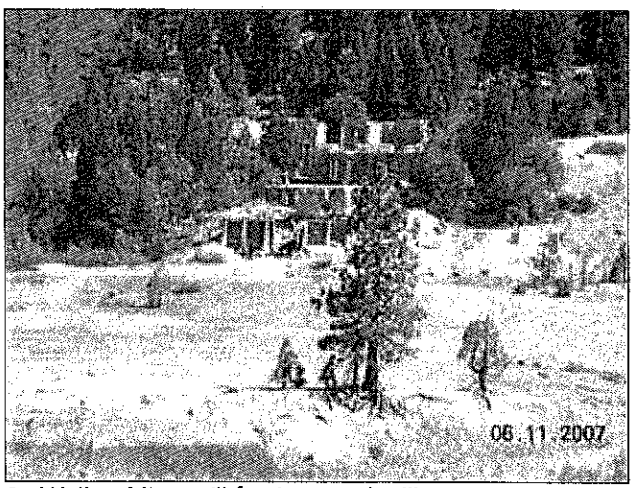


3. Near sampling station #3. Dolly Creek below the mine access road.



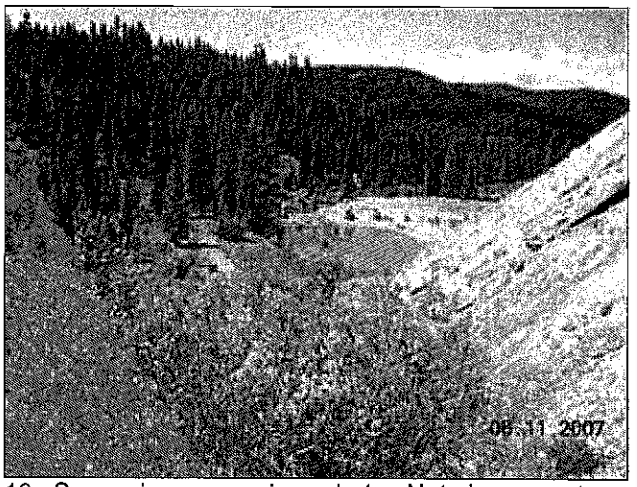
4. From sampling station #3 looking up Dolly Creek to the waste dumps.

5. Mine access road below the Walker Mine portal.



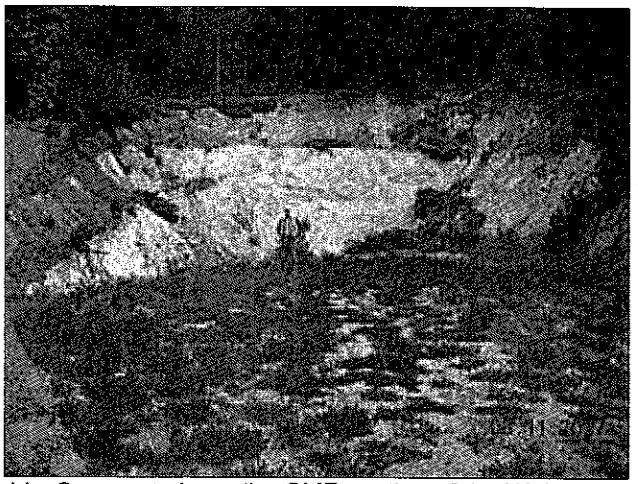
6. Walker Mine mill footings and tailings.

7. Sampling station #3. Dolly Creek below the mine access road.

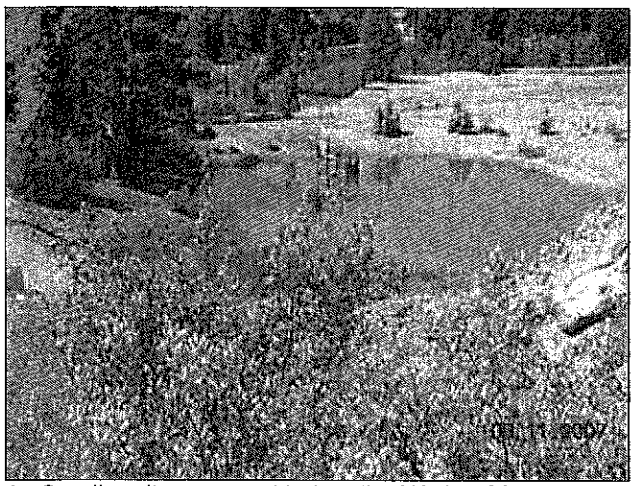


10. Same view as previous photo. Note large waste dump on the right.

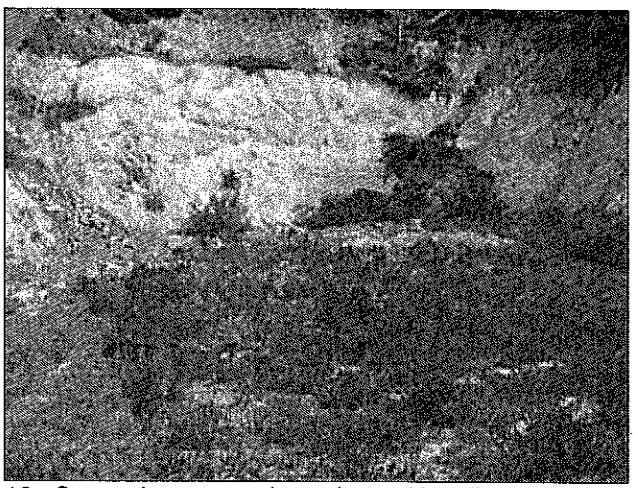
8. Same view as previous photo.



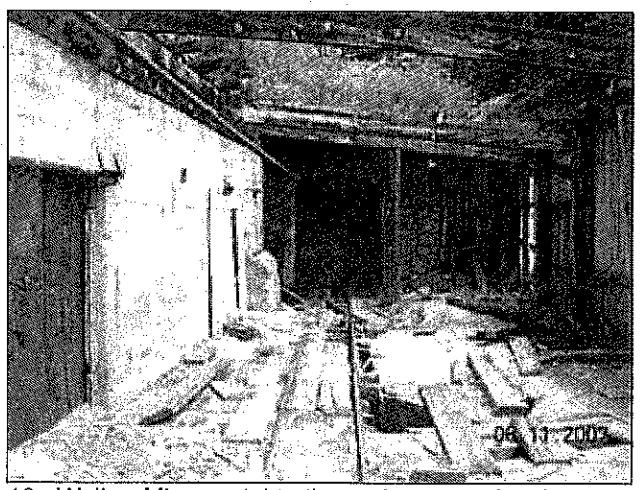
11. Open cut above the CMP section of the Walker Mine access level.



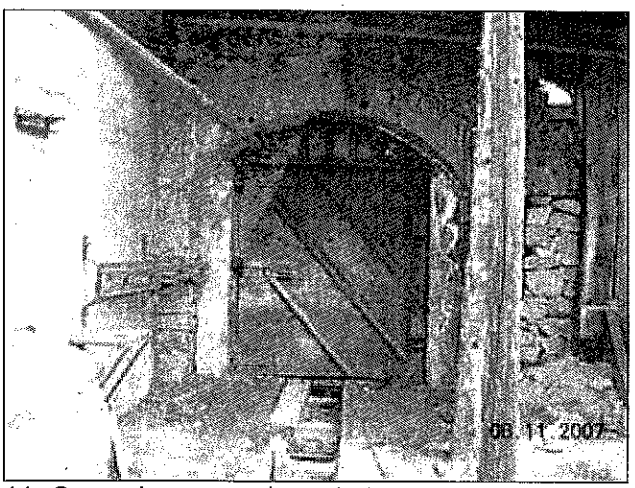
9. Small sediment pond below the Walker Mine portal.



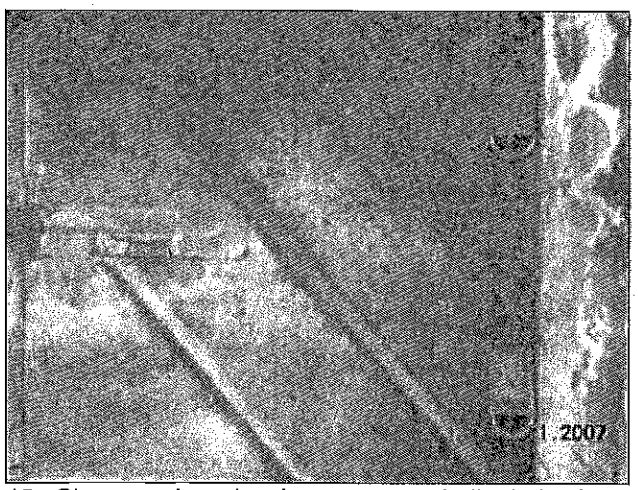
12. Same view as previous photo. Note the poor vegetative cover and erosion from the cut slopes.

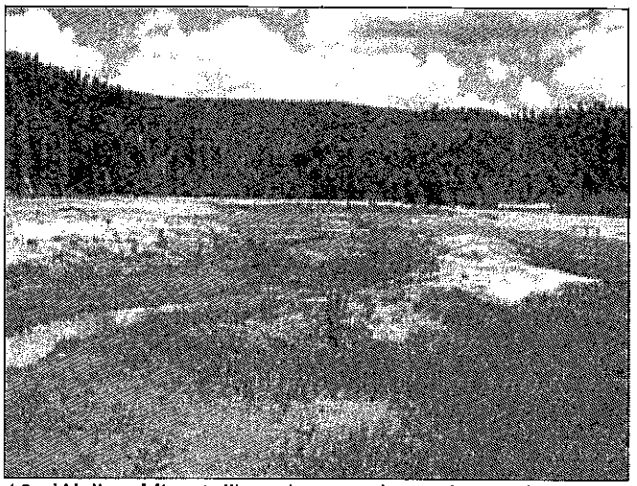


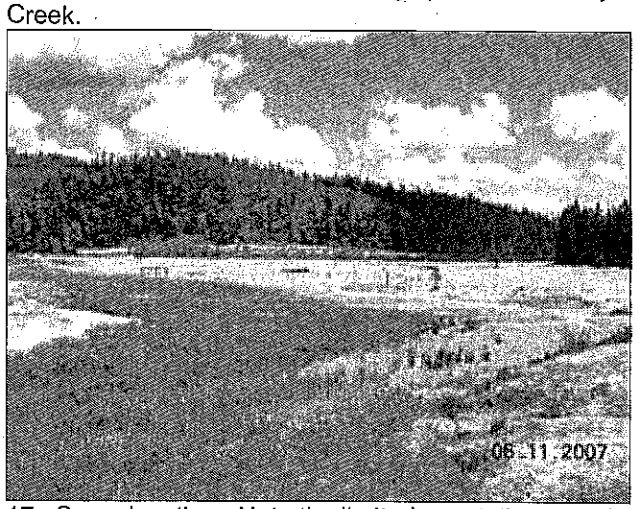
13. Walker Mine portal to the main access level.



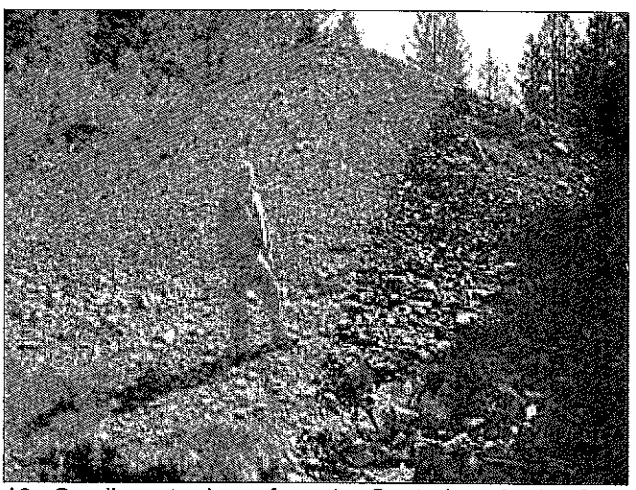
14. Same view as previous photo.

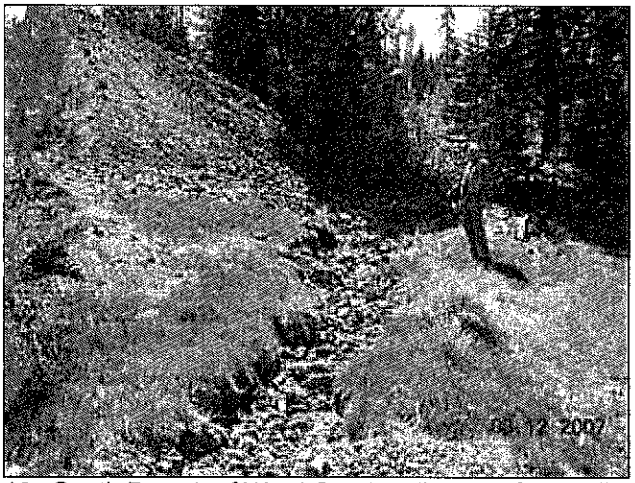

15. Close-up view showing numerous bullet holes in the portal door. The portal access is repeatedly vandalized. Successful entry has been limited.


16. Walker Mine tailings impoundment located on USFS administered lands. Looking upstream at Dolly Creek.



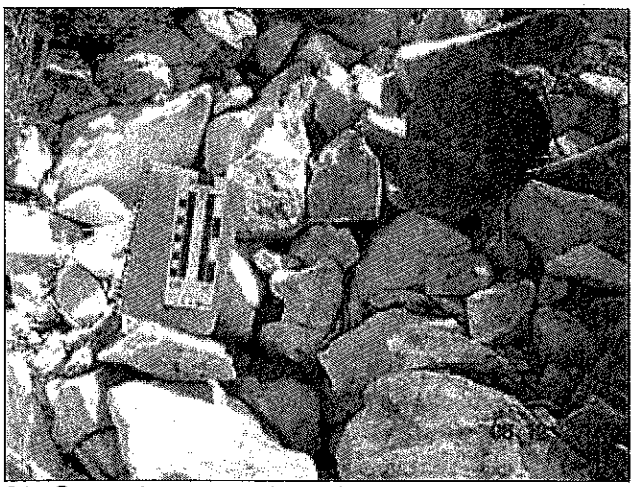
17. Same location. Note the limited vegetative growth.


18. Small waste dump from the Central ore body of the Walker Mine. The South Branch of Ward Creek cuts the toe of the small waste dump.



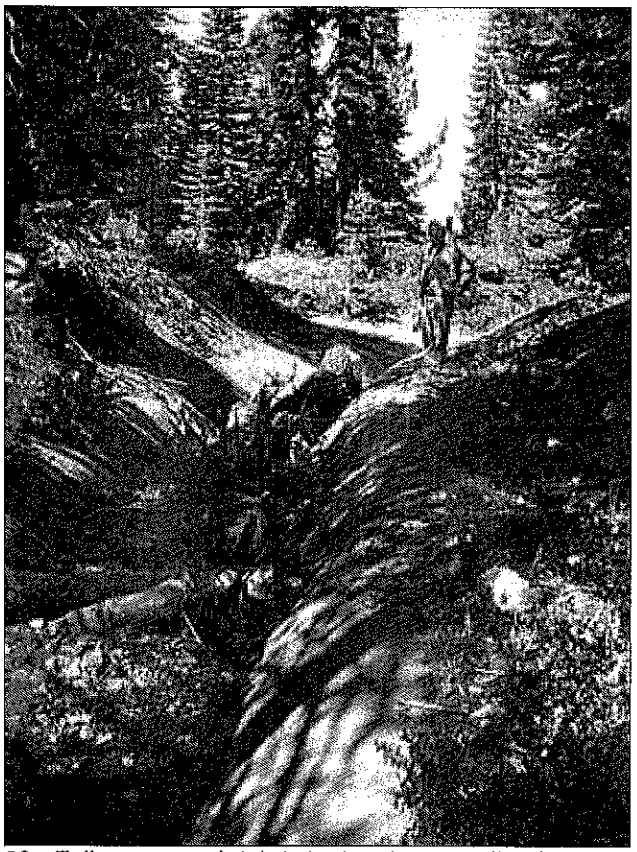
19. South Branch of Ward Creek at the toe of a small waste dump from the Central ore body.

20. Close-up of previous photo showing copper leaching from the toe of the waste dump.

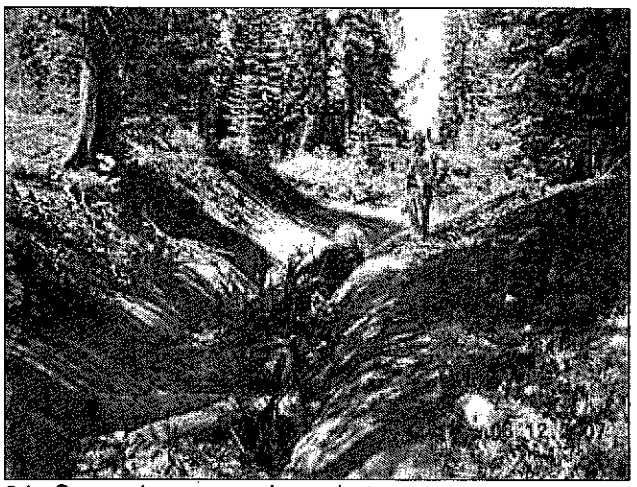


21. Same view as previous photo.

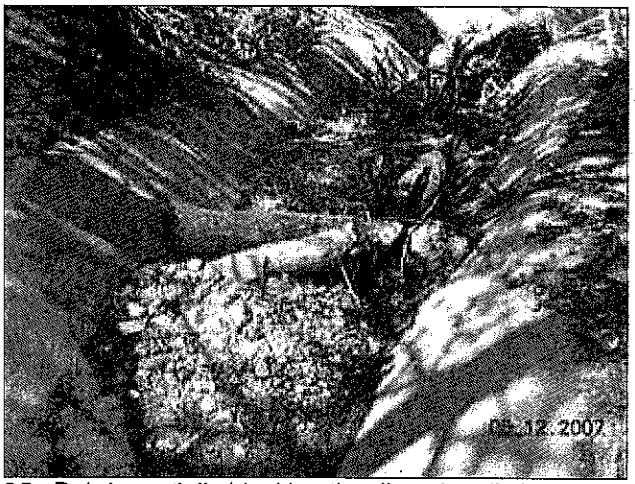
22. Photo of a tower structure for the former aerial tramway that moved supplies and materials between the Walker Mine and Quincy. Shotcrete-lined diversion ditch in the foreground.



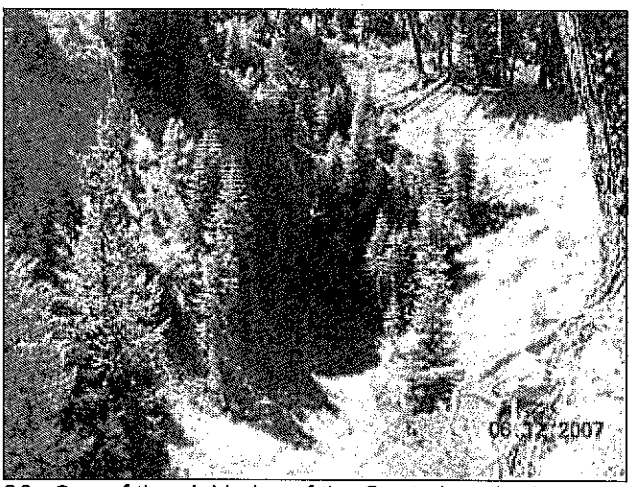
23. Fallen tree and debris in the shotcrete-lined diversion ditches near the Central ore body.



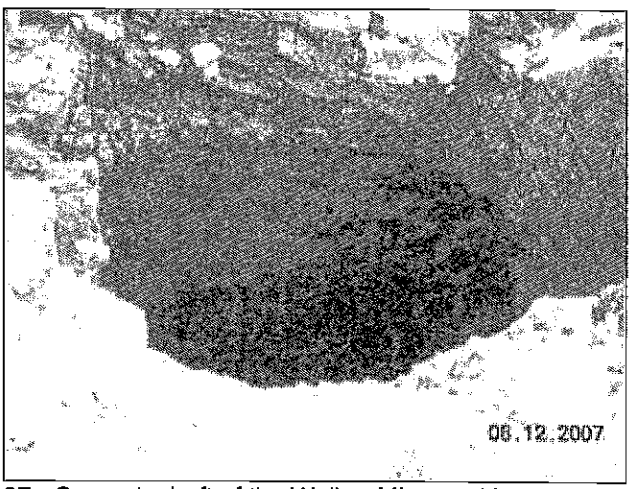
24. Same view as previous photo.



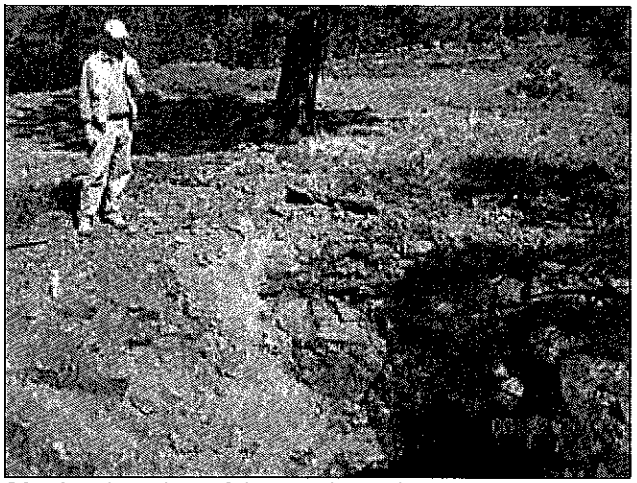
25. Debris partially blocking the diversion ditch near the Central ore body.



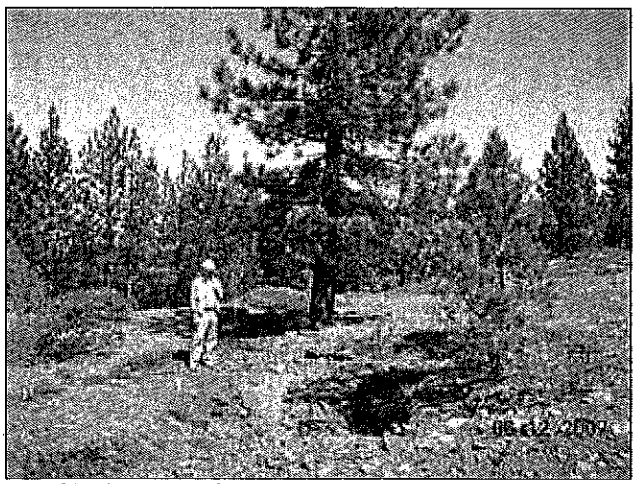
26. One of the sinkholes of the Central ore body



27. Open air shaft of the Walker Mine workings. Located between the Central and Piute ore bodies. The airshaft opening is approximately 9 feet by 15 feet and is at least several hundred feet deep.



28. Another view of the previous photo.



29. Similar view of the previous photo.

Exhibit 62

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742

June 27, 2007

CLS Work Order #: CQF0399
COC #: 84179-84180

Steve Rosenbaum
CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Project Name: Walker Mine

Enclosed are the results of analyses for samples received by the laboratory on 06/13/07 08:43. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

CA DOHS ELAP Accreditation/Registration number 1233

CLS - Labs

CHAIN OF CUSTODY

CLS ID No.: C0F0355

PG: 1 OF 2

LOG NO. 84180

REPORT TO:

NAME AND ADDRESS: LETICIA VALADEZ, RWQCB, 11020 SUN CENTER DR #200 RANCHO CORDOVA

PROJECT MANAGER: STEVE ROSENBAUM PHONE# 464 4631

PROJECT NAME: WALKER MINE

SAMPLED BY: JEFF HUGGINS

JOB DESCRIPTION:

SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:

☐ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742

☐ OTHER

PRESERVATIVES: Bid Group 7

ANALYSIS REQUESTED

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID:

COMPOSITE:

FIELD CONDITIONS:

TURN AROUND TIME: 1 DAY | 2 DAY | 5 DAY | 10 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES
6-11-07	10:00	WM5 LGC U/S	W	3	PLASTIC	3/2
	10:10	WM3 DC D/S				
	10:30	WM 1 PORTAL				
	10:50	WM 2 DC U/S				
	12:00	WM 4 DC at 48" CULVERT				
	13:00	WM 9 LGC at BC				
	1330	WM 6 USFS DAM				
	1340	WM 7 CGC U/S DC				
	1350	WM8 LGC d/s DC				
	1400	WM11 S. Br Warm Ck				
	1410	WM12 M. Br Warm Ck				
	1420	WM13 Nye Ck				
	1430	WM17 N. Br Warm Ck				

Need Low Detection Limits for Metals

INVOICE TO: Leticia

P.O. #

QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
Jeff S. Huggins	Jeff S. Huggins/CVRWQCB	6/13/07 0800		

REC'D AT LAB BY:

DATE / TIME: 6/13/07 0800

CONDITIONS / COMMENTS: Ice

SHIPPED BY: ☐ FED-X ☐ UPS ☐ OTHER AIR BILL #

LAB

CLS - Labs

CHAIN OF CUSTODY CLS ID No.: CQF0355 PG: 2 OF 2 LOG NO. 84179

REPORT TO:

NAME AND ADDRESS: Leticia Valadez
RWQCB
11020 Sun Center Dr. #200 Rancho Cordova
PROJECT MANAGER: Steve Rosenbaum PHONE#: 464-4631
PROJECT NAME: Walker Mine
SAMPLED BY: Jeff Huggins
JOB DESCRIPTION:
SITE LOCATION:

CLIENT JOB NUMBER:

DESTINATION LABORATORY:
☐ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742
☐ OTHER

PRESERVATIVES

ANALYSIS REQUESTED: Bid Group 7

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID:

COMPOSITE: Bid Group 7 is Total Metals + Dissolved Metals + General Minerals
FIELD CONDITIONS:

TURN AROUND TIME: 1 DAY | 2 DAY | 5 DAY | 10 DAY

SPECIAL INSTRUCTIONS
OR
ALT. ID:

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	PRESERVATIVES	SPECIAL INSTRUCTIONS
6-11-07	13:10	WM18 N.Br WARD clk	W	3	Pl.	3/2	~~45 ppb Cu Typically~~
	15:40	WM16 NFE clk 25N32Y					Need Low Detection
	15:50	WM15 M.Br WARD clk 25N32Y					Limits for Metals
	16:00	WM14 S.Br WARD clk 25N32Y					
↓	17:20	WM20 LGCAT FW	↓	↓	↓	↓	

INVOICE TO: Leticia
P.O. #
QUOTE #

SUSPECTED CONSTITUENTS

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
Jeff S. Huggins	Jeff S. Huggins/CVRWQCB	6/13/07 0800		

REC'D AT LAB BY: DATE / TIME: 6/13/07 0800 CONDITIONS / COMMENTS: 2C

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER AIR BILL #

LAB

LV

CALIFORNIA LABORATORY SERVICES

3249 Fitzgerald Road Rancho Cordova, CA 95742 (916) 638-7301

INVOICE

Invoice To:
Leticia Valedez
CRWQCB - Sacramento
11020 Sun Center Drive, Ste. 200
Rancho Cordova, CA 95670-6114

Invoice Number
7060861-CRWQCBSAC

Invoiced On:
06/27/07

Remit To:
Accounts Receivable
CLS Labs
3249 Fitzgerald Rd.
Rancho Cordova, CA 95742

PO Number
06-007-150-0

Received
06/13/07

Project
Walker Mine

Client
Steve Rosenbaum
CRWQCB - Sacramento

Terms
NET 30

Project Number
PCA 13180

Project Manager
Ray Oslowski

Work Order(s)
CQF0399

Quantity	Analysis/Description	Matrix	Unit Cost	Extended Cost
18	CRWQCB-BidGrp7 Metals Diss [10 day]	Water	$39.00	$702.00
18	CRWQCB-BidGrp7 Metals [10 day]	Water	$39.00	$702.00
18	CRWQCB-BidGrp7 GM [10 day]	Water	$110.00	$1,980.00
18	Cr6-7196A Diss [10 day]	Water	$40.00	$720.00
18	Cr6-7196A [10 day]	Water	$40.00	$720.00

Invoice Total: $4,824.00

We Appreciate Your Business.

RECEIVED
SACRAMENTO
CVRWQCB
07 JUL -2 PM 4:29

Interest of 18% per annum (1.5% per month) will be added to all invoice amounts not paid within 30 days of invoice date.

Sample Receiving Exception Report
Work Order #CQF0399

All samples received for Hexavalent Chromium analyses were outside of the EPA recommended holding time. The Chromium samples were processed regardless of holding time.

Additionally, two poly liters were received with the same "WM-1 Portal" labeling. This issue was resolved by labeling one sample "WM-1" and the other "WM-2."