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Forest Service
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File Code: 2540
Date: December 16, 2009

Mr. Steve Rosenbaum
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6114

Dear Mr. Rosenbaum:

Attached please find a complete set of 2009 water quality monitoring reports by the U.S. Department of Agriculture, Forest Service, Plumas National Forest, for the Walker Mine Tailings in Plumas County, California. The four reports are (1-3) Quarterly Monitoring Reports for May, July, and September 2009 and (4) the Annual Monitoring Report for 2009.

Results of the 2009 sampling show a significant reduction in pollutants that is likely the result of decreased surface water flow across the tailings. The reduction in pollutants is the expected result of construction of the Dolly Creek diversion structure and channel and subsequent Dolly Creek inlet structure retrofit separating the surface flow from the tailings material. Copper remains the pollutant of concern and the sample results indicate that significant levels of copper continue entering Dolly Creek from the Walker Mine Site.

All field sampling and testing was performed by Sierra Environmental of Quincy, CA and water samples were then analyzed by Basic Laboratories in Redding, CA. Construction of the Dolly Creek Inlet Structure Retrofit was performed in September and October of 2009 by Stephens Construction, Inc. of Arnold, CA.

Please call Ryan Nupen of this office at (530) 283-7712 if you have any questions.

Sincerely,

ALICE B. CARLTON
Forest Supervisor

cc: Dennis J Geiser, Rose Mikovsky

ANNUAL MONITORING REPORT

Discharger: USDA Forest Service, Plumas National Forest

Facility: Walker Mine Tailings, Plumas County

Monitoring Period: Calendar Year 2009

Findings:

(1) Surface Water. Samples were collected in May, July, and September 2009. Adjusting for hardness at the compliance station on Little Grizzly Creek (R-5), the calculated limitation for dissolved copper for the three sampling periods ranged from 3.4 ug/L to 7.9 ug/L. The limitation for copper, 4.95ug/L, set in Waste Discharge Requirements Order No. 5-00-028 was exceeded during July of 2009 with a value of 11.8 ug/L (the average dissolved copper concentration at R-5 was 6.2 ug/L down from an average of 11 ug/L in 2008). The limitations for iron and zinc were not exceeded in any of the R-5 samples collected.

Low concentrations of dissolved copper were detected at R-3, the background station on Little Grizzly Creek, and R-4, Little Grizzly Creek above the confluence with Dolly Creek, during each of the three sampling events (see Table 1 and attached Map). Reviewing the 85 copper testing results from 1991 to present for R-3 and R-4 indicates no significant trends. The average dissolved copper concentration for the two sites over this period is very similar (2.9 ug/L for R-3 and 3.5 ug/L for R-4). Copper concentrations above the laboratory detection limits were found in the waters of Little Grizzly Creek above the confluence with Dolly Creek just 34% (R-3) and 36% (R-4) of the time. However, the concentrations found frequently do not follow the hypothesis that the copper concentration in Little Grizzly Creek is increasing as it flows past the tailings material. Only 20% of the sampling events show higher dissolved copper concentrations at R-4 than at R-3 and about half the time that copper is detected at R-3 it is not detected at all downstream at R-4. There is actually little concrete explanation for the detection of copper at the R-3 station. 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 minor contamination pathway, it does not seem plausible that concentrations of copper in samples taken at R-3 could be detected.

In all three sampling events (May, July, and September) dissolved copper was found at R-1, Dolly Creek above the tailings area, in concentrations that exceeded the limitations established for freshwater aquatic life protection. The May and July 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. Over the three sampling events, the increase in copper concentration from R-1 to R-2 amounted to 57%, in May, and 91%, in July, of the copper found at R-2 (see Table 2 and Chart 1).

The reduction in copper concentrations between stations R-2 and R-5, the compliance station on Little Grizzly Creek -- presumably due to dilution - was 97% in May and 86% in July. There was no flow at R-2 during the September sampling event as the Dolly Creek inlet diversion structure was sealed and functioning. The 2009 water year was considered below average and received only 72% of its annual average precipitation. Table 3 displays flow rates for the sampling periods from 1991 through 2009.

(2) Groundwater. Groundwater samples were collected from three monitoring wells (W-3, W-5 and W-7) in May and September of 2009 (see attached map). A summary of the groundwater test results for sampling performed in 1994, 1995, 2000-2004, 2007-2009 is presented in Table 4 (samples were not collected from 1996-1999 or 2005-2006). Test results for total copper, iron, and zinc in the 1994 and 1995 samples indicate that small concentrations of these metals are present in the tailings material, in both dissolved and non-dissolved states, throughout the site. The characterization of the tailings material in 1992 by Westec confirmed presence of these constituents throughout the tailings area. The characterization program included not only seven monitoring well but also an additional seven boreholes.

Copper, iron, and zinc were detected in both wells during each sampling period. There was also a notable increase in dissolved iron in W-5 where the May and September test results were 21,400 ug/L and 15,100 ug/L, respectively. There was also an increase in dissolved iron in the background well W-7 where the analysis in May showed 2,960 ug/L and in September it was 828 ug/L.

Previously, the detection of dissolved iron has been relatively rare in any of the wells. For the 48 samples analyzed for iron from 2000 to 2004, and 2007-2009, iron was detected in 26 samples (54% detection). The mean and median dissolved concentrations for samples with detected iron are 3846 ug/L and 230 ug/L (respectively). The median falls well below the prescribed water quality limitation at R-5 of 1000 ug/L but the mean was greatly increased due to the unexpectedly high laboratory results for W-5 in 2007, 2008 and 2009 as well as an increase in W-7. For zinc, the mean and median detected dissolved concentrations are 7.1 ug/L and 5.4 ug/L with a maximum detected concentration of 21.0 ug/L. All of these values are well below the prescribed limitation for zinc which is 66 ug/L. Zinc concentrations are dependent upon the measured water hardness, which averaged 67.2 mg/L as CaCO3 for the 2000-2004 and 2007-2008 surface water samples at R-5 (with a median of 75 mg/L as CaCO3). Another way in which the presence of zinc can be predicted is by looking at the presence of copper at Walker Mine Tailings. Because of the physical similarities between copper and zinc and given the overall water quality records at this site, the presence of zinc when copper is present is 70% of the time.

Well W-7 is situated upgradient and off of the tailings site and is used as the background well. When compared with W-7 sample results, dissolved iron and zinc concentrations detected in downgradient wells W-3 and W-5 (both wells situated on the tailings) do not demonstrate an increase in the concentration of these metals as groundwater passes through the tailings material. For zinc, an increased downgradient concentration was

observed in just 1 of the 20 sample events conducted from 2000 to 2004. For iron, an increased downgradient concentration in W-3 or W-5 is documented in just 4 of the 20 events.

In analyzing the groundwater sample results for copper, it is best to look closely at the samples collected between 2002 and 2004 and 2007 to 2009. These samples were analyzed using methods and instrumentation that allowed a very sensitive detection level of 1.0 ug/L or less (the 2000 samples were analyzed with a detection level of 5.0 ug/L and the 2001 detection level was 10 ug/L).

Additionally, only one of the 30 groundwater samples collected between 2000 and 2004 resulted in a dissolved copper concentration of more than 5.0 ug/L (the detection level used for the 2000 anlyses). The sample at W-3 for September 2001 resulted in a dissolved copper concentration of 12 ug/L. Well W-3 is situated on the tailings very close to the Dolly Creek channel. The well-documented high concentrations of dissolved copper in the Dolly Creek surface water are a likely source for the elevated copper concentration in this groundwater sample.

As stated above, the low levels of dissolved copper were observed in twenty nine of the thirty four 2002 – 2004 and 2007-2009 groundwater samples. Of the twenty nine instances twenty three were under 3.4 ug/L. Moreover, a trend of increasing copper concentration as groundwater flows through the tailings is not demonstrated by the well data. For dissolved copper, an increased downgradient concentration in wells W-3 and W-5, when compared with the background well W-7, was observed in 6 of the 12 sample events conducted from 2002 - 2004 and 2007 - 2009. This 50% trend indicates – as do the rest of the groundwater metal data – that low groundwater copper concentrations are distributed practically at random across the tailings pile.

Since September 2007, copper concentrations have increased in W-5, and W-7. It is hypothesized that during diversion of Dolly Creek and construction of the new lined channel the copper may have been mobilized locally by vibration and/or compaction of the strata that decreased pore space or caused pumping that disturbed the groundwater and temporarily increased the concentrations.

With the elevation of the Little Grizzly Creek channel approximately 20 feet below the surface of the tailings area, there is a strong gradient towards Little Grizzly Creek all along its course with the tailings area. These site conditions indicate that the potential exists for contamination of Little Grizzly Creek due to groundwater seeping from the tailings pile.

The results of previous sampling did not indicate any significant trends for dissolved metal concentrations. Additionally, despite the almost continuous line of groundwater seeps along the base of the tailings area and the Little Grizzly Creek channel bank, the metals concentration results are nearly identical (as discussed above) for samples taken from Little Grizzly Creek above and below the tailings interface (at R-3 and R-4, both upstream of the confluence with Dolly Creek).

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 in surface water 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.

Therefore, the groundwater pathway is demonstrated to be a decidedly unlikely pathway for tailings pollution on Little Grizzly Creek. The Forest Service will continue to monitor groundwater metals concentrations in wells W-5 and W-7 due to increased iron concentrations.

The water level in each well was measured in 2009 during each of the three sampling events. Maps displaying the groundwater flow gradient and direction were produced for each event (attached). Generally, the groundwater in the tailings area drains in two directions, towards the tailings dam near the end of Dolly Creek and towards the settling pond near R-6. The groundwater gradient steepens by the end of the summer season, dropping nearly five feet at the dam and ten feet at the settling pond.

Table 5 lists the measured groundwater depths for the years in which this data has been collected (1993 – 1995 and 2000 - 2009). Groundwater elevations at W-3 are important to look at from the standpoint of the proposed anaerobic wetland. The depth to water in 2009 dropped 2.2 feet from May to September. The depth to groundwater at W-3 averages 5.4 feet and the seasonal water table drop is typically about two feet. Except for the driest year since monitoring began, water appears 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. With the surface flow from Dolly Creek no longer contributing to the recharge of groundwater in the tailings it is expected that summer and fall groundwater levels will drop dramatically.

In September and October of 2009 the Dolly Creek inlet structure was retrofitted to remedy leakage and loss of surface flow. The retrofit included installation of a concrete settling basin and concrete outlet trough attached to the existing lined channel. Both additions were placed on a low permeability fill. The result of this retrofit is the capture of all surface flow and interception of some shallow groundwater. Results were immediate with a substantial reduction in flow from the toe of the inlet structure spillway and the simultaneous loss of flow over the tailings dam spillway at R-2.

(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. In past years, a "Wolman pebble count" has been conducted once a year in the fall to analyze the channel substrate.

Pebble counts at the two established pebble count transects were not monitored since. However, pebble count data for the previous four years (2000-2003) exhibited very similar results: the R-5 transect (on Little Grizzly Creek below its confluence with Dolly Creek) did contain sand-sized material, including the medium, fine and very fine sands found over most of the tailings area, whereas the R-6 (on Little Grizzly Creek above its confluence with Dolly Creek) transect did not. Based on the data collected and visible evidence made at the time the transects were established, most of the sands are being washed downstream during winter and spring flows, but material from the tailings area apparently continues to wash into Little Grizzly Creek for an extended period of time and some of it is trapped around the coarser material of the R-5 channel section. Pebble counts will again be performed at the two established transects in 2010. It is expected that the amount of sand sized material will now diminish with the completion a functional diversion and lined channel separating Dolly Creek from the tailings material.

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

Table 1

Date	R-3 Copper mg/L	R-4 Copper mg/L
May 91	0	0.0020
Jun 91	0	0
Jul 91	0	0
Aug 91	0	0.0030
Sep 91	0	0
Oct 91	0	0
Nov 91	0	0
Dec 91	0	0.0030
Apr 92	0	0
May 92	0	0.0390
Jun 92	0.0039	0
Jul 92	0	0
Aug 92	0.0036	0
Sep 92	0.1200	0.1200
Oct 92	0	0.0024
Nov 92	0	0
May 93	0	0
Jun 93	0.0028	0
Jul 93	0.0024	0.0070
Aug 93	0	0
Sep 93	0	0.0083
Oct 93	0	0
Nov 93	0	0.0040
May 94	0	0
Jun 94	0.0090	0.0057
Jul 94	0	0
Aug 94	0	0
Sep 94	0	0
Oct 94	0	0
Jun 95	0	0
Jul 95	0	0
Aug 95	0.0041	0
Sep 95	0	0
Oct 95	0	0
Nov 95	0	0.0023
May 96	0	0
June 96	0	0
July 96	0.0029	0
Aug 96	0.0022	0
Sept 96	0	0
May 97	0	0
June 97	0	0
July 97	0	0
Aug 97	0	0
Sept 97	0	0
Oct 97	0	0
June 98	0	0
July 98	0.0110	0.0034
Aug 98	0.0046	0.0015
Sept 98	0	0
Oct 98	0.0130	0.0088
Jun 99	0	0
Jul 99	0	0
Aug 99	0	0
Sept 99	0	0
Oct 99	0	0

Date	R-3 Copper mg/L	R-4 Copper mg/L
May 00	0	0
Jul 00	0.0230	0
Sep 00	0	0
May 01	0	0
Jul 01	0	0
Sep 01	0	0
May 02	0.0051	0
Jul 02	0.0039	0.0013
Sep 02	0	0.0037
June 03	0.0017	0.0013
Jul 03	0	0.0027
Sep 03	0.0032	0.0010
May-04	0.0034	0.0420
Jul-04	0	0
Sep-04	0	0
Jun-05	0	0
Jul-05	0	0
Sep-05	0	0
Jun-06	0.0032	0.0012
Jul-06	0.0033	0.0011
Sep-06	0	0
May 07	0.0049	0.0043
July 07	0.0012	0.0035
Sep 07	0.0069	0.0078
Jun-08	0.0017	0.0050
Jul-08	0.0005	0.0029
Sep-08	0.0005	0.0016
May-09	0.0006	0.0020
Jul-09	0.0008	0.0030
Sep-09	0.0033	0.0035
x	0.0029	0.0035
n	86	86
s	0.0132	0.0142
max	0.1200	0.1200
min	ND	ND

Summary of Copper Data for R-1, R-2 and R-5
1991-2009

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
2001	0.020	0.012	0.014		0.270	0.130	0.042		0.029	0.030	0.019
2002	0.030	0.015	0.009		0.450	0.310	0.092		0.024	0.110	0.022
2003	0.024	0.027	0.011		0.097	0.320	0.100		0.034	0.120	0.030
2004	0.028	0.021	0.008		0.003	0.220	0.052		0.380	0.067	0.000
2005	0.019	0.016	0.005		0.260	0.290	0.100		0.038	0.090	0.030
2006	0.024	0.012	0.007		0.240	0.230	0.078		0.048	0.095	0.031
2007	0.017	0.014	0.015		0.076	0.059	0.034		0.012	0.021	0.012
2008	0.018	0.005	0.004		0.042	0.014	0.010		0.026	0.004	0.003
2009	0.045	0.008	0.045		0.103	0.083	N/A		0.003	0.012	0.004
x	0.04	0.02	0.02	x	0.22	0.21	0.11	x	0.04	0.07	0.03
n	19	19	19	n	19	19	18	n	19	19	19
s	0.03	0.02	0.01	s	0.16	0.11	0.09	s	0.08	0.04	0.03
max	0.110	0.110	0.047	max	0.572	0.450	0.362	max	0.380	0.140	0.102
min	0.002	0.005	0.004	min	0.003	0.014	0.010	min	0.000	0.004	0.000

Summary of Flow Rates at R-1, R-2 and R-5
1991-2009

Table 3

	R-1 Flow Rate (cfs)				R-2 Flow Rate (cfs)				R-5 Flow Rate (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
2001	0.44	0.18	0.24		0.42	0.13	0.28		3.99	0.52	0.73
2002	1.25	0.37	0.34		1.62	0.31	0.18		18.13	1.12	0.56
2003	3.41	0.77	0.45		3.78	0.75	0.38		22.05	1.67	1.20
2004	1.37	0.14	0.07		1.29	0.34	0.08		13.39	1.99	0.23
2005	2.88	0.66	0.52		2.91	0.98	0.57		22.78	2.34	1.16
2006	10.20	0.99	0.26		14.10	1.25	0.26		12.30	2.45	0.43
2007	0.19	0.07	0.07		0.19	0.08	0.06		1.48	0.19	0.14
2008	0.20	0.23	0.29		0.09	0.11	0.06		2.66	0.60	0.38
2009	1.33	0.50	0.26		0.44	0.13	0.00		29.05	3.16	1.40
x	3.74	0.77	0.47	x	4.31	0.77	0.45	x	32.13	2.34	0.98
n	19	19	19	n	19	19	19	n	19	19	19
s	3.85	0.65	0.31	s	4.79	0.68	0.49	s	33.81	2.07	0.59
max	12.30	2.48	1.05	max	15.60	2.38	2.01	max	120.00	7.46	2.10
min	0.18	0.07	0.07	min	0.09	0.06	0.00	min	1.06	0.19	0.14

GROUNDWATER QUALITY AT WALKER MINE TAILINGS

Table 4

		Copper		Iron		Zinc	
Well No.	Sample Date	Total (mg/L)	Filtered (mg/L)	Total (mg/L)	Filtered (mg/L)	Total (mg/L)	Filtered (mg/L)
W-3	07/18/1994	0.0200	-	1.4000	-	ND	-
W-3	08/24/1994	0.0200	ND	1.4000	ND	ND	ND
W-3	09/22/1994	ND	ND	0.7300	0.1700	ND	ND
W-3	10/25/1994	ND	ND	1.1000	0.7000	ND	ND
W-3	06/24/1995	ND	ND	1.6000	ND	ND	ND
W-3	11/13/1995	ND	ND	0.3600	0.0400	ND	ND
W-3	05/24/2000	-	ND	-	0.0210	ND	ND
W-3	09/13/2000	-	ND	-	ND	ND	ND
W-3	05/22/2001	-	ND	-	ND	-	ND
W-3	09/25/2001	-	0.0120	-	ND	-	ND
W-3	05/10/2002	-	ND	-	ND	-	ND
W-3	09/26/2002	-	0.0021	-	ND	-	ND
W-3	05/23/2003	-	0.0020	-	ND	-	0.0032
W-3	09/18/2003	-	0.0025	-	ND	-	ND
W-3	05/21/2004	-	0.0015	-	0.0620	-	0.0069
W-3	09/05/2004	-	0.0024	-	ND	-	0.0016
W-3	5/31/2007	-	0.0030	-	0.3600	-	0.0120
W-3	9/17/2007	-	0.0510	-	0.0330	-	0.0210
W-3	5/19/2009		0.0043		0.0881		0.0019
W-3	9/22/2009		0.0005		0.6810		0.0018
W-4	08/24/1994	0.8900	0.5500	93.0000	0.4100	0.0800	0.0400
W-4	09/22/1994	1.7000	0.6200	120.0000	0.4100	0.1500	0.0500
W-4	10/25/1994	0.9800	ND	100.0000	32.0000	0.1200	ND
W-4	06/24/1995	ND	ND	28.0000	28.0000	ND	ND
W-4	11/13/1995	ND	ND	47.0000	25.0000	ND	ND
W-5	07/18/1994	0.1100	-	32.0000	-	ND	-
W-5	08/24/1994	0.0400	ND	31.0000	0.1000	ND	ND
W-5	09/22/1994	0.0500	ND	30.0000	ND	ND	ND
W-5	10/25/1994	0.0600	ND	32.0000	2.2000	ND	ND
W-5	06/24/1995	ND	ND	2.5000	1.9000	ND	ND
W-5	11/13/1995	ND	ND	17.0000	0.1500	ND	ND
W-5	05/24/2000	-	ND	-	0.0680	ND	ND
W-5	09/13/2000	-	ND	-	0.7400	ND	ND
W-5	05/22/2001	-	ND	-	1.2000	-	ND
W-5	09/25/2001	-	ND	-	ND	-	ND
W-5	05/10/2002	-	ND	-	0.1400	-	ND
W-5	09/26/2002	-	0.0013	-	0.1200	-	ND
W-5	05/23/2003	-	0.0015	-	ND	-	ND
W-5	09/18/2003	-	0.0028	-	ND	-	0.0056
W-5	05/21/2004	-	0.0012	-	ND	-	0.0054
W-5	09/05/2004	-	0.0011	-	ND	-	ND
W-5	5/31/2007	-	0.0020	-	9.4000	-	0.0088
W-5	9/17/2007	-	0.0060	-	19.0000	-	0.0140
W-5	6/3/2008	-	0.0013	-	11.200	-	0.0077
W-5	9/9/2008	-	0.0006	-	15.700	-	0.0107
W-5	5/19/2009		0.0019		21.400		0.0024
W-5	9/22/2009		0.0101		15.100		0.0048
W-6	08/24/1994	0.4600	ND	14.0000	ND	0.0400	ND
W-6	09/22/1994	0.9900	0.0100	31.0000	0.6900	0.0800	ND
W-6	10/25/1994	0.7200	0.0100	23.0000	0.2700	0.0200	ND
W-6	06/24/1995	ND	ND	ND	ND	ND	ND
W-6	11/13/1995	0.0900	ND	3.9000	0.0600	ND	ND
W-7	07/18/1994	ND	ND	1.9000	-	0.0200	-
W-7	08/24/1994	0.0200	ND	30.0000	0.4500	0.0500	ND
W-7	09/22/1994	0.0400	ND	43.0000	0.9600	0.0700	ND
W-7	10/25/1994	0.0400	ND	52.0000	1.1000	0.0600	ND
W-7	06/24/1995	ND	ND	ND	ND	ND	ND
W-7	11/13/1995	0.0100	ND	14.0000	0.6700	0.0200	0.0100
W-7	05/24/2000	-	ND	-	0.0790	-	ND
W-7	09/13/2000	-	ND	-	0.1800	-	ND
W-7	05/22/2001	-	ND	-	0.1400	-	ND
W-7	09/25/2001	-	ND	-	ND	-	ND
W-7	05/10/2002	-	ND	-	0.2800	-	ND
W-7	09/26/2002	-	0.0021	-	0.1000	-	0.0034
W-7	05/23/2003	-	0.0010	-	ND	-	0.0034
W-7	09/18/2003	-	ND	-	ND	-	0.0039
W-7	05/21/2004	-	0.0023	-	ND	-	0.0090
W-7	09/05/2004	-	ND	-	ND	-	0.0049
W-7	5/31/2007	-	0.0030	-	ND	-	0.0051
W-7	9/17/2007	-	0.0053	-	0.0880	-	0.0110
W-7	6/3/2008	-	0.0013	-	ND	-	0.0053
W-7	9/9/2008	-	0.0005	-	0.0310		0.0205
W-7	5/19/2009		0.0034		2.9600		0.0072
W-7	9/22/2009		0.0012		0.8280		0.0037

Table 5

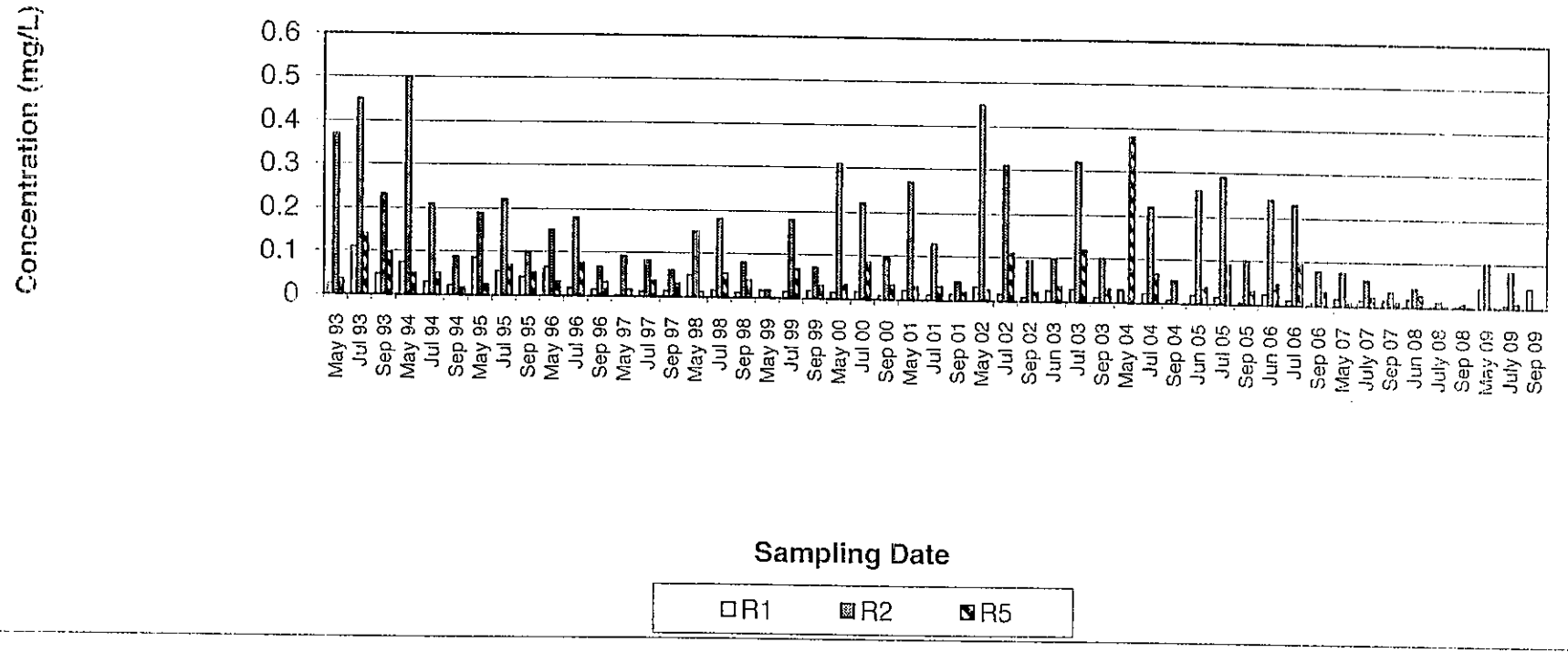
Groundwater Depths at Walker Mine Tailings
1993 - 2009

Depth to Groundwater From Top of Casing	Monitoring Well Number: Depth to Water (ft)							
	W-1	W-2	W-3	W-4	W-5	W-6	W-7	Average Depth (ft)
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	15.49	2.94	6.62	25.25	13.46	8.14	2.05	10.56
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
05-22-2001	14.06	1.61	4.89	21.88	10.26	5.05	0.57	8.33
09-25-2001	15.27	3.16	6.69	25.21	13.39	8.25	1.68	10.52
05-10-2002	13.18	0.94	4.02	19.56	8.35	3.73	0.56	7.19
09-26-2002	14.96	2.92	6.40	24.37	12.59	7.87	1.43	10.08
05-23-2003	12.45	0.68	3.86	16.86	6.39	3.75	0.00	6.28
09-18-2003	14.54	2.58	6.08	22.84	11.35	7.16	0.79	9.33
05-21-2004	13.11	1.16	4.51	18.93	8.17	4.34	0.13	7.19
09-05-2004	14.57	2.63	6.30	23.52	11.89	7.44	1.20	9.65
06-16-2005	12.31	0.82	3.89	16.95	6.69	3.70	0.00	6.34
07-22-2005	13.26	1.63	5.26	18.96	8.45	5.66	0.42	7.66
09-15-2005	14.09	2.02	5.50	21.94	10.70	6.52	0.68	8.78
06-14-2006	11.19	0.68	4.39	14.24	5.68	4.20	0.00	5.77
06-24-2006	12.63	1.48	5.27	17.63	7.77	5.80	0.23	7.26
09-19-2006	13.88	2.31	6.05	21.34	10.29	7.06	0.59	8.79
05-31-2007	13.67	1.24	4.89	21.34	9.72	5.03	0.63	8.07
07-26-2007	14.11	2.19	5.90	22.86	11.32	6.18	1.44	9.14
09-17-2007	N/A	2.37	6.33	24.27	12.52	7.84	1.51	9.14
06-03-2008	N/A	0.47	4.23	20.77	9.41	4.21	0.87	6.66
07-31-2008	N/A	2.25	5.92	22.69	11.17	6.73	2.05	8.47
09-09-2008	N/A	2.49	6.29	23.93	12.20	7.59	2.05	9.09
05-19-2009	N/A	0.78	4.01	18.89	6.98	3.94	0.46	5.84
07-13-2009	N/A	1.62	5.36	20.17	9.23	5.82	1.39	7.27
09-22-2009	N/A	2.49	6.24	23.23	11.63	7.45	1.85	8.62
Average Depth	13.81	1.95	5.43	21.03	10.07	6.06	0.94	8.47
n	25	29	29	29	29	29	29	29
s	1.27	0.86	0.96	3.57	2.57	1.63	0.71	1.70
max	15.59	3.26	6.69	25.90	13.97	8.33	2.07	10.65
min	11.17	0.47	3.76	11.61	4.43	3.33	0.00	5.04

Well W-1 was lost during construction summer 2007

Chart 1

Copper Concentrations at R-1, R-2, & R-5
Dolly Creek and Little Grizzly Creek
1993-2009



MONITORING REPORT

Discharger: USDA Forest Service, Plumas National Forest

Facility: Walker Mine Tailings, Plumas County

Reporting Frequency: Quarterly

Monitoring Period: May 2009

Findings:

(1) Surface Water. Samples were collected on May 19, 2009. The surface water sample collected at the compliance station, R-5, Little Grizzly Creek near Brown's Cabin, was within the limitation for copper (see Table 1). The remaining R-5 constituents also fall within the prescribed limitations for dissolved iron and zinc. The release of copper from the tailings area to Dolly Creek, as measured at R-2, also continued to exceed the limitation. Concentrations of zinc were detected in all of the 5 samples taken but none of these concentrations exceeded the limitation of zinc. The concentration of iron, highest at R-2, was within the limitation at all of the stations.

(2) Groundwater. Samples were collected on May 19, 2009. Table 2 summarizes the findings for groundwater samples collected from the site. Small concentrations of dissolved copper (<4.0 ug/l) were found at both of the sampling wells (W-5, W-7). Additionally, concentrations of dissolved zinc were found in both wells, with a maximum concentration of 7.2 ug/l at W-7. Dissolved iron was found in W-5 with a measured concentration of 21400 ug/l. The reason for the drastic increase in dissolved iron at W-5 is unclear but represents a 91% increase over the dissolved iron from the May of 2008 sample. Dissolved iron was found in W-7 with a measured concentration of 2960 ug/l where none was detected in June 2008. These results will require out-year testing of W-5 and W-7 to continually monitor the marked change that has occurred in the groundwater iron concentrations at these locations.

Groundwater elevations were measured in six of seven wells at the site; W-1 was destroyed during construction in 2007. Depth to water measurements decreased slightly from June 2008 with the exception of W-7, which was approximately 3/10 of a foot lower. The results continue to show a definite gradient towards Little Grizzly Creek along the Dolly Creek Channel to the settling pond (R-6). With the elevation of the Little Grizzly Creek channel approximately 20 feet below the surface of the tailings area, there is a strong gradient towards little Grizzly Creek all along of its course adjacent to the tailings area.

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Table 2. GROUND WATER SUMMARY

Map of the tailings are with groundwater monitoring sites

Map of tailings area with groundwater elevations and flow directions

Water Level Data

Groundwater Monitoring, Water Sampling Field Sheet

MAY 2009

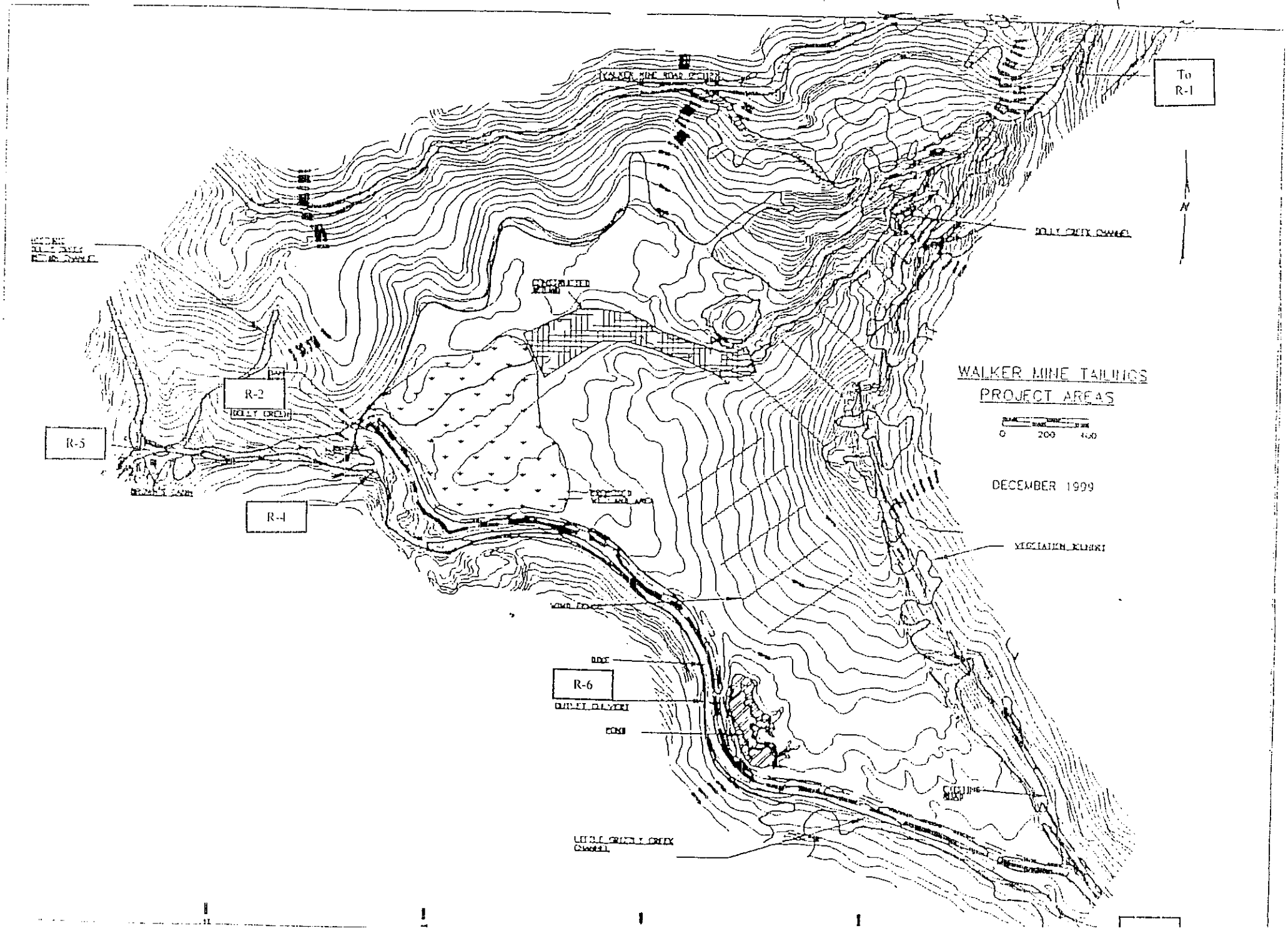
SURFACE AND GROUNDWATER TEST RESULTS AND SUPORTING DOCUMENTATION

Table 1. SURFACE WATER SUMMARY REPORT

U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE, PLUMAS NATIONAL FOREST
WALKER MINE TAILINGS, PLUMAS COUNTY
May-09

CONSTITUENT	UNITS	DETECTION LIMITS	R-1	R-2	R-3[1]	R-4	R-5[2]	R-6	Limitation @R-5[3]
Field Parameters									
Flow	cfs		1.33	0.44	25.13	32.29	29.05	N/A	N/A
pH	number		7.23	8.09	6.94	6.95	7.43	N/A	N/A
Specific Conductance	umhos/cm		82.6	130	39.9	39.5	42.1	N/A	N/A
Air Temperature	F		68	71	68	69	68	N/A	N/A
Water Temperature	C		13.7	12.2	12.9	12	12.5	N/A	N/A
Laboratory									
Total Hardness as CaCO3	mg/l	5	50	60	30	32	32	N/A	N/A
Total Alkalinity as CaCO3	mg/l	1	55	50	28	28	29	N/A	N/A
Sulfate	mg/l	0.5	1.45	17.6	0.26	0.72	0.87	N/A	N/A
Turbidity	NTU	0.05	2.89	4.39	0.94	0.98	0.84	N/A	1.94
Dissolved Iron	ug/l	20	344	933	104	114	132	N/A	1000
Copper	ug/l	0.5	44.8	103	0.6	2	3.4	N/A	3.38
Dissolved Zinc	ug/l	1.0	6.4	12.9	28.1	0.9	1.1	N/A	44.99

[1] R-3 is the background station located above the tailiings area on Little Grizzly Creek.
[2] R-5 is the compliance station located near Brown's Cabin, downstream from the confluence of Dolly Creek with Little Grizzly Creek.
[3] The compliance values for copper and zinc are calculated with the R-5 hardness value of 50 mg/l as CaCO3.


To
R-1
R-2
R-4
R-5
R-6
WALKER MINE TAILINGS
PROJECT AREAS
0
200
400
DECEMBER 1999
N

[illegible] TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....

Comp. by .....

Checked by .....

[illegible] Above Tailings @ Road 112

Date [illegible] 19[illegible] Party E. Flynn, R. Nupen

[illegible] W.I. ..... G.H. ..... Disch. .....

[illegible] G.H. change ..... in ..... hrs. Susp. .....

[illegible] Susp. coef. ..... Meter No. .....

Type of meter Marsh McBirney

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots .... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%), based on following [illegible]

[illegible] Weather Clear, Dry

[illegible] Air 6.8 °C @ 16:30

[illegible] Water 13.7 °C @ 16:20

[illegible] Rotor Removed ..... Intake flushed ..... [illegible]

[illegible]

[illegible] 7.23

[illegible] 8.[illegible] mmhos/cm

G.H. [illegible] ft.

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	[illegible]	[illegible]	[illegible]
	LB	0.7	0				0				
		1.0	0.30				0				
		1.5	0.80				0				
		2.0	0.85				0				
		2.5	1.0				0				
		3.0	0.85				0				
		3.5	1.05				2.36				
		4.0	0.90				0.49				
		4.5	0.85				0.65				
		5.0	0.75				1.51				
		5.5	0.65				0.22				
		6.0	0.30				0				
	RB	6.4									

[illegible] TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Meas. No. .....
Comp. by .....
Checked by .....

DISCHARGE MEASUREMENT NOTES

[illegible] below Tailings Dam

[illegible] Party P. Flynn R. Nupen

[illegible] Area ..... Vel. ..... G.H. ..... Disch. .....

[illegible] G.H. change ..... in ..... hrs. Susp. .....

[illegible] Susp. coef. ..... Meter No. .....

Type of meter Marsh McBirney

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots .... % dif. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check-bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

[illegible] rated as [illegible] good (5%), fair (8%), poor (over 8%), based on following [illegible]

[illegible] Weather Clear, Dry

[illegible] Air 71 F 14:08

[illegible] Water 22 C 14:09

[illegible] Record remove ..... Intake flushed .....

[illegible]

pH 8.09

[illegible] 130 umhos/cm

[illegible] ft.

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity		Adjusted for [illegible]	[illegible]	[illegible]
	LB	1	0				0				
		1.5	0.1				0				
		2.0	0.25				0.06				
		2.5	0.40				0.25				
		3.0	0.60				0.36				
		3.5	0.60				0.48				
		4.0	0.60				0.42				
		4.5	0.30				0				
		5.0	0.25				0				
	RB	5.2									

WATER-QUALITY TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

Meas. No. .....

Comp. by .....

DISCHARGE MEASUREMENT NOTES

Checked by .....

Site: Creek above Tailings

Date: 8/11/87 Time: ..... Party: R. Flynn, R. Nystrom

Water: ..... Air: ..... V.A. ..... G.H. ..... Disch. .....

Stage: ..... G.H. change ..... in ..... hrs. Surp. .....

Measured by: ..... Surp. coef. ..... Meter No. .....

Type of meter: Marsh McBirney

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots ..... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below

Bags, sand .....

Check bar found .....

changed to ..... at .....

Correct .....

Levels obtained .....

Measured at ..... (2-5 cms), fair (8-10%), poor (over 8%). Based on following

Weather: Clear, Dry

Air 68 °F @ 15:42

Water 10.9 °C @ 15:40

Intake flushed? .....

Specific Cond. 439.9 micros/cm

G.H. ..... ft.

Depth Sec. Interval	Dist. from initial point	Width	Depth	Quality Flow Meter	Rev. per min	Time in sec. Cals	Velocity Ft/sec	Velocity Meter Used	Adjusted Velocity		
	LB	1.2	0				0				
		~~1.5~~									
		2.0	0.2				0.20				
		3.0	0.35				0.84				
		4.0	0.75				0.17				
		5.0	0.95				1.31				
		6.0	1.15				0.78				
		7.0	1.40				0.47				
		8.0	1.60				2.27				
		9.0	1.50				3.68				
		10.0	1.70				2.84				
		11.0	1.80				1.38				
		12.0	0.80				0.37				
	RB	12.3	0				0				

[illegible] TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....

Compd by .....

Check By .....

[illegible] Creek below Tailings

Date 5/11/2007 Party P. Flynn, R. Nupen

Vel. ..... G.H. ..... Disch. .....

G.H. change ..... in ..... hrs. Surp. .....

Surp. coef. ..... Meter No. .....

Type of meter Marsh McBirney

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. Plots ..... % diff. from rating .....

Wading cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage and .....

Chk Bar, found ..... changed to ..... at .....

Correct .....

Levels obtained .....

[illegible] good (5%), fair (8%), poor (over 8%). based on following

Weather Clear, Dry

Air 7.9 °C @ 14:50

Water 13 °C @ 14:45

Intake flushed [illegible]

[illegible] 0.45

[illegible] 3/1.5 [illegible] cm

[illegible] ft.

Angle check point	Dist. from initial point	Width	Depth	Observ. depth	Revolutions	Time in sec.	Velocity TOR point	Velocity Meas. depth	Adjust. factor	Area	Discharge
	LB	1.3	0				0				
		1.5	0.35				0.15				
		2.0	0.45				0.50				
		2.5	0.65				0.47				
		3.0	1.15				0.80				
		3.5	1.20				1.15				
		4.0	1.20				1.25				
		4.5	1.20				1.35				
		5.0	1.10				1.21				
		6.0	1.25				2.63				
		7.0	1.40				3.00				
		8.0	1.50				3.36				
		9.0	1.50				3.39				
		10.0	1.50				2.65				
		11.0	1.35				2.37				
		12.0	0.9				1.37				
		13.0	0.65				1.57				
		14.0	0.70				0.71				
		15.0	0.30				0.34				
		16.0	0.20				0				
	RB	16.7	0				0				

WATER HYDROLOGY TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....

Comp. by .....

Checked by .....

Station Creek @ Brown's Cabin

Date 5/14/2001, 19— Party P. Flynn, R. Hagen

Vel ..... G H ..... Disch. .....

G. H. change ..... in ..... hr. Susp. .....

Susp. coef. ..... Meter No. .....

Type of meter .....

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots .... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, cable, above, below gage, etc. .....

Check bar, found .....

changed to ..... at .....

Current .....

Levels obtained .....

Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%), based on following

Weather Clear, Dry

Air 68 °F @ 16:55

Water 12.5 °C @ 16:50

Intake flushed .....

7.43

1.1 mhos/cm

ft.

Angle coefficient	Dist. from initial point	Width	Depth	Depth of measurement	Revolutions	Time in seconds	Velocity	Adjusted for ice or other	Area	Discharge
	LB	1.1	0				0			
		2.0	0.45				0			
		3.0	0.80				0.39			
		4.0	0.90				0.59			
		5.0	1.60				0.91			
		6.0	1.50				0.50			
		7.0	1.60				0.13			
		8.0	1.55				1.97			
		9.0	1.50				2.40			
		10.0	1.25				1.50			
		11.0	1.10				1.93			
		12.0	0.90				1.25			
		13.0	0.85				0.80			
		14.0	0.60				0.39			
		15.0	0.40				0.11			
		16.0	0.30				0.24			
	RB	16.8	0				0			

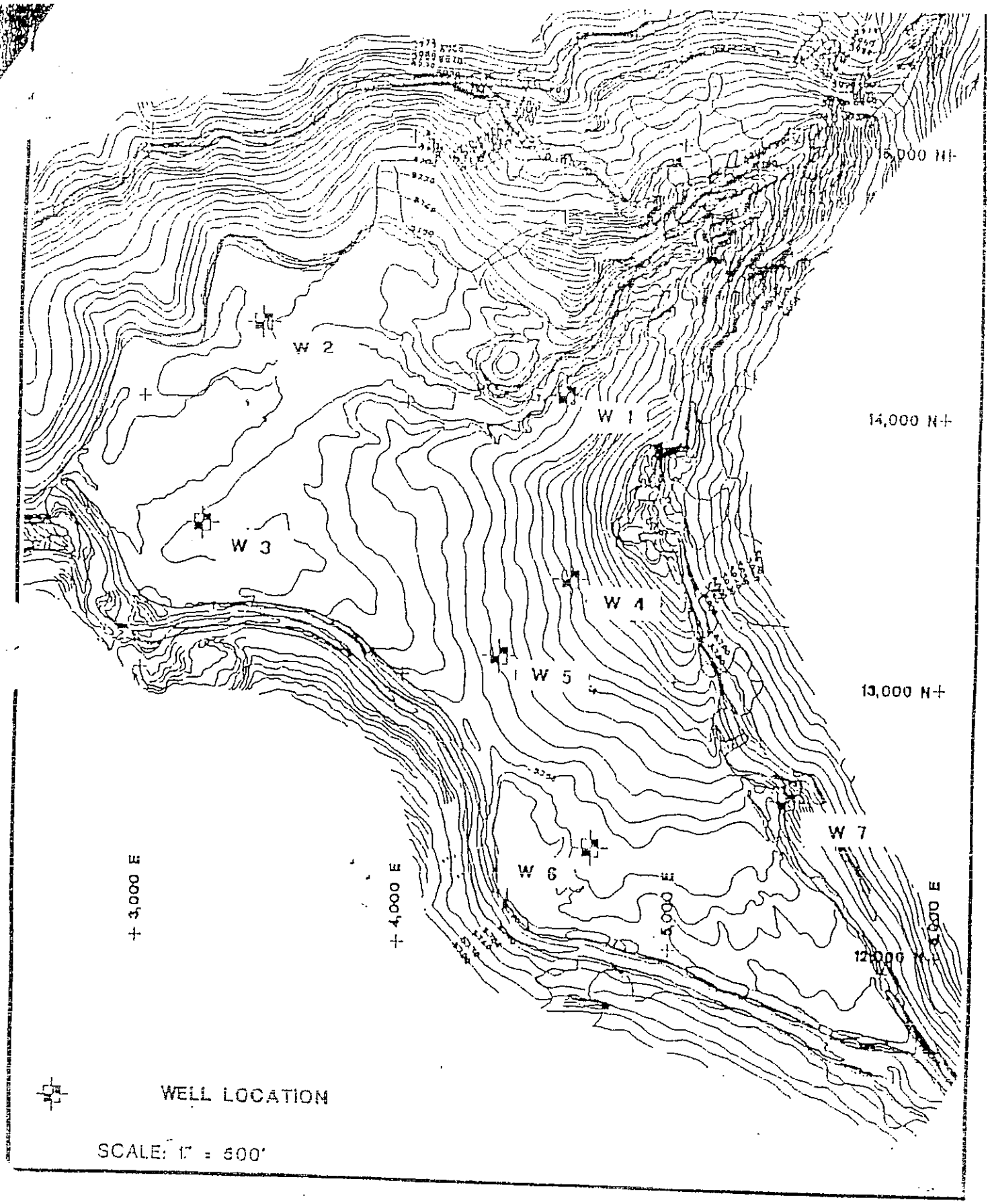
Table 2. GROUND WATER SUMMARY

U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE, PLUMAS NATIONAL FOREST
WALKER MINE TAILINGS, PLUMAS COUNTY
MAY 2009

CONSTITUENT	UNIT	DETECTION LIMIT	WELL SITES W-1	W-2	W-3	W-4	W-5	W-6	W-7*
Field Parameters									
Ground Surface Elevation	ft	0.01	N/A	5742.05	5739.15	5768.27	5754.28	5748.04	5753.85
Top of Cap Elevation	ft	0.01	N/A	5741.74	5738.83	5768.00	5754.09	5747.87	5754.91
Depth to Water	ft	0.01	N/A	0.78	4.01	18.89	6.98	3.94	0.46
Water Surface Elevation	ft	0.01	N/A	5740.96	5734.82	5749.11	5747.11	5743.93	5754.45
Laboratory									
Total Hardness as CaCO3	mg/l	5.0	N/A	N/A	194.0	N/A	154.0	N/A	34.0
Total Alkalinity	mg/l	1.0	N/A	N/A	120.0	N/A	62.0	N/A	41.0
Sulfate	mg/l	0.5	N/A	N/A	90.4	N/A	109.0	N/A	0.2
Dissolved Iron	ug/l	20.0	N/A	N/A	88.1	N/A	21400.0	N/A	2960.0
Dissolved Copper	ug/l	0.5	N/A	N/A	4.3	N/A	1.9	N/A	3.4
Dissolved Zinc	ug/l	1.0	N/A	N/A	1.9	N/A	2.4	N/A	7.2

*W-7 is located upgradient and off-site in a wet area. The data collected from this well are used for background comparisons.

[1] ND is not detected at or above the detection limit



WALKER MINE TAILINGS

BASIC LABORATORY CHAIN OF CUSTODY RECORD

2218 Railroad Avenue, Redding, CA 96001 (530) [illegible] FAX (530) [illegible]

NAME: [illegible] Fire Service Plumas NF

PROJECT NAME: Walker Mine

MAILING ADDRESS: 159 [illegible] St, Quincy, CA 95971

PROJECT MANAGER: Ryan Nupen

PHONE: (530)283-7712

EMAIL: rnupen@fs.fed.us

FAX: (530)283-7729

RESULTS SENT: Email Fax EDD Mail

INVOICE TO:

PO#:

MATRIX TYPE

CUSTODY SEAL IN TACT: Yes No N/A

SYSTEM #:

EDD TYPE

QC: Standard Level II

SAMPLE DATE	SAMPLE TIME	WATER	COMP	SOLID	SAMPLE LOCATION / IDENTIFICATION	NUMBER OF BOTTLES	Fe, Cu, Zn	Hard, Alk, SO4	Turbidity	LAB ID	CHLORINE RESIDUAL OR COMMENTS
5/19/09	16:15	X			R-1	2	X	X	X		
5/19/09	14:10	X			R-2	2	X	X	X		
5/19/09	15:35	X			R-3	2	X	X	X		
5/19/09	14:47	X			R-4	2	X	X	X		
5/19/09	16:22	X			R-5	2	X	X	X		
5/19/09	13:35	X			W-1A	2	X	X			
5/19/09	12:14	X			W-3	2	X	X			
5/19/09	10:54	X			W-5	2	X	X			
5/19/09	10:05	X			W-7	2	X	X			

SAMPLE DATE/TIME: 5/19/09

RELINQUISHED BY: Ryan Nupen

DATE/TIME: 5/20/09 10:00

DATE/TIME

DATE/TIME

PROCESSED AND VERIFIED BY

DATE/TIME

COURIER

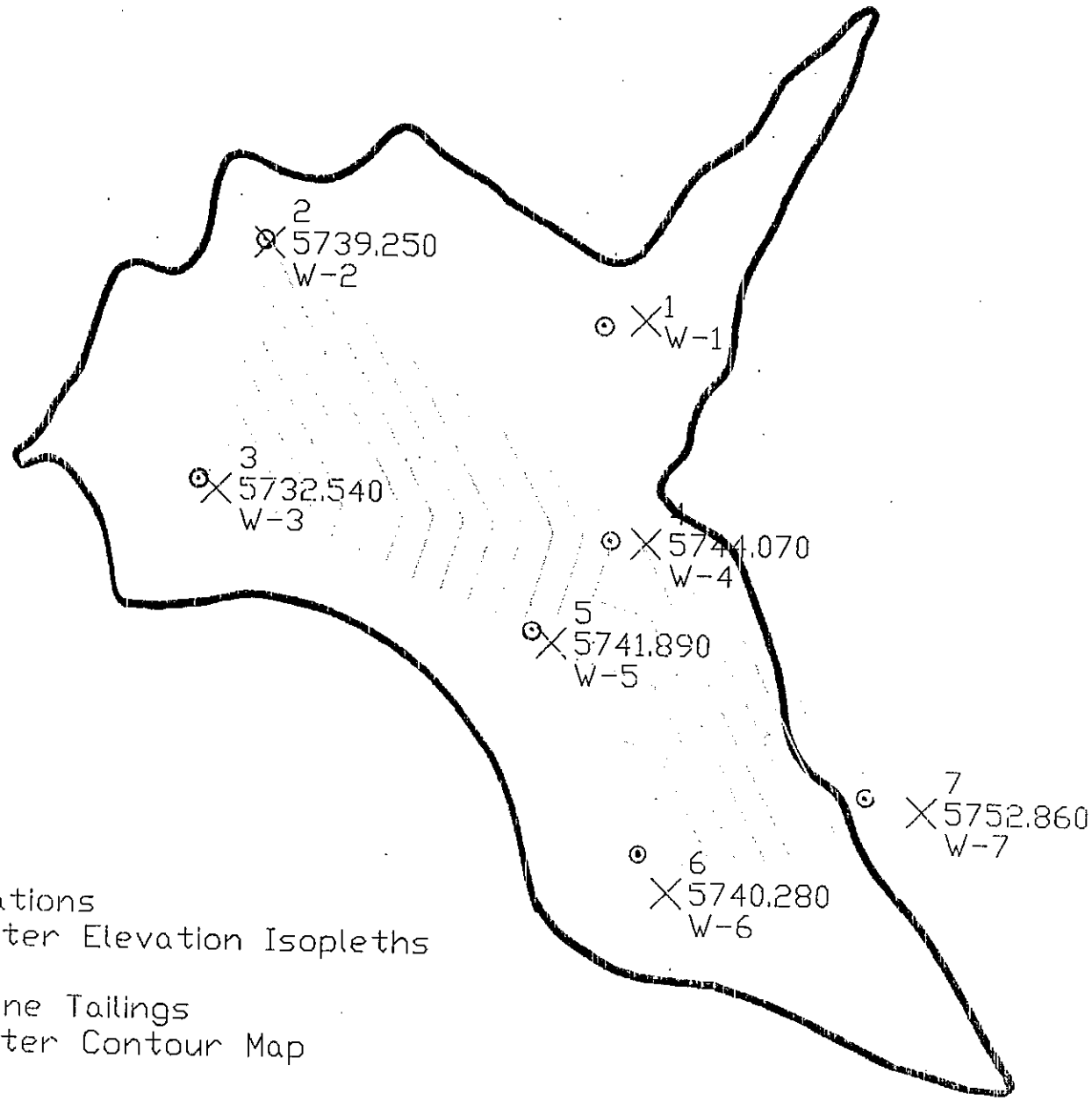
SAMPLE TEMPERATURE

WALKER TAILINGS
GROUNDWATER MONITORING PROGRAM

FLUID LEVEL GAUGING

SITE LOCATION: [illegible] DATE: [illegible]
COMPANY NAME: [illegible]
PERSONNEL: [illegible]

WELL	TIME	DEPTH TO WATER	COMMENTS
LJ-1A	1316	8.03	
2	1326	6.78	
3	1145	4.01	
4	1100	17.89	
5	1005	6.98	
6	1129	3.94	
7	0942	0.46	



Well Locations
Groundwater Elevation Isopleths

Walker Mine Tailings
Groundwater Contour Map

May 2009

Water-Quality Sampling Information

Project Number: _____

Page _____ of _____

Project Name: [illegible]

Date: [illegible]

Project Location: [illegible]

Day: M T W Th F S S

Site Conditions/Weather: [illegible]

Staff: [illegible]

Comments : _____

SAMPLING METHOD

- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [ ] Hand Bail
- [x] Disposable Bailer
- [ ] Teflon Bailer
- [ ] _____ (other)

Sample Number: [illegible] - 7

- [ ] FB: _____
- [ ] DUP: _____

Analysis Requested
Hardness / Alkalinity
SO_4, Cu, Zn, Fe

Number and Types of Bottle Used

Method of shipment
Basic Labs
(lab name)

- [x] Courier Fed Ex
- [ ] Hand Deliver

Well Number: W - 7
Depth of Water: 0.46
Well Depth: 11.00
Height of Water Column: 10.54
Volume in Well: (gallons) 1.69
3 Well Volumes: (gallons) 5.06

Well Diameter: 2"

- [x] 2" (0.16 gallon / feet)
- [ ] 4" (0.65 gallon/ feet)
- [ ] 5" (1.02 gallon/ feet)
- [ ] 6" (1.47 gallon/ feet)

Calculation Area

Height of water column =
Depth to water =

80% DTW _____

Time	Depth to Water	Volume Purged (gallons)	Totalizer Reading	Temperature °F °C	pH	Cond. mS/cm	Turbidity (NTU)	Remarks
0945		2						Start Purge
0948		2		8.2	6.20	83.6	9.83	Low Tb / [illegible]
0953		4		5.9	6.23	53.2	46.5	" "
0958		6		5.6	5.91	51.4	79.7	med Tb / "
								[illegible]
[illegible]								[illegible]

Inlet Depth: _____

Signed: _____ Date: _____

Water-Quality Sampling Information

Project Number: _____

Page _____ of _____

Project Name: [illegible]

Date: [illegible]

Project Location: [illegible]

Day: M T W Th F S S

Site Conditions/Weather: [illegible]

Staff: [illegible]

Comments: _____

SAMPLING METHOD

- [ ] Centrifugal Pump
- [x] Submersible Pump [illegible]
- [ ] Hand Bail
- [ ] Disposable Bailer
- [ ] Teflon Bailer
- [ ] _____ (other)

Sample Number: [illegible]

- [ ] FB: _____
- [ ] DUP: _____

Analysis Requested

Hardness / Alkalinity

SO4, Cu, Zn, Fe

Number and Types of Bottle Used

Method of shipment

Basic Labs

(lab name)

- [x] Courier Fed Ex
- [ ] Hand Deliver

Well Number: W-5

Depth of Water: 6.98

Well Depth: 40.30

Height of Water Column: 33.32

Volume in Well: (gallons) 5.33

3 Well Volumes: (gallons) 16

Well Diameter: 2"

- [x] 2" (0.16 gallon / feet)
- [ ] 4" (0.65 gallon/ feet)
- [ ] 5" (1.02 gallon/ feet)
- [ ] 6" (1.47 gallon/ feet)

Calculation Area
Height of water column =
Depth to water =
80% DTW _____

Time	Depth to Water	Volume Purged (gallons)	Totalizer Reading	Temperature °F	pH	Cond ms/ cm	Turbidity (NTU)	Remarks
1031								Start Purge
1037	16.22	6		10.9	6.75	279	5.4	[illegible]
1045	16.47	14		10.2	6.74	276	1.8	" "
1051	16.45	20		10.1	6.96	276	1.2	" "
1054								Sample [illegible]

Inlet Depth: _____

Signed: _____ Date: _____

Water-Quality Sampling Information

Project Number: _____ Page _____ of _____

Project Name: [illegible] Date: [illegible]

Project Location: [illegible] Day: M T W Th F S S

Site Conditions/Weather: [illegible] Staff: _____

Comments : _____

SAMPLING METHOD

- [ ] Centrifugal Pump
- [x] Submersible Pump 2" [illegible]
- [ ] Hand Bail
- [ ] Disposable Bailer
- [ ] Teflon Bailer
- [ ] _____ (other)

Sample Number: [illegible]

- [ ] FB: _____
- [ ] DUP: _____

Analysis Requested

Hardness / Alkalinity

SO_4, Cu, Zn, Fe

Number and Types of Bottle Used

Method of shipment

Basic Lab's

(lab name)

- [x] Courier
- [ ] Hand Deliver

Well Number: [illegible]-3

Depth of Water: 4.01

Well Depth: 54.25

Height of Water Column: 30.24

Volume in Well: (gallons) 4.84

3 Well Volumes: (gallons) 14.52

Well Diameter: 2"

- [x] 2" (0.16 gallon / feet)
- [ ] 4" (0.65 gallon/ feet)
- [ ] 5" (1.02 gallon/ feet)
- [ ] 6" (1.47 gallon/ feet)

Calculation Area
Height of water column =
Depth to water =
80% DTW _____

Time	Depth to Water	Volume Purged (gallons)	Totalizer Reading	Temperature °F °C	pH	Cond. mS/cm	Turbidity (NTU)	Remarks
[illegible]								Start Purge
1154		5		12.6	7.55	304	7.74	Length / Number
[illegible]		10		12.0	7.85	304	2.84	" "
[illegible]		15		12.1	7.54	303	1.62	" "
[illegible]		20		12.0	7.57	302	1.58	" "
[illegible]								[illegible]

Inlet Depth: _____

Signed: _____ Date: _____

Water-Quality Sampling Information

Project Number: _____ Page ___ of ___

Project Name: [illegible] Date: [illegible]

Project Location: [illegible] Day: M T W Th F S S

Site Conditions/Weather: [illegible] Staff: [illegible]

Comments: [illegible]

SAMPLING METHOD

- [ ] Centrifugal Pump
- [x] Submersible Pump [illegible]
- [ ] Hand Bail
- [ ] Disposable Bailer
- [ ] Teflon Bailer
- [ ] _____ (other)

Sample Number: W-1A

- [ ] FB: _____
- [ ] DUP: _____

Analysis Requested

Hardness/Alkalinity

SO4, Cu, Zn, Fe

Number and Types of Bottle Used

Method of shipment

Basic Labs
(lab name)

- [x] Courier
- [ ] Hand Deliver

Well Number: W-1A

Depth of Water: 8.03

Well Depth: 29.35

Height of Water Column: 21.32

Volume in Well: (gallons) 3.41

3 Well Volumes: (gallons) 10.23

Well Diameter: 2"

- [x] 2" (0.16 gallon / feet)
- [ ] 4" (0.65 gallon/ feet)
- [ ] 5" (1.02 gallon/ feet)
- [ ] 6" (1.47 gallon/ feet)

Calculation Area

Height of water column =

Depth to water =

80% DTW _____

Time	Depth to Water	Volume Purged (gallons)	Totalizer Reading	Temperature °C	pH	Cond. mS/cm	Turbidity (NTU)	Remarks
1316								Start Purge
1320		4		11.6	7.22	300	32.3	Mod Tb / No odor
1324		9		9.6	7.02	250	10.7	" "
1326		15		9.3	7.01	243	31.7	" "
1328		20		9.5	6.97	242	41.4	" "
1331		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	" "
1334		[illegible]		[illegible]	[illegible]	245	[illegible]	
[illegible]								[illegible]

Inlet Depth:

Signed:

Date:

basic

June 10, 2009

Lab ID: 9050970

RYAN NUPEN
USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971

RE: SURFACE & GROUND WATER TESTING WALKER MINE

Dear RYAN NUPEN,

Enclosed are the analysis results for Work Order number 9050970. All analysis were performed under strict adherence to our established Quality Assurance Plan. Any abnormalities are listed in the qualifier section of this report.

If you have any questions regarding these results, please feel free to contact us at any time. We appreciate the opportunity to service your environmental testing needs.

Sincerely,

For

Ricky D. Jensen
Laboratory Director
California ELAP Certification Number 1677

Basic

Report To: USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971
Attention: RYAN NUPEN
Project: SURFACE & GROUND WATER TESTING WALKER MINE

Lab No: 9050970
Reported: 06/10/09
Phone: (530) 283-7704
P.O. #

General Chemistry

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
R1 Surface Water (9050970-01) Sampled:05/19/09 16:15 Received:05/21/09 12:01									
Hardness	mg/l	50		2	5	SM 2340C	05/24/09	05/24/09	B9E0624
Alkalinity as CaCO3	"	55		1	5	SM 2320B	05/21/09	05/21/09	B9E0579
Bicarbonate	"	67		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	1.45		0.05	0.40	EPA 300.0	06/06/09	06/06/09	B9F0219
Turbidity	NTU	2.89		0.10	0.50	SM 2130B	05/21/09	05/21/09	B9E0578
R2 Surface Water (9050970-02) Sampled:05/19/09 14:10 Received:05/21/09 12:01									
Hardness	mg/l	60		2	5	SM 2340C	05/24/09	05/24/09	B9E0624
Alkalinity as CaCO3	"	50		1	5	SM 2320B	05/21/09	05/21/09	B9E0579
Bicarbonate	"	61		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	17.6		0.05	0.40	EPA 300.0	06/06/09	06/06/09	B9F0219
Turbidity	NTU	4.39		0.10	0.50	SM 2130B	05/21/09	05/21/09	B9E0578
R3 Surface Water (9050970-03) Sampled:05/19/09 15:35 Received:05/21/09 12:01									
Hardness	mg/l	30		2	5	SM 2340C	05/24/09	05/24/09	B9E0624
Alkalinity as CaCO3	"	28		1	5	SM 2320B	05/21/09	05/21/09	B9E0579
Bicarbonate	"	34		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	0.26	J	0.05	0.40	EPA 300.0	06/06/09	06/06/09	B9F0219
Turbidity	NTU	0.94		0.10	0.50	SM 2130B	05/21/09	05/21/09	B9E0578
R4 Surface Water (9050970-04) Sampled:05/19/09 14:47 Received:05/21/09 12:01									
Hardness	mg/l	32		2	5	SM 2340C	05/24/09	05/24/09	B9E0624
Alkalinity as CaCO3	"	28		1	5	SM 2320B	05/21/09	05/21/09	B9E0579
Bicarbonate	"	35		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	0.72		0.05	0.40	EPA 300.0	06/06/09	06/06/09	B9F0219
Turbidity	NTU	0.98		0.10	0.50	SM 2130B	05/21/09	05/21/09	B9E0578
R5 Surface Water (9050970-05) Sampled:05/19/09 16:22 Received:05/21/09 12:01									
Hardness	mg/l	32		2	5	SM 2340C	05/24/09	05/24/09	B9E0624
Alkalinity as CaCO3	"	29		1	5	SM 2320B	05/21/09	05/21/09	B9E0579
Bicarbonate	"	35		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	0.87		0.05	0.40	EPA 300.0	06/06/09	06/06/09	B9F0219
Turbidity	NTU	0.84		0.10	0.50	SM 2130B	05/21/09	05/21/09	B9E0578
W1A Surface Water (9050970-06) Sampled:05/19/09 13:35 Received:05/21/09 12:01									
Hardness	mg/l	140		10	25	SM 2340C	05/24/09	05/24/09	B9E0624
Alkalinity as CaCO3	"	51		1	5	SM 2320B	05/21/09	05/21/09	B9E0579
Bicarbonate	"	63		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	109		0.25	2.00	EPA 300.0	06/08/09	06/08/09	B9F0247
W2 Surface Water (9050970-07) Sampled:05/19/09 12:14 Received:05/21/09 12:01									
Hardness	mg/l	194		1	5	SM 2340C	05/24/09	05/24/09	B9E0624
Alkalinity as CaCO3	"	120		1	5	SM 2320B	05/21/09	05/21/09	B9E0579
Bicarbonate	"	146		1	5	"	"	"	"

Approved By

Basic Laboratory, Inc.
California ELAP Cert #1677 and #2718

Report To: USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971
Attention: RYAN NUPEN
Project: SURFACE & GROUND WATER TESTING WALKER MINE

Lab No: 9050970
Reported: 06/10/09
Phone: (530) 283-7761
P.O. #

General Chemistry

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
W3 Surface Water (9050970-07) Sampled:05/19/09 12:14 Received:05/21/09 12:01									
Carbonate	"	ND		1	5	"	"	05/21/09	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	90.4		0.25	2.00	EPA 300.0	06/08/09	06/08/09	B9F0247
W5 Surface Water (9050970-08) Sampled:05/19/09 10:54 Received:05/21/09 12:01									
Hardness	mg/l	154		2	5	SM 2340C	05/24/09	05/24/09	B9E0624
Alkalinity as CaCO3	"	62		1	5	SM 2320B	05/21/09	05/21/09	B9E0579
Bicarbonate	"	76		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	109		0.25	2.00	EPA 300.0	06/06/09	06/06/09	B9F0219
W7 Surface Water (9050970-09) Sampled:05/19/09 10:05 Received:05/21/09 12:01									
Hardness	mg/l	34		2	5	SM 2340C	05/24/09	05/24/09	B9E0624
Alkalinity as CaCO3	"	41		1	5	SM 2320B	05/21/09	05/21/09	B9E0579
Bicarbonate	"	51		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	0.17	J	0.05	0.40	EPA 300.0	06/06/09	06/06/09	B9F0219

Approved By
Basic Laboratory, Inc.
California ELAP Cert #1677 and #2718

BASIC [illegible]

Report To: USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971
Attention: RYAN NUPEN
Project: SURFACE & GROUND WATER TESTING WALKER MINE

Lab No: 9050970
Reported: 06/10/09
Phone: (530) 283-7704
P.O. #

Metals - Total

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
R1 Surface Water (9050970-01)	Sampled:05/19/09 16:15		Received:05/21/09 12:01						
Copper	ug/l	44.8		0.1	0.5	EPA 200.8	06/08/09	05/29/09	B9F0230
Iron	"	344		3	10	"	06/07/09	"	B9E0752
Zinc	"	6.4		0.4	2.0	"	"	"	"
R2 Surface Water (9050970-02)	Sampled:05/19/09 14:10		Received:05/21/09 12:01						
Copper	ug/l	103		0.1	0.5	EPA 200.8	06/08/09	05/29/09	B9F0230
Iron	"	933		3	10	"	06/07/09	"	B9E0752
Zinc	"	12.9		0.4	2.0	"	"	"	"
R3 Surface Water (9050970-03)	Sampled:05/19/09 15:35		Received:05/21/09 12:01						
Copper	ug/l	0.6		0.1	0.5	EPA 200.8	06/08/09	05/29/09	B9F0230
Iron	"	104		3	10	"	06/07/09	"	B9E0752
Zinc	"	28.1		0.4	2.0	"	"	"	"
R4 Surface Water (9050970-04)	Sampled:05/19/09 14:47		Received:05/21/09 12:01						
Copper	ug/l	2.0		0.1	0.5	EPA 200.8	06/08/09	05/29/09	B9F0230
Iron	"	114		3	10	"	06/07/09	"	B9E0752
Zinc	"	0.9	J	0.4	2.0	"	"	"	"
R5 Surface Water (9050970-05)	Sampled:05/19/09 16:22		Received:05/21/09 12:01						
Copper	ug/l	3.4		0.1	0.5	EPA 200.8	06/08/09	05/29/09	B9F0230
Iron	"	132		3	10	"	06/07/09	"	B9E0752
Zinc	"	1.1	J	0.4	2.0	"	"	"	"
W1A Surface Water (9050970-06)	Sampled:05/19/09 13:35		Received:05/21/09 12:01						
Copper	ug/l	2600		0.5	2.5	EPA 200.8	06/08/09	05/29/09	B9F0230
Iron	"	84000		3	10	"	06/07/09	"	B9E0752
Zinc	"	191		0.4	2.0	"	"	"	"
W3 Surface Water (9050970-07)	Sampled:05/19/09 12:14		Received:05/21/09 12:01						
Copper	ug/l	4.3		0.1	0.5	EPA 200.8	06/08/09	05/29/09	B9F0230
Iron	"	881		3	10	"	06/07/09	"	B9E0752
Zinc	"	1.9	J	0.4	2.0	"	"	"	"
W5 Surface Water (9050970-08)	Sampled:05/19/09 10:54		Received:05/21/09 12:01						
Copper	ug/l	1.9		0.1	0.5	EPA 200.8	06/08/09	05/29/09	B9F0230
Iron	"	21400		3	10	"	06/07/09	"	B9E0752
Zinc	"	2.4		0.4	2.0	"	"	"	"
W7 Surface Water (9050970-09)	Sampled:05/19/09 10:05		Received:05/21/09 12:01						
Copper	ug/l	3.4		0.1	0.5	EPA 200.8	06/08/09	05/29/09	B9F0230
Iron	"	2960		3	10	"	06/07/09	"	B9E0752
Zinc	"	7.2		0.4	2.0	"	"	"	"

Approved By
Basic Laboratory, Inc.
California ELAP Cert #1677 and #2718

basic

Report To:	USDA FOREST SERVICE - PLUMAS NATL FOREST POST OFFICE BOX 11500 QUINCY, CA 95971
Attention:	RYAN NUPEN
Project:	SURFACE & GROUND WATER TESTING WALKER MINE

Lab No:	0050979
Reported:	06/10/09
Phone:	(530) 283-7761
P.O. #	

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag). The J flag is equivalent to the DNQ Estimated Concentration flag.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the detection limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
<	Less than reporting limit
≤	Less than or equal to reporting limit
>	Greater than reporting limit
≥	Greater than or equal to reporting limit
MDL	Method Detection Limit
PL/ML	Minimum Level of Quantitation
MCL/AL	Maxium Contaminant Level/Action Level
mg/kg	Results reported as wet weight
TTLC	Total Threshold Limit Concentration
STLC	Soluble Threshold Limit Concentration
TCLP	Toxicity Characteristic Leachate Procedure

Approved By

Basic Laboratory, Inc.

California ELAP Cert #1677 and #2718

BASIC LABORATORY CHAIN OF CUSTODY RECORD

2218 Railroad Avenue, Redding, CA 96001 (530) 243-7234 FAX (530) 243-7494

LAB #: 90397-C

PAGE 1 OF 1

CLIENT NAME: USDA Forest Service Plumas NF

PROJECT NAME: Walker Mine

PROJECT #:

MAILING ADDRESS: 159 Lawrence St, Quincy, CA 95971

REPORT DUE DATE: 6/5/09

TURNAROUND TIME: Rush Normal

OF SAMPLES: 4

MATRIX TYPE: W

PROJECT MANAGER: Ryan Nupen

PHONE: (530)283-7712

EMAIL: rnupen@fs.fed.us

FAX: (530)283-7729

RESULTS SENT: Email Fax EDD Mail

CUSTODY SEAL INTACT? Yes No N/A

SYSTEM #:

EDD TYPE:

INVOICE TO:

PO#:

QC: Standard Level II

ANALYSIS REQUESTED: Fe, Cu, Zn; Hardness; Alk; SO4; Turbidity

SAMPLE DATE	SAMPLE TIME	WATER	COMP	SOLID	SAMPLE LOCATION / IDENTIFICATION	NUMBER OF BOTTLES	Fe, Cu, Zn	Hardness	Alk	SO4	Turbidity	LAB ID	CHLORINE RESIDUAL OR COMMENTS
5/19/09	16:15	X			R-1	2	X	X	X			1	
5/19/09	14:10	X			R-2	2	X	X	X			2	
5/19/09	15:35	X			R-3	2	X	X	X			3	
5/19/09	14:47	X			R-4	2	X	X	X			4	
5/19/09	16:22	X			R-5	2	X	X	X			5	
5/19/09	13:35	X			W-1A	2	X	X				6	
5/19/09	12:14	X			W-3	2	X	X				7	
5/19/09	10:54	X			W-5	2	X	X				8	
5/19/09	10:05	X			W-7	2	X	X				9	

PRESERVED WITH: HNO3 H_2SO_4 NaOH ZnAce/NaOH HCL NaThio OTHER _____

SAMPLED BY (PRINT): Pat Flynn	SAMPLE DATE/TIME: 5/19/09	RELINQUISHED BY: Ryan Nupen	DATE/TIME: 5/20/09 10:00
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY (LAB): [illegible]	DATE/TIME: [illegible]	PROCESSED AND VERIFIED BY: [illegible]	DATE/TIME: [illegible]
SAMPLED IN BY: [illegible]	DATE/TIME: [illegible]	CARRIER:	COOLER TEMPERATURE: [illegible]

SPECIAL INSTRUCTIONS: Terms and Conditions on back

SAMPLE TYPE: 1 = ROUTINE, 2 = REPEAT, 3 = REPLACEMENT, 4 = SPECIAL, 5 = RAW

MONITORING REPORT

Discharger: USDA Forest Service, Plumas National Forest

Facility: Walker Mine Tailings, Plumas County

Reporting Frequency: Quarterly

Monitoring Period: July 2009

Findings:

(1) Surface Water. Samples were collected on July 13, 2009. The surface water sample collected at the compliance station, R-5, Little Grizzly Creek near Brown's Cabin, exceeded the limitation for copper (see Table 1). The remaining R-5 constituents fell within the prescribed limitations for dissolved iron and zinc. The release of copper from the tailings area to Dolly Creek, as measured at R-2, continued to exceed the limitation. Concentrations of zinc were detected in all of the 5 samples taken but none of these concentrations exceeded the limitation of zinc. The concentration of iron, exceeded the 1000 ug/l limitation at R-2 but was within the limitation at the remainder of the stations.

(2) Groundwater. No groundwater samples were collected for this monitoring event.

Groundwater elevations were measured in six of seven wells at the site; W-1 was destroyed during construction in 2007. Depths to water level remain slightly higher in comparison of those taken in July of 2008. The results continue to show a definite gradient towards Little Grizzly Creek along the Dolly Creek Channel to the settling pond (R-6). With the elevation of the Little Grizzly Creek channel approximately 20 feet below the surface of the tailings area, there is a strong gradient towards little Grizzly Creek all along of its course adjacent to the tailings area.

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Table 1. SURFACE WATER SUMMARY

Map of the tailings area with the surface water monitoring sites

Discharge Measurement Notes

Chain-of-Custody record for surface water samples

Basic Laboratory Analysis Reports for surface and soil samples

Table 2. GROUND WATER SUMMARY

Map of the tailings are with groundwater monitoring sites

Map of tailings area with groundwater elevations and flow directions

Water Level Data

JULY 2009

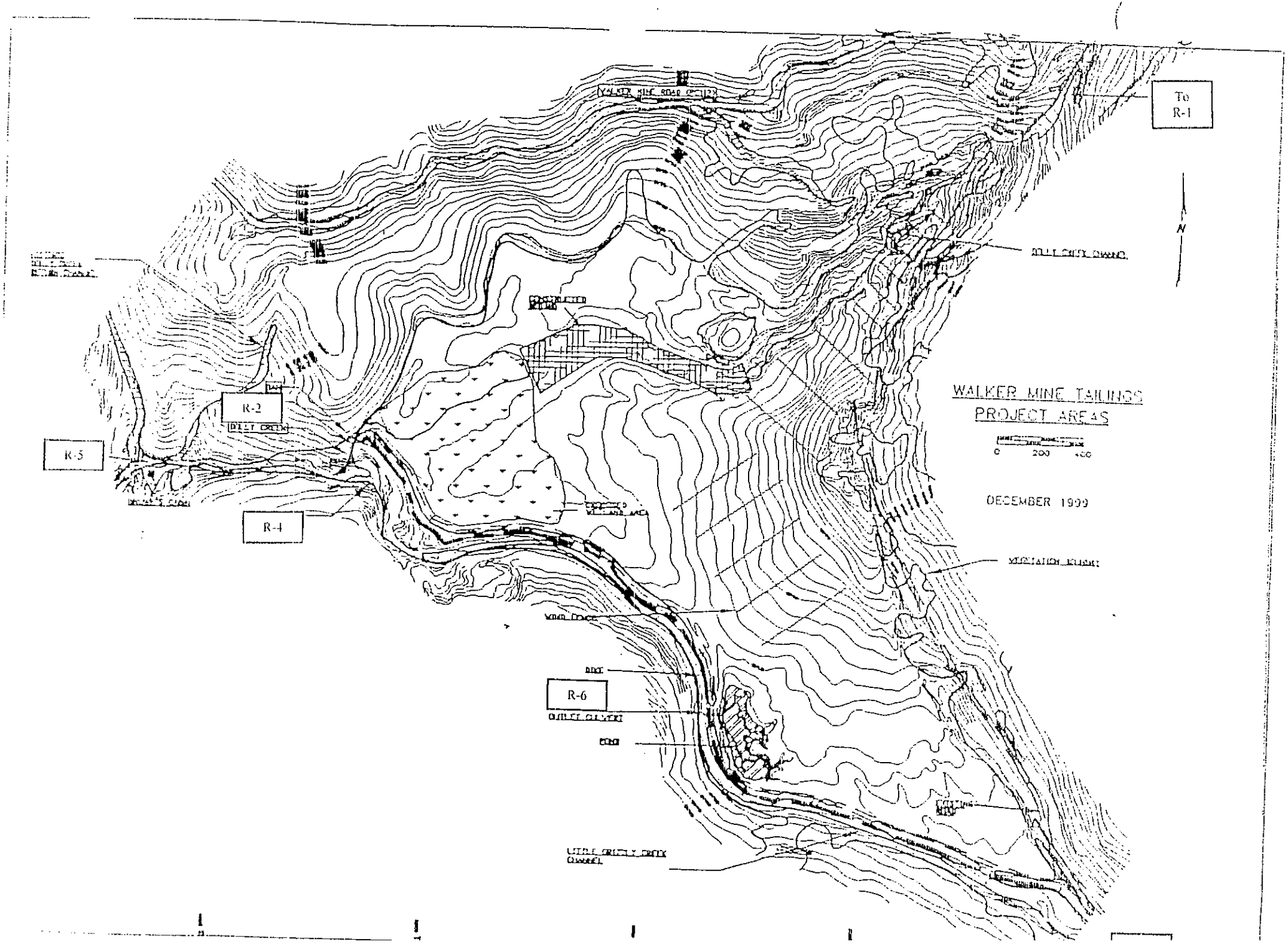
SURFACE AND GROUNDWATER TEST RESULTS AND SUPORTING DOCUMENTATION

Table 1. SURFACE WATER SUMMARY REPORT

U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE, PLUMAS NATIONAL FOREST
WALKER MINE TAILINGS, PLUMAS COUNTY
Jul-09

CONSTITUENT	UNITS	DETECTION LIMITS	R-1	R-2	R-3[1]	R-4	R-5[2]	R-6	Limitation @R-5[3]
Field Parameters									
Flow	cfs		0.50	0.13	0.51	0.96	3.16	N/A	N/A
pH	number		7.69	7.63	6.95	7.02	7.48	N/A	N/A
Specific Conductance	umhos/cm		91	124	83	107	122	N/A	N/A
Air Temperature	F		72	56	65	57	N/A	N/A	N/A
Water Temperature	C		9.5	11.3	10.9	9.1	13.8	N/A	N/A
Laboratory									
Total Hardness as CaCO3	mg/l	5	65	71	47	71	64	N/A	N/A
Total Alkalinity as CaCO3	mg/l	1	75	74	62	72	72	N/A	N/A
Sulfate	mg/l	0.5	9	14	0.09	9	9.44	N/A	N/A
Turbidity	NTU	0.05	N/A	N/A	N/A	N/A	N/A	N/A	NOT MESURED
Dissolved Iron	ug/l	20	222	1020	453	670	671	N/A	1000
Copper	ug/l	0.5	7.6	82.5	0.8	3	11.8	N/A	6.12
Dissolved Zinc	ug/l	1.0	2.1	15.9	5.3	1	2.8	N/A	80.94

[1] R-3 is the background station located above the tailiings area on Little Grizzly Creek.
[2] R-5 is the compliance station located near Brown's Cabin, downstream from the confluence of Dolly Creek with Little Grizzly Creek.
[3] The compliance values for copper and zinc are calculated with the R-5 hardness value of 50 mg/l as CaCO3.


To
R-1
N
R-2
R-5
R-4
R-6
WALKER MINE TAILINGS
PROJECT AREAS
0
200
400
DECEMBER 1999

[illegible] TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....
Comp. by .....
Checked by .....

St. No. [illegible]

[illegible] Creek above Tailings @ Road 112

Date [illegible] Party [illegible]

Width [illegible] Area ..... Vel. ..... G. H. ..... Disch. .....

Meth. [illegible] No. ..... G. H. change ..... in ..... hrs. Susp. .....

Meter [illegible] H.F. angle coef. ..... Susp. coef. ..... Meter By .....

Time	Point	Revolutions	Seconds	Quick

Type of meter [illegible]

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots ..... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below base, and .....

Check bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

Meas. rated excellent (2%), good (5%), fair (8%), poor (over 8%), based on following conditions: Construction .....

Flow .....

Weather [illegible] / Clear

Other .....

Gage .....

Air 12 °C @ 1214

Water 9.5 °C @ 1216

Recorder removed .....

Intake flushed .....

Conductivity [illegible] micromhos/cm

[illegible] ft.

[illegible] 1212

Sample bottle	Dist. from initial point	Width	Depth	Quality flag	Rev. for meter	Time in sec.	Velocity At point	Velocity Mean in vert.	Angle	Area	Discharge
LB	.6										
	1		.45				[illegible]				
	1.5		.6				[illegible]				
	2		.7				[illegible]				
	2.5		.65				[illegible]				
	3		.65				[illegible]				
	3.5		.8				[illegible]				
	4		.8				[illegible]				
	4.5		.6				.02				
	5		.45				.07				
	5.5		.35				1.21				
RB	5.7						[illegible]				

[illegible] TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....

Comp. by .....

Checked by .....

[illegible]

[illegible] Creek below Tailings Dam

Date [illegible] Party Elyne

Width ..... Area ..... Vel. ..... G. H. ..... Disch. .....

[illegible] No. [illegible] G. H. change ..... in ..... hrs. Susp. .....

[illegible] Bar angle coef. ..... Susp. coef. ..... Meter No. .....

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Type of meter Martha McBirney

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Span before meas. ..... after .....

Meas. plots .... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%), based on following conditions: Cross section .....

Flow ..... Weather Clear/Warm

Other ..... Air 56° F @ 0921

Gage ..... Water 113 °C @ 0919

..... Record removed ..... Intake flushed ☐

Observer .....

Control .....

pH 7.63

CONDUCTANCE 24 umhos/cm

G. H. [illegible] ..... ft.

[illegible] 0915

River at —

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	Adjusted velocity	Area	Discharge
LB	0.9										
	1.5		0.2				.01				
	2		0.4				.12				
	2.5		0.1				.10				
	3		0.2				.26				
	3.5		0.35				.23				
	4		0.3				.17				
	4.5		0.15				.06				
RB	4.65										

WALLIS HIGH TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....

Comp. by .....

Checked by .....

Site No. [illegible]

Little Grizzly Creek above Tailings

Date 1/13 [illegible] Party [illegible]

Width ..... Area ..... Vel. ..... G. H. ..... Disch. .....

Method [illegible] Hor. [illegible] ..... G. H. change ..... in ..... hrs. Susp. .....

Meth. [illegible] Hor. angl. coef. ..... Susp. coef. ..... Meter No. .....

GAGE READING

Time		Reading	Inside	Outside

Type of meter [illegible]

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots .... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check-bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

Measurement rated excellent (2%), good (5%), fair (8%), poor (over 8%), based on following conditions: Cross section .....

H. [illegible] ..... Weather Warm / Clear

Other ..... Air 55 °F @ 1109

Gage ..... Water 10.9 °C @ 1111

..... Record removed ..... Intake flushed ..... [illegible]

Observer .....

Control .....

[illegible] .....

[illegible] 55 umhos/cm

[illegible] ..... ft.

[illegible] 1119

River type

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	[illegible]	Area	Discharge
LB	2.2										
	2.5		.1				[illegible]				
	3		.2				[illegible]				
	3.5		.1				[illegible]				
	4		.2				[illegible]				
	4.5		.25				[illegible]				
	5		.35				[illegible]				
	5.5		.55				.57				
	6		.35				[illegible]				
	6.5		.35				[illegible]				
	7		.35				.51				
	7.5		.35				.60				
	8		.1				.68				
	8.5		.05				[illegible]				
RB	8.95										

Valley Hide Tailings Monitoring Program

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Meas. No. .....

Comp. by .....

DISCHARGE MEASUREMENT NOTES

Checked by .....

Station Name: Gulch Creek below Tailings

Date: 4/3/2021 Party: EM, AN

Width: ..... Area: ..... Vel. ..... G. H. ..... Disch. .....

Time: 1/2 Int. ..... G. H. change ..... in ..... hrs. Surp. .....

Horizontal: Levels to ..... Surp. coef. ..... Meter No. .....

Type of meter Alexander Aldrich

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. Flow ..... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

Discharge rated excellent (5%), fair (8%), poor (over 8%), based on following information: .....

Flow .....

Weather Warm / Clear

Water .....

Air 27 °C @ 0954

Water 9.1 °C @ 0957

Gage .....

Record removed .....

Intake flushed? .....

Observer .....

Control .....

pH .....

Conductance 1.7 mmhos/cm

G. H. at end of meas. ..... ft.

Samples @ 0951

River ...

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity at point	Velocity adjusted to mean vel.	Adjusted Velocity	Area	Discharge
LB	0.85										
	1		.05				0				
	1.5		.2				.30				
	2		.25				.17				
	2.5		.2				.31				
	3		.2				.41				
	3.5		.25				.41				
	4		.25				.46				
	4.5		.3				.42				
	5		.4				.52				
	5.5		.4				.45				
	6		.55				.31				
	6.5		.5				.43				
	7		.55				.18				
	7.5		.45				.51				
	8		.5				.24				
	8.5		.35				.27				
	9		.4				.12				
	9.5		.25				.05				
	10		0				0				
RB	10.4										

[illegible] TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

Meas. No. .....

Comp. by .....

Checked by .....

DISCHARGE MEASUREMENT NOTES

[illegible]

[illegible] Creek @ Brown's Cabin

Date [illegible] 19[illegible] Party [illegible]

Width ..... Area ..... Vel. ..... G. H. ..... Disch. .....

Method [illegible] Ins. sec. ..... G. H. change ..... in ..... hrs. Susp. .....

Method coef. ..... Hor. angle coef. ..... Susp. coef. ..... Meter No. .....

GAGE READINGS				
Time		Record	Inside	Outside
Weighted M. G. H.				
G. H. [illegible]				
Correct G. H.				

Type of meter .....

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots ... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check-bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

Measurement rated excellent (2%) [illegible] (5%) fair (8%), poor (over 8%), based on following conditions: [illegible]

[illegible] Weather Warm / Clear

Other ..... Air ..... °C @ 1249

Gage ..... Water 13.8 °C @ 1247

..... Record removed ..... Intake flushed [illegible]

Observer .....

Control .....

pH [illegible]

[illegible] umhos/cm

[illegible] ft.

[illegible] 1252

River at—

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	Adjusted velocity at point	Area	Discharge
LB	1.1										
	1.5		.15				.36				
	2		.5				1.54				
	2.5		.5				1.38				
	3		.55				.56				
	3.5		.45				.26				
	4		.55				.42				
	4.5		.5				.35				
	5		.3				.22				
	5.5		.5				.27				
	6		.5				.35				
	6.5		.35				.31				
	7		.35				.13				
	7.5		.1				0				
RB	7.9										

WATER MILL TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....

Comp. by .....

Checked by .....

Site No. [illegible]

Sediment Basin Outlet

Date [illegible] Party [illegible]

Width ..... Area ..... Vel. ..... G. H. ..... Disch. .....

Method ..... No. sec. ..... G. H. change ..... in ..... hrs. Susp. .....

Method of [illegible] Hor. angle coef. ..... Susp. coef. ..... Meter No. .....

Date	Cycle of Measure	Inside	Outside

Type of meter .....

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots .... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check-bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

[illegible] (5%), fair (8%), poor (over 8%), based on following [illegible]

Hor. [illegible] Weather .....

Air ..... °C@ .....

Water ..... °C@ .....

Record removed ..... Intake flushed ..... ft.

[illegible]

CONDUCTANCE ..... umhos/cm

[illegible] ..... ft.

[illegible] Samples

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	Adjusted for [illegible]	Area	Discharge
		No Flow									

River [illegible]

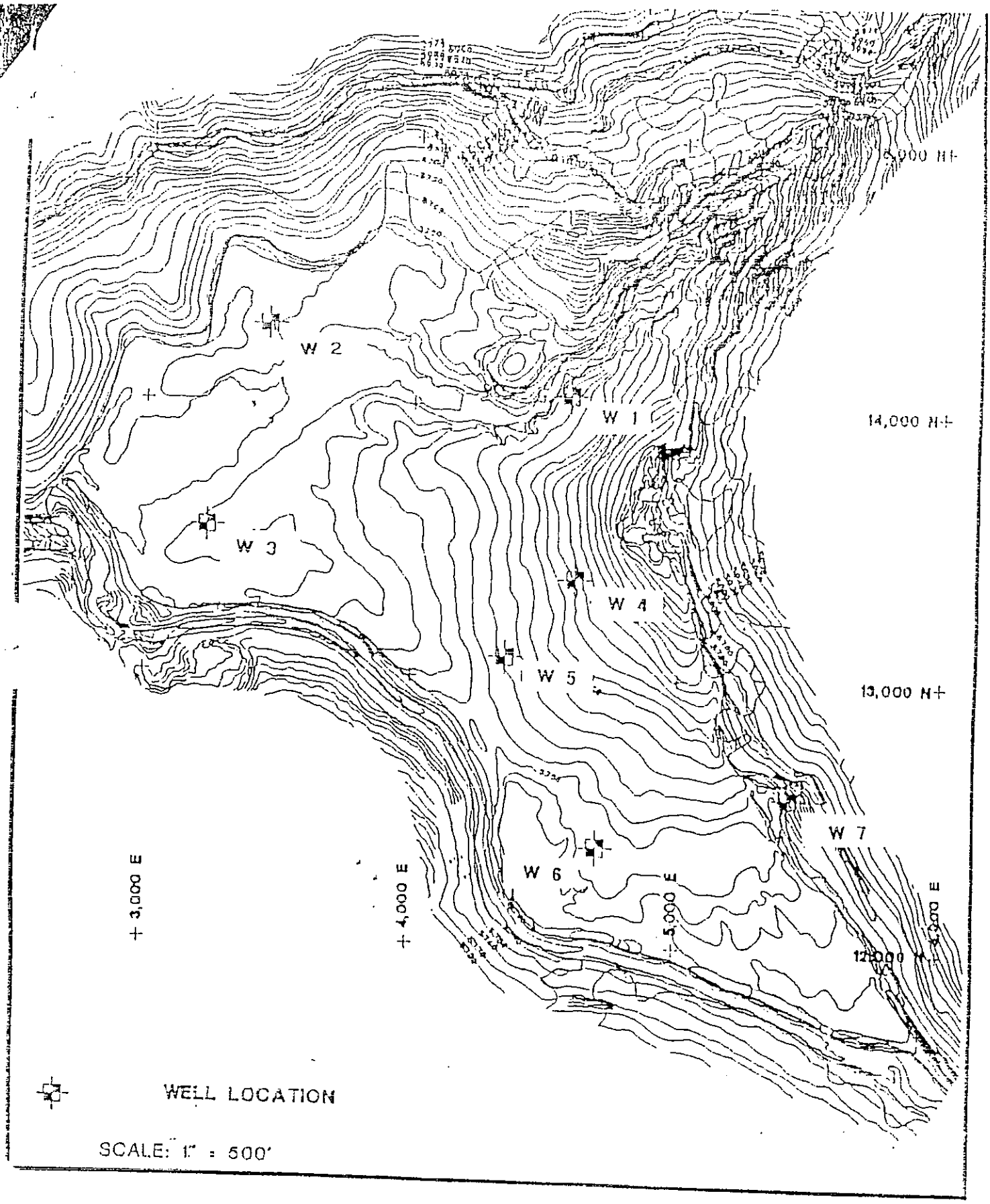
Table 2. GROUND WATER SUMMARY

U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE, PLUMAS NATIONAL FOREST
WALKER MINE TAILINGS, PLUMAS COUNTY
JULY 2009

CONSTITUENT	UNIT	DETECTION LIMIT	WELL SITES W-1	W-2	W-3	W-4	W-5	W-6	W-7*
Field Parameters									
Ground Surface Elevation	ft	0.01	N/A	5742.05	5739.15	5768.27	5754.28	5748.04	5753.85
Top of Cap Elevation	ft	0.01	N/A	5741.74	5738.83	5768.00	5754.09	5747.87	5754.91
Depth to Water	ft	0.01	N/A	1.62	5.36	20.17	9.23	5.82	1.39
Water Surface Elevation	ft	0.01	N/A	5740.12	5733.47	5747.83	5744.86	5742.05	5753.52
Laboratory									
Total Hardness as CaCO3	mg/l	5.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Alkalinity	mg/l	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sulfate	mg/l	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Iron	ug/l	20.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Copper	ug/l	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dissolved Zinc	ug/l	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*W-7 is located upgradient and off-site in a wet area. The data collected from this well are used for background comparisons.

[1] ND is not detected at or above the detection limit



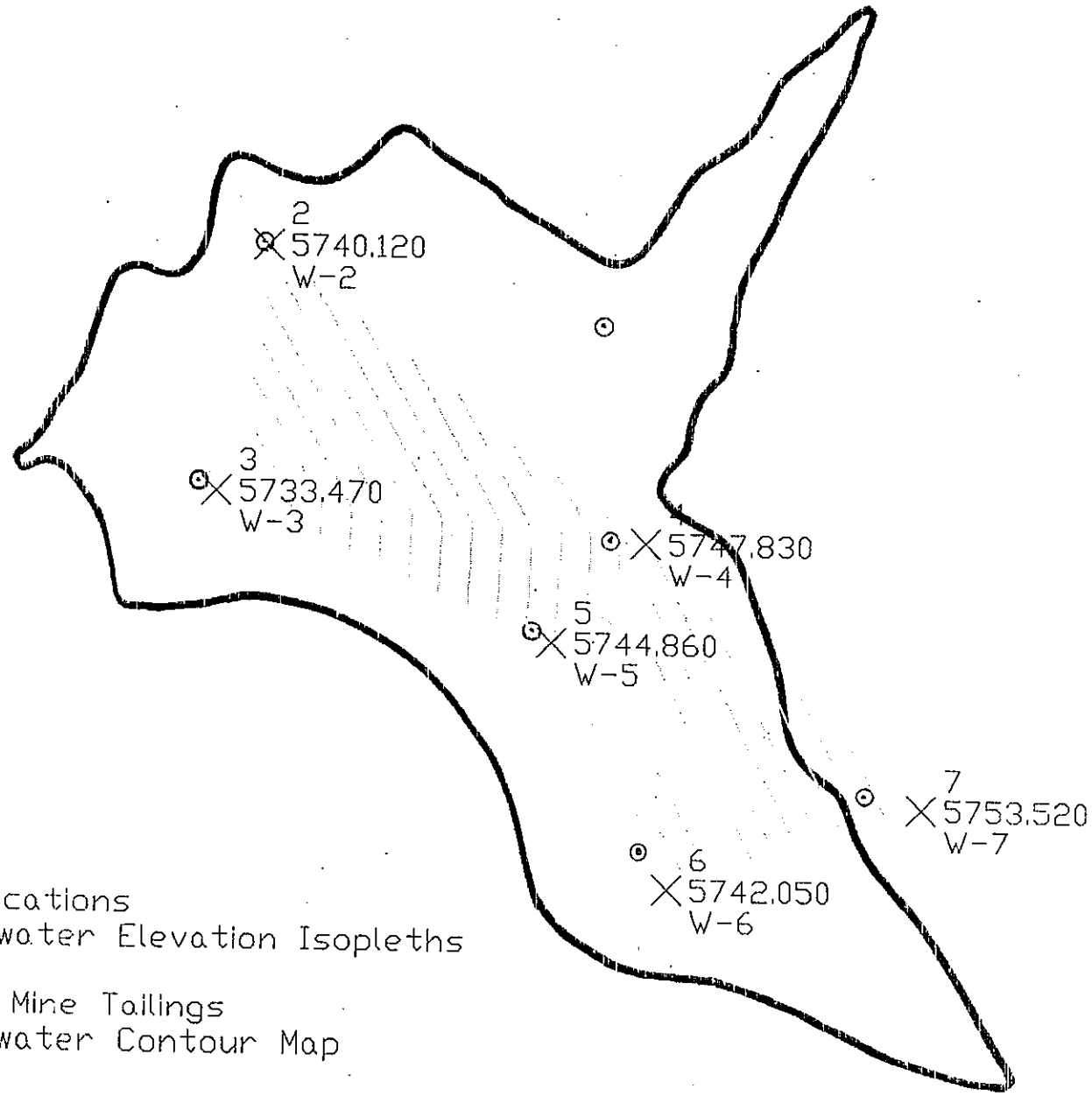
WALKER MINE TAILINGS

WALKER TAILINGS
GROUNDWATER MONITORING PROGRAM

FLUID LEVEL GAUGING

SITE LOCATION: Walker Mine DATE: 7/13/09
COMPANY NAME: Sierra Eng
PERSONNEL: Flynn

WELL	TIME	DEPTH TO WATER	COMMENTS
W-1A	0850	9.28	
2	0836	1.62	
3	0842	5.36	
4	0815	20.17	
5	0820	9.23	
6	0806	5.82	
7	0744	1.39	



Well Locations
Groundwater Elevation Isopleths

Walker Mine Tailings
Groundwater Contour Map

July 2009

basic

July 27, 2009

Lab ID: 9070665

RYAN NUPEN
USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971
RE: SURFACE & GROUND WATER TESTING

Dear RYAN NUPEN,

Enclosed are the analysis results for Work Order number 9070665. All analysis were performed under strict adherence to our established Quality Assurance Plan. Any abnormalities are listed in the qualifier section of this report.

If you have any questions regarding these results, please feel free to contact us at any time. We appreciate the opportunity to service your environmental testing needs.

Sincerely,

For

Ricky D. Jensen
Laboratory Director
California ELAP Certification Number 1877

basic

Report To: USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX [illegible]
QUINCY, CA 95971
Attention: RYAN NUPEN
Project: SURFACE & GROUND WATER TESTING

Lab No: 9070665
Reported: 07/27/09
Phone: (530) 283-7764
P.O. #

General Chemistry

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
R2 Surface Water (9070665-01) Sampled:07/13/09 09:15 Received:07/17/09 12:18									
Hardness	mg/l	71		2	5	SM 2340C	07/18/09	07/18/09	B9G0518
Alkalinity as CaCO3	"	74		1	5	SM 2320B	07/17/09	07/17/09	B9G0507
Bicarbonate	"	90		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	14.0		0.05	0.40	EPA 300.0	07/21/09	07/21/09	B9G0563
R4 Surface Water (9070665-02) Sampled:07/13/09 09:51 Received:07/17/09 12:18									
Hardness	mg/l	71		2	5	SM 2340C	07/18/09	07/18/09	B9G0518
Alkalinity as CaCO3	"	72		1	5	SM 2320B	07/17/09	07/17/09	B9G0507
Bicarbonate	"	88		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	9.00		0.05	0.40	EPA 300.0	07/21/09	07/21/09	B9G0563
R3 Surface Water (9070665-03) Sampled:07/13/09 11:14 Received:07/17/09 12:18									
Hardness	mg/l	47		2	5	SM 2340C	07/18/09	07/18/09	B9G0518
Alkalinity as CaCO3	"	62		1	5	SM 2320B	07/17/09	07/17/09	B9G0507
Bicarbonate	"	76		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	0.09	J	0.05	0.40	EPA 300.0	07/21/09	07/21/09	B9G0563
R1 Surface Water (9070665-04) Sampled:07/13/09 12:12 Received:07/17/09 12:18									
Hardness	mg/l	65		2	5	SM 2340C	07/18/09	07/18/09	B9G0518
Alkalinity as CaCO3	"	75		1	5	SM 2320B	07/17/09	07/17/09	B9G0507
Bicarbonate	"	92		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	0.43		0.05	0.40	EPA 300.0	07/21/09	07/21/09	B9G0563
R5 Surface Water (9070665-05) Sampled:07/13/09 12:52 Received:07/17/09 12:18									
Hardness	mg/l	64		2	5	SM 2340C	07/18/09	07/18/09	B9G0518
Alkalinity as CaCO3	"	72		1	5	SM 2320B	07/17/09	07/17/09	B9G0507
Bicarbonate	"	87		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	9.44		0.05	0.40	EPA 300.0	07/21/09	07/21/09	B9G0563

Approved By
Basic Laboratory, Inc.
California ELAP Cert #1077 and #2718

basic

Report To: USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971
Attention: RYAN NUPEN
Project: SURFACE & GROUND WATER TESTING

Lab No: 9070665
Reported: 07/27/09
Phone: (530) 283-7764
P.O. #

Metals - Total

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
R2 Surface Water (9070665-01) Sampled:07/13/09 09:15 Received:07/17/09 12:18									
Copper	ug/l	82.8		0.1	0.5	EPA 200.8	07/24/09	07/22/09	B9G0620
Iron	"	1020		3	10	"	"	"	"
Zinc	"	15.9		0.4	2.0	"	"	"	"
R4 Surface Water (9070665-02) Sampled:07/13/09 09:51 Received:07/17/09 12:18									
Copper	ug/l	3.0		0.1	0.5	EPA 200.8	07/24/09	07/22/09	B9G0620
Iron	"	670		3	10	"	"	"	"
Zinc	"	1.0	J	0.4	2.0	"	"	"	"
R3 Surface Water (9070665-03) Sampled:07/13/09 11:14 Received:07/17/09 12:18									
Copper	ug/l	0.8		0.1	0.5	EPA 200.8	07/24/09	07/22/09	B9G0620
Iron	"	453		3	10	"	"	"	"
Zinc	"	5.3		0.4	2.0	"	"	"	"
R1 Surface Water (9070665-04) Sampled:07/13/09 12:12 Received:07/17/09 12:18									
Copper	ug/l	7.6		0.1	0.5	EPA 200.8	07/24/09	07/22/09	B9G0620
Iron	"	222		3	10	"	"	"	"
Zinc	"	2.1		0.4	2.0	"	"	"	"
R5 Surface Water (9070665-05) Sampled:07/13/09 12:52 Received:07/17/09 12:18									
Copper	ug/l	11.8		0.1	0.5	EPA 200.8	07/24/09	07/22/09	B9G0620
Iron	"	671		3	10	"	"	"	"
Zinc	"	2.8		0.4	2.0	"	"	"	"

Approved by

basic Laboratory, Inc.

basic

Report To: USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971
Attention: RYAN NUPEN
Project: SURFACE & GROUND WATER TESTING

Lab No: 90.0655
Reported: 07/27/09
Phone: (530) 283-7764
P.O. #

Notes and Definitions

R-04	The sample was diluted due to sample matrix resulting in elevated reporting limits.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to the analyte concentration being greater than 4 times the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag). The J flag is equivalent to the DNQ Estimated Concentration flag.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the detection limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
<	Less than reporting limit
≤	Less than or equal to reporting limit
>	Greater than reporting limit
≥	Greater than or equal to reporting limit
MDL	Method Detection Limit
RL/ML	Minimum Level of Quantitation
MCL/AL	Maxium Contaminant Level/Action Level
mg/kg	Results reported as wet weight
TTLC	Total Threshold Limit Concentration
STLC	Soluble Threshold Limit Concentration
TCLP	Toxicity Characteristic Leachate Procedure

proved By
ic Laboratory, Inc.
ornia ELAP - Cert #1677 and #2718

BASIC LABORATORY CHAIN OF CUSTODY RECORD

2218 Railroad Avenue, Redding, CA 96001 (530) 243-7234 FAX (530) 243-7494

CLIENT NAME: [illegible]

PROJECT NAME: [illegible]

PROJECT #:

LAB #: [illegible]

PAGE 1 OF 1

REPORT DUE DATE: [illegible]

REPORT SUBMITTED: [illegible]

MATRIX TYPE: [illegible]

CUSTODY SEAL INTACT: Yes No N/A

SYSTEM #:

EDD TYPE:

QC: Standard Level II

PROJECT MANAGER: Ryan Nuden

PHONE: (530) 283 7712

EMAIL:

FAX: 530 283 7729

RESULTS SENT: Email Fax EDD Mail

INVOICE TO:

PO#:

ANALYSIS REQUESTED

SAMPLE DATE	SAMPLE TIME	WATER	COMP	SOLID	SAMPLE LOCATION / IDENTIFICATION	NUMBER OF BOTTLES: Fe, Cu, Zn	Hardness, Alk, [illegible]	LAB ID	CHLORINE RESIDUAL OR COMMENTS
7/13/09	0925	X			R-2	X	X	1	
	0951	X			R-4	X	X	2	
	1114	X			R-3	X	X	3	
	1212	X			R-1	X	X	4	
	1252	X			R-5	X	X	5	

RESERVED WITH: HNO3 H2SO4 NaOH NaOH/NaOH HCL NaTiO4 OTHER

SAMPLED BY (PRINT): [illegible]

SAMPLE DATE/TIME: 7/13/09

RELINQUISHED BY: [illegible]

DATE/TIME: 7/13/09 1520

SAMPLED BY:

DATE/TIME:

RELINQUISHED BY:

DATE/TIME:

RECEIVED BY (LAB):

DATE/TIME:

PROCESSED AND VERIFIED BY:

DATE/TIME:

SAMPLED BY:

DATE/TIME:

CARRIER:

COOLER TEMPERATURE:

[illegible]

SAMPLE TYPE: 1 = ROUTINE, 2 = REPEAT, 3 = REPLACEMENT, 4 = SPECIAL, 5 = RAW

MONITORING REPORT

Discharger: USDA Forest Service, Plumas National Forest

Facility: Walker Mine Tailings, Plumas County

Reporting Frequency: Quarterly

Monitoring Period: September 2009

Findings:

(1) Surface Water. Samples were collected on September 22, 2009. The surface water sample collected at the compliance station, R-5, Little Grizzly Creek near Brown's Cabin, is below copper limitations (see Table 1). The remaining R-5 constituents fall within the prescribed limitations for dissolved iron and zinc. There was no measureable flow at R-2 (tailings dam spillway) which reduced the release of copper from the tailings area to Dolly Creek in September. Concentrations of zinc were detected in all of the four samples taken but none of these concentrations exceeded the limitation of zinc. The concentration of iron exceeded the limitation of 1000 ug/l at R-1 upstream of the tailings on Dolly Creek and was within the limitation at all other stations.

(2) Groundwater. Samples were collected on September 22, 2009. Table 2 summarizes the findings for groundwater samples collected from the site. Small concentrations of dissolved copper (<10.2 ug/l) were found each of the sampled wells (W-3, W-5, W-7). Additionally, concentrations of dissolved zinc were found in each well, with a maximum concentration of 4.8 ug/l at W-7. Dissolved iron was again found in W-5 with a measured concentration of 15100 ug/l. The reason for the increase in dissolved iron at W-5 remains unclear and will require continued testing.

Groundwater elevations were measured in six of seven wells at the site; W-1 was lost during construction in 2007. Water depths continue to remain slightly higher than 2008. With the elevation of the Little Grizzly Creek channel approximately 20 feet below the surface of the tailings area, there is a strong gradient towards little Grizzly Creek all along its course with the tailings area.

September 2009

SURFACE AND GROUNDWATER TEST RESULTS AND SUPORTING DOCUMENTATION

TABLE OF CONTENTS

Table 1. SURFACE WATER SUMMARY

Map of the tailings area with the surface water monitoring sites

Discharge Measurement Notes

Chain-of-Custody record for surface water samples and groundwater samples

Basic Laboratory Analysis Reports for surface water and groundwater tests

Table 2. GROUND WATER SUMMARY

Map of the tailings are with groundwater monitoring sites

Map of tailings area with groundwater elevations and flow directions

Water Level Data

Groundwater Monitoring, Water Sampling Field Sheet

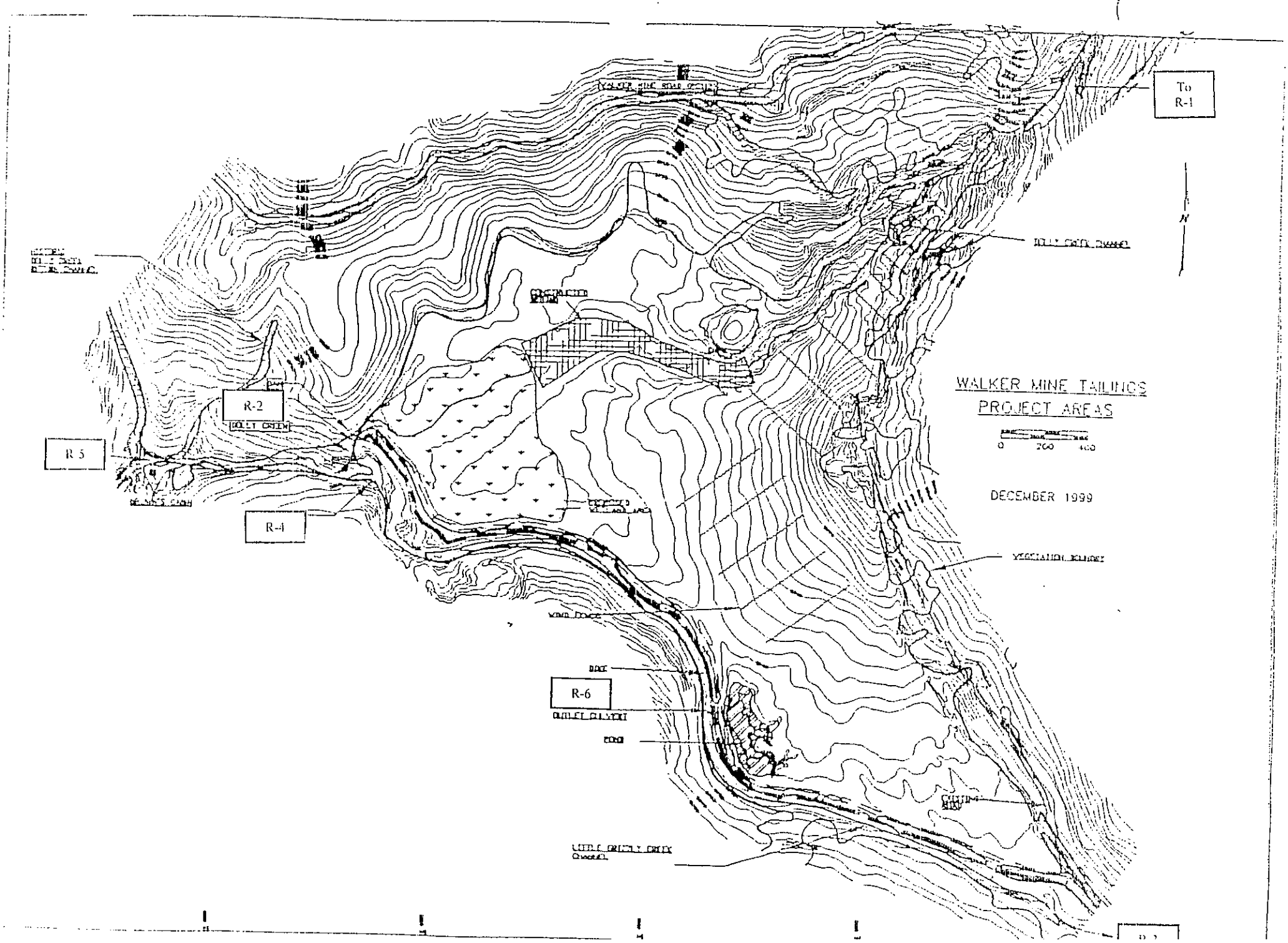

To
R-1
R-2
R 5
R-4
R-6
WALKER MINE TAILINGS
PROJECT AREAS
0
200
400
DECEMBER 1999
N

Table 1. SURFACE WATER SUMMARY REPORT

U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE, PLUMAS NATIONAL FOREST
WALKER MINE TAILINGS, PLUMAS COUNTY
Sep-09

CONSTITUENT	UNITS	DETECTION LIMITS	R-1	R-2	R-3[1]	R-4	R-5[2]	R-6	Limitation @R-5[3]
Field Parameters									
Flow	cfs		0.26	0.00	0.26	0.52	1.40	N/A	N/A
pH	number		7.38	NO FLOW	7.42	7.59	7.74	N/A	N/A
Specific Conductance	umhos/cm		104	NO FLOW	94.1	120	127	N/A	N/A
Air Temperature	F		80	NO FLOW	80	68	69	N/A	N/A
Water Temperature	C		9.8	NO FLOW	12	9.1	9.5	N/A	N/A
Laboratory									
Total Hardness as CaCO3	mg/l	5	64	NO FLOW	49	82	87	N/A	N/A
Total Alkalinity as CaCO3	mg/l	1	82	NO FLOW	70	84	84	N/A	N/A
Sulfate	mg/l	0.5	0.29	NO FLOW	ND	13.2	13.5	N/A	N/A
Turbidity	NTU	0.05	NA	NO FLOW	NA	NA	NA	N/A	NOT MEASURED
Dissolved Iron	ug/l	20	1560	NO FLOW	322	544	479	N/A	1000
Copper	ug/l	0.5	45	NO FLOW	0.5	3.3	3.5	N/A	7.95
Dissolved Zinc	ug/l	1.0	8.6	NO FLOW	1.6	1.8	2.2	N/A	104.99

[1] R-3 is the background station located above the tailiings area on Little Grizzly Creek.
[2] R-5 is the compliance station located near Brown's Cabin, downstream from the confluence of Dolly Creek with Little Grizzly Creek.
[3] The compliance values for copper and zinc are calculated with the R-5 hardness value of 50 mg/l as CaCO3.

[illegible] TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Meas. No. .....
Comp. by .....
Checked by .....

DISCHARGE MEASUREMENT NOTES

[illegible] Tailings @ Road 112

9/22 2009 Party Flynn

[illegible] G. H. ..... Disch. .....

6/10 [illegible] G. H. change ..... in ..... hrs. Susp. .....

[illegible] Susp. coef. ..... Meter No. .....

Type of meter Marsh McBirney

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots .... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

[illegible] fair (3%), poor (over 3%), based on following [illegible]

Weather Warm - Clear

Air 80°F @ 1435

Water 9.8 °C @ 1437

[illegible] Intake flushed [illegible]

7.38

1.04 umhos/cm

[illegible] ft.

Samples @ 1433

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	Adjusted for hor. angle or	Area	Discharge
LB	1.2										
	1.5		.3				0				
	2		.55				0				
	2.5		.6				0				
	3		.6				0				
	3.5		.5				.02				
	4		.8				.08				
	4.5		.6				.20				
	5		.5				.45				
	5.5		.2				.49				
	6		.3				0				
RB	6.3										

THE TAILINGS MONITORING PROGRAM
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Meas. No. .....
Comp. by .....
Checked by .....

DISCHARGE MEASUREMENT NOTES

[illegible] below Tailings Dam
9/[illegible] 2009 Party Flynn
[illegible] G. H. ..... Disch. .....
G. H. change ..... in ..... hrs. Susp. .....
Susp. coef. ..... Meter No. .....
Type of meter .....
Date rated ..... for rod, other.
Meter ..... ft. above bottom of weight.
Spin before meas. ..... after .....
Meas. plots .... % diff. from rating .....
Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....
Check bar, found .....
changed to ..... at .....
Correct .....
Levels obtained .....

[illegible] good ([illegible]), fair (8%), poor (over 8%), based on following
[illegible] No Flow
[illegible] Creek Diverted
Weather Warm/Clear
Air ..... °C
Water ..... °C
Record removed ..... Intake flushed ?
[illegible] ..... mmhos/cm
[illegible] ..... ft
No Flow - No Samples

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity At point	Velocity Mean vertical	Adjusted for angle	Area	Discharge
No Flow											
Creek Diverted											

[illegible] TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....
Comp. by .....
Checked by .....

[illegible] Creek above Tailings

[illegible] 7/22 2009 Party Flynn

[illegible] Vel. ..... G. H. ..... Disch. .....

[illegible] 6/10 [illegible] G. H. change ..... in ..... hrs. Susp. .....

[illegible] Hor. angle coef. ..... Susp. coef. ..... Meter No. .....

Type of meter Marsh McBirney

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots .... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check bar, bound .....

changed to ..... ft .....

Correct .....

Levels obtained .....

[illegible] fair (8%) poor (over 8%), based on following

Weather Warm Clear

Air 80° F @ 1355

Water 12.0 °C @ 1357

[illegible] removed ..... Intake flushed [illegible]

[illegible] 7.42

[illegible] 94.1 umhos/cm

[illegible] ft.

Samples @ 1352

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	Adjusted for hor. angle at	Area	Discharge
LB	1.95										
	2.5		Θ				Θ				
	3		Θ				Θ				
	3.5		.1				Θ				
	4		.2				.08				
	4.5		.4				.02				
	5		.35				.99				
	5.5		.4				.33				
	6		.3				Θ				
	6.5		.2				Θ				
	7		.15				.05				
RB	7.5										

TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....

Comp. by .....

Checked by .....

Creek below Tailings

Date 4/22 2039 Party Flynn

Vol. ..... G. H. ..... Ditch. .....

G. H. change ..... in ..... hr. Susp. .....

Susp. rod. ..... Meter No. .....

Type of meter Marsh McBirney

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. pts. ..... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below

edge, end .....

Chico bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

Fair (8%), poor (over 8%), based on following

Weather Warm - Clear

Air 68° F @ 1329

Water 9.1 °C @ 1303

Intake flushed .....

Conductivity 120 micromhos/cm

Stage ..... ft.

Stage @ 1300

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	VELOCITY At point	VELOCITY Mean in vertical	Adjusted for ice, etc.	Area	Discharge
LB	.8										
	1		.05				⇔				
	1.5		.15				.09				
	2		.1				.03				
	2.5		.2				.23				
	3		.2				.26				
	3.5		.25				.30				
	4		.25				.36				
	4.5		.2				.32				
	5		.3				.45				
	5.5		.25				.26				
	6		.4				.33				
	6.5		.2				.25				
	7		.4				.31				
⊙	7.5		.4				.21				
	8		.35				.19				
	8.5		.35				.10				
	9		.35				.04				
	9.5		.15				.0				
	10		.05				.0				
RB	10.1										

[illegible] TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....

Comp. by .....

Checked by .....

[illegible] Creek @ Brown's Cabin

Date 9/22 [illegible] 2009 [illegible]

[illegible] G. H. ..... Disch. .....

[illegible] G. H. change ..... in ..... hrs. Susp. .....

[illegible] Susp. coef. ..... Meter No. .....

Type of meter Marsh McBirney

Bare rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots .... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check-bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

[illegible] fair (8%), poor (over 8%), based on following [illegible]

Weather Warm - Clear

Air 69° F °C @ 1515

Water 9.5 °C @ 1510

[illegible] Intake flushed [illegible]

[illegible] 127 umhos/cm

[illegible] h.

Samples @ 1507

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolution	Time in seconds	Velocity At point	Velocity Mean in vertical	Adjusted for ice, width, etc.	Area	Discharge
LB	.45										
	1		.2				.10				
	1.5		.45				.56				
	2		.45				.95				
	2.5		.35				.66				
	3		.4				.72				
RB	3.25										

[illegible] TAILINGS MONITORING PROGRAM

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. .....

Comp. by .....

Checked by .....

Station [illegible]

Sediment Basin Outlet

Date 4/22 [illegible] Party Flynn

Width ..... Area ..... Vel. ..... G. H. ..... Disch. .....

Method ..... No. ..... G. H. change ..... in ..... hrs. Susp. .....

Meth. [illegible] Dist. angle coef. ..... Susp. coef. ..... Meter No. .....

Time		Record	Rater	Outside

Type of meter .....

Date rated ..... for rod, other.

Meter ..... ft. above bottom of weight.

Spin before meas. ..... after .....

Meas. plots .... % diff. from rating .....

Wading, cable, ice, boat, upstr., downstr., side bridge ..... feet, mile, above, below gage, and .....

Check-bar, found .....

changed to ..... at .....

Correct .....

Levels obtained .....

Measurement rated as well as (5%), good (5%), fair (8%), poor (over 8%), based on following conditions [illegible]

Flow Dia. Flow ..... Weather .....

Other ..... Air ..... °C@ .....

Gage ..... Water ..... °C@ .....

..... Record removed ..... Intake flushed ..... ft.

Observer .....

Comm. .....

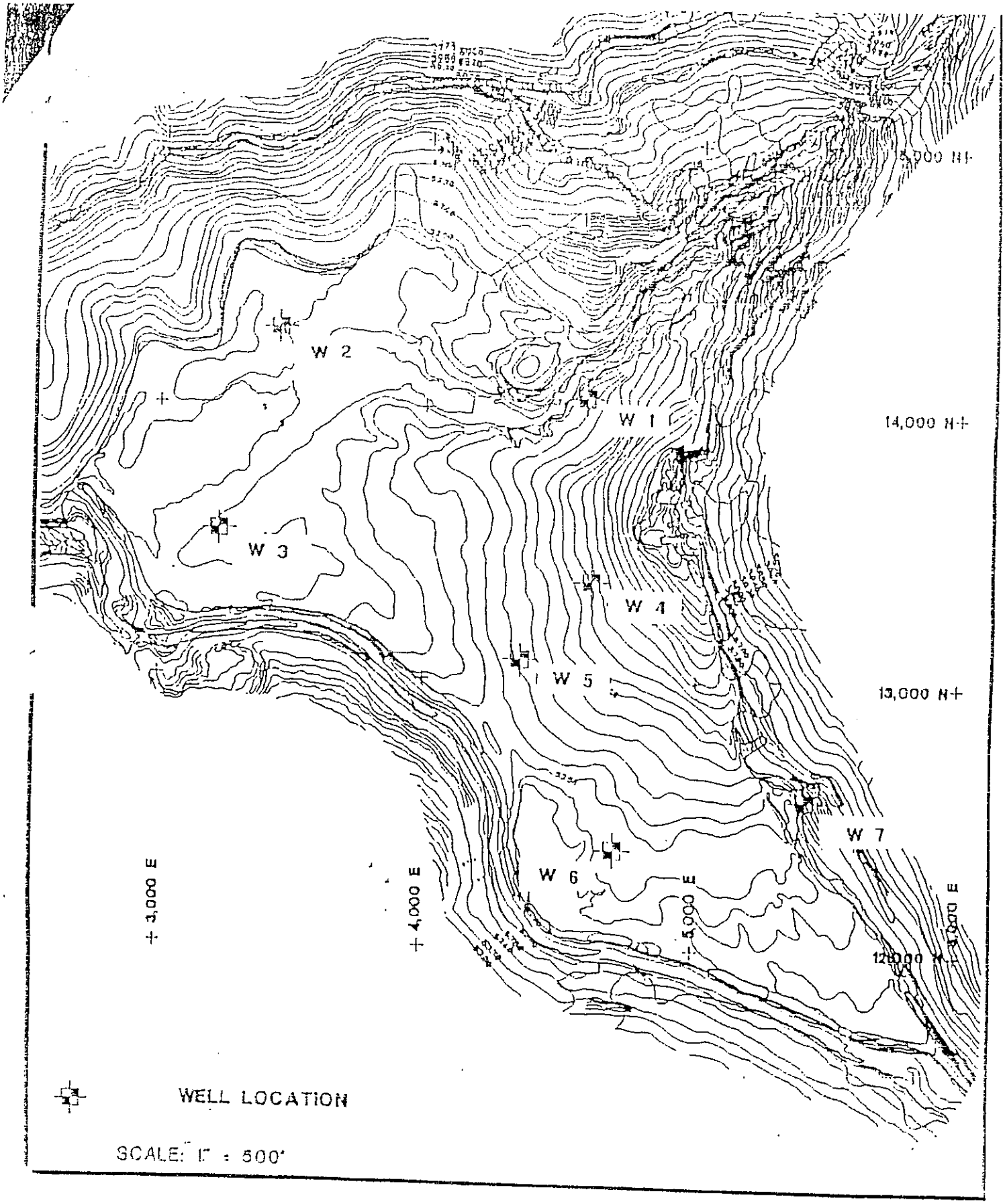
pH .....

Conductivity ..... umhos/cm

G. H. [illegible] ..... ft.

D. Flow - No Samples

Angle coefficient	Dist. from initial point	Width	Depth	Observation depth	Revolutions	Time in seconds	VELOCITY At surface	VELOCITY Mean in vertical	Adjusted for [illegible]	Area	Discharge



WALKER MINE TAILINGS

Table 2. GROUND WATER SUMMARY

U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE, PLUMAS NATIONAL FOREST
WALKER MINE TAILINGS, PLUMAS COUNTY
SEPTEMBER 2009

CONSTITUENT	UNIT	DETECTION LIMIT	WELL SITES W-1	W-2	W-3	W-4	W-5	W-6	W-7*
Field Parameters									
Ground Surface Elevation	ft	0.01	N/A	5742.05	5739.15	5768.27	5754.28	5748.04	5753.85
Top of Cap Elevation	ft	0.01	N/A	5741.74	5738.83	5768.00	5754.09	5747.87	5754.91
Depth to Water	ft	0.01	N/A	2.49	6.24	23.23	11.63	7.45	1.85
Water Surface Elevation	ft	0.01	N/A	5739.25	5732.59	5744.77	5742.46	5740.42	5753.06
Laboratory									
Total Hardness as CaCO3	mg/l	5.0	N/A	N/A	167.0	N/A	136.0	N/A	27.0
Total Alkalinity	mg/l	1.0	N/A	N/A	121.0	N/A	60.0	N/A	48.0
Sulfate	mg/l	0.5	N/A	N/A	91.6	N/A	94.2	N/A	0.1
Dissolved Iron	ug/l	20.0	N/A	N/A	681.0	N/A	15100.0	N/A	828.0
Dissolved Copper	ug/l	0.5	N/A	N/A	0.5	N/A	10.1	N/A	1.2
Dissolved Zinc	ug/l	1.0	N/A	N/A	1.8	N/A	4.8	N/A	3.7

*W-7 is located upgradient and off-site in a wet area. The data collected from this well are used for background comparisons.

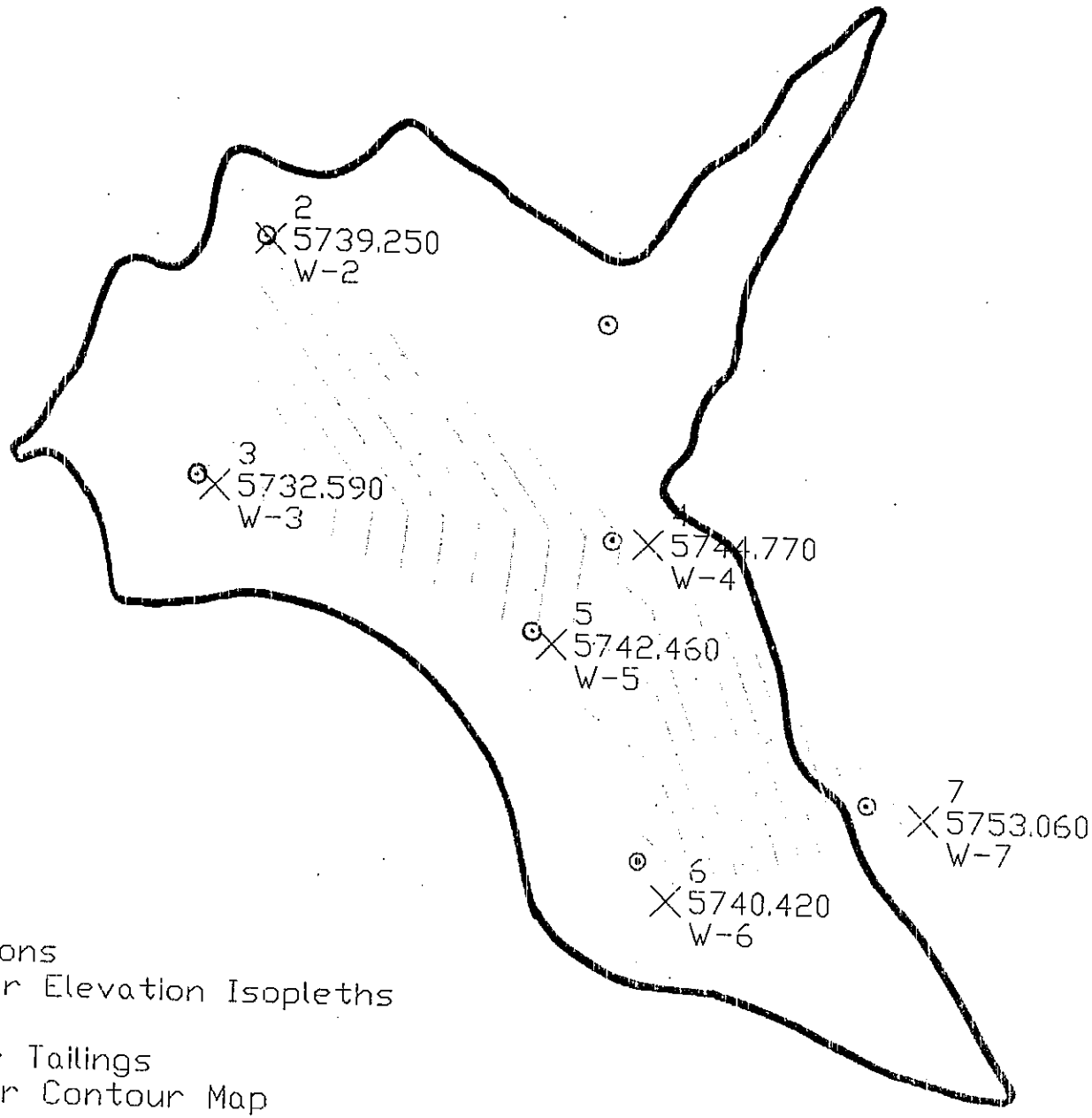
[1] ND is not detected at or above the detection limit

WALKER TAILINGS
GROUNDWATER MONITORING PROGRAM

FLUID LEVEL GAUGING

SITE LOCATION: Walker Mine DATE: 9/22/02
COMPANY NAME: Sierra Environmental
PERSONNEL: Flynn

WELL	TIME	DEPTH TO WATER	COMMENTS
W-1A	1114	10.39	
2	11.29	2.49	
3	1138	6.24	
4	1030	23.23	
5	0948	11.63	
6	1059	7.45	
7	0845	1.85	



Well Locations
Groundwater Elevation Isopleths

Walker Mine Tailings
Groundwater Contour Map

September 2009

Water-Quality Sampling Information

Project Number:

Project Name: Walker Mine Tailings

Project Location: Walker Mine

Site Conditions/Weather: Dry / Cool - Clear

Comments: Bailed Almost Dry -- Allow Recharge

Page 1 of 1

Date: 9/22/09

Day: M (T) W Th F S S

Staff: Flynn

SAMPLING METHOD

- [ ] Centrifugal Pump
- [ ] Submersible Pump
- [ ] Hand Bail
- [x] Disposable Bailer
- [ ] Teflon Bailer
- [ ] _____ (other)

Sample Number: W - 7

- [ ] FB:
- [ ] DUP:

Analysis Requested

Fe, Cu, Zn
Hard, Alk, SO4

Number and Types of Bottle Used

Method of shipment

Basic
(lab name)

- [x] Courier
- [ ] Hand Deliver

Well Number: W - 7
Depth of Water: 1.85
Well Depth: 11.00
Height of Water Column: 9.15
Volume in Well: (gallons) 1.46
3 Well Volumes: (gallons) 4.39

Well Diameter: 2"

- [x] 2" (0.16 gallon / feet)
- [ ] 4" (0.65 gallon/ feet)
- [ ] 5" (1.02 gallon/ feet)
- [ ] 6" (1.47 gallon/ feet)

Calculation Area

Height of water column =
Depth to water =

80% DTW

Time	Depth to Water	Volume Purged (gallons)	Totalizer Reading	Temperature °C	pH	Cond. ms/ cm	Turbidity (NTU)	Remarks
0855								Start Purge
0858		1.5		8.1	6.01	80	6.17	Low Tb / No odor
0903		3		7.5	5.51	55.6	24.2	" "
0908		4.5		7.4	5.37	55.2	74.5	Mod Tb / No odor
0928								Sample W - 7
								pH #s seem too low at end of purge

Water Depth:

Signed:

Date:

Water-Quality Sampling Information

Project Number:

Project Name: Walker Mine Tailings

Project Location: Walker Mine

Site Conditions/Weather: Dry / Warm / Clear - Breeze

Page 1 of 1

Date: 7/22/09

Day: M (T) W Th F S S

Staff: Eyano

Comments :

SAMPLING METHOD

- [ ] Centrifugal Pump
- [x] Submersible Pump 2" Grundfos
- [ ] Hand Bail
- [ ] Disposable Bailer
- [ ] Teflon Bailer
- [ ] (other)

Sample Number: W-5

- [ ] FB:
- [ ] DUP:

Analysis Requested

Fe, Cu, Zn, Hard, Alk, SO_4

Number and Types of Bottle Used

Method of shipment

Basic (lab name)

- [x] Courier
- [ ] Hand Deliver

Calculation Area

Height of water column =

Depth to water =

90% DTW

Well Number: W-5

Depth of Water: 11.63

Well Depth: 40.30

Height of Water Column: 28.67

Volume in Well: (gallons) 4.59

3 Well Volumes: (gallons) 13.76

Well Diameter: 2"

- [x] 2" (0.16 gallon / feet)
- [ ] 4" (0.65 gallon/ feet)
- [ ] 5" (1.02 gallon/ feet)
- [ ] 6" (1.47 gallon/ feet)

Time	Depth to Water	Volume Purged (gallons)	Totalizer Reading	Temperature °C	pH	Cond. ms/ cm	Turbidity (NTU)	Remarks
0958								Start Purge
1004		5		11.1	6.68	263	7.04	Low Tb / No odor
1011		10		10.5	6.69	257	2.37	" "
1018		15		10.1	6.72	253	1.82	" "
1021								Sample W-5

Filter Depth:

Signed:

Date:

Water-Quality Sampling Information

Project Number: _____

Project Name: Walker Mine Tailings

Project Location: Walker Mine

Site Conditions/Weather: Dry / Warm - Clear

Page 1 of 1

Date: 9/22/09

Day: M (T) W Th F S S

Staff: Flynn

Comments: _____

SAMPLING METHOD

- [ ] Centrifugal Pump
- [x] Submersible Pump 2" Grundfos
- [ ] Hand Bail
- [ ] Disposable Bailer
- [ ] Teflon Bailer
- [ ] _____ (other)

Sample Number: W-3

- [ ] FB: _____
- [ ] DUP: _____

Analysis Requested

Fe, Cu, Zn
Hard, Alk, SO_4

Number and Types of Bottle Used

Method of shipment

_____ (lab name)

- [ ] Courier
- [ ] Hand Deliver

Calculation Area

Height of water column =

Depth to water =

80% DTW _____

Well Number: W-3

Depth of Water: 6.24

Well Depth: 34.25

Height of Water Column: 28.01

Volume in Well: (gallons) 4.48

3 Well Volumes: (gallons) _____

Well Diameter: 2"

- [x] 2" (0.16 gallon / feet)
- [ ] 4" (0.65 gallon/ feet)
- [ ] 5" (1.02 gallon/ feet)
- [ ] 6" (1.47 gallon/ feet)

Time	Depth to Water	Volume Purged (gallons)	Totalizer Reading	Temperature °C	pH	Cond. ms/ cm	Turbidity (NTU)	Remarks
1144								Start Purge
1149		5		13.9	7.59	328	4.31	Low Tb / No odor
1155		10		12.7	7.65	309	2.21	" "
1205		15		12.8	7.86	306	1.67	" "
1216		20		12.7		308	1.85	" "
1221								Sample W-3

Inlet Depth:

Signed: _____

Date: _____

October 12, 2009

Lab ID: 9090985

RYAN NUPEN
USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971
RE: SURFACE & GROUND WATER TESTING WALKER MINE TAILINGS

Dear RYAN NUPEN ,

Enclosed are the analysis results for Work Order number 9090985. All analysis were performed under strict adherence to our established Quality Assurance Plan. Any abnormalities are listed in the qualifier section of this report.

If you have any questions regarding these results, please feel free to contact us at any time. We appreciate the opportunity to service your environmental testing needs.

Sincerely,

For

Ricky D. Jensen
Laboratory Director
California ELAP Certification Number 1677

basic

Report To: USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971

Attention: RYAN HUPEN

Project: SURFACE & GROUND WATER TESTING WALKER MINE TAILINGS

Lab No: [illegible]
Reported: [illegible]
Phone: (530) 283-[illegible]
P.O. #

General Chemistry

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batc
W7 Surface Water (9090985-01) Sampled:09/22/09 09:28 Received:09/25/09 11:34									
Hardness	mg/l	27		2	5	SM 2340C	10/07/09	10/07/09	B9J017
pH	pH Units	6.18	I-03	0.01	0.01	SM 4500H+B	09/25/09	09/25/09	B9I071
Alkalinity as CaCO3	mg/l	48		1	5	SM 2320B	09/30/09	09/30/09	B9I078
Bicarbonate	"	59		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	0.09	J	0.05	0.40	EPA 300.0	10/08/09	10/07/09	B9J017
W5 Surface Water (9090985-02) Sampled:09/22/09 10:21 Received:09/25/09 11:34									
Hardness	mg/l	136		10	25	SM 2340C	10/07/09	10/07/09	B9J017
Alkalinity as CaCO3	"	60		1	5	SM 2320B	09/30/09	09/30/09	B9I079
Bicarbonate	"	73		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	94.2		0.25	2.00	EPA 300.0	10/08/09	10/07/09	B9J0178
W3 Surface Water (9090985-03) Sampled:09/22/09 12:21 Received:09/25/09 11:34									
Hardness	mg/l	167		2	5	SM 2340C	10/07/09	10/07/09	B9J0179
Alkalinity as CaCO3	"	121		1	5	SM 2320B	09/30/09	09/30/09	B9I0784
Bicarbonate	"	148		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	91.6		0.25	2.00	EPA 300.0	10/08/09	10/07/09	B9J0178
R4 Surface Water (9090985-04) Sampled:09/22/09 13:00 Received:09/25/09 11:34									
Hardness	mg/l	82		2	5	SM 2340C	10/07/09	10/07/09	B9J0179
Alkalinity as CaCO3	"	84		1	5	SM 2320B	09/30/09	09/30/09	B9I0784
Bicarbonate	"	103		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	13.2		0.05	0.40	EPA 300.0	10/08/09	10/07/09	B9J0178
R3 Surface Water (9090985-05) Sampled:09/22/09 13:52 Received:09/25/09 11:34									
Hardness	mg/l	49		2	5	SM 2340C	10/07/09	10/07/09	B9J0179
Alkalinity as CaCO3	"	70		1	5	SM 2320B	09/30/09	09/30/09	B9I0784
Bicarbonate	"	85		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	ND		0.05	0.40	EPA 300.0	10/08/09	10/07/09	B9J0178
1 Surface Water (9090985-06) Sampled:09/22/09 14:33 Received:09/25/09 11:34									
Hardness	mg/l	64		2	5	SM 2340C	10/07/09	10/07/09	B9J0179
Alkalinity as CaCO3	"	82		1	5	SM 2320B	09/30/09	09/30/09	B9I0784
Bicarbonate	"	100		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	0.39	J	0.05	0.40	EPA 300.0	10/08/09	10/07/09	B9J0178
5 Surface Water (9090985-07) Sampled:09/22/09 15:07 Received:09/25/09 11:34									
Hardness	mg/l	87		2	5	SM 2340C	10/07/09	10/07/09	B9J0179
Alkalinity as CaCO3	"	84		1	5	SM 2320B	09/30/09	09/30/09	B9I0784
Bicarbonate	"	102		1	5	"	"	"	"
Carbonate	"	ND		1	5	"	"	"	"
Hydroxide	"	ND		1	5	"	"	"	"
Sulfate as SO4	"	13.5		0.05	0.40	EPA 300.0	10/08/09	10/07/09	B9J0178

Approved By

basic Laboratory, Inc.

California [illegible]

BSK

Report To: USDA FOREST SERVICE - PLUMAS NATL FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971
Attention: RYAN HUPEN
Project: SURFACE & GROUND WATER TESTING WALKER MINE TAILINGS

Lab No: 9090985
Reported: 10/13/09
Phone: (530) 283-7704
P.O. #

Metals - Total

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch
W7 Surface Water (9090985-01) Sampled:09/22/09 09:28 Received:09/25/09 11:34									
Copper	ug/l	1.2		0.1	0.5	EPA 200.8	10/07/09	09/29/09	B9I0742
Iron	"	828		3	10	"	"	"	"
Zinc	"	3.7		0.4	2.0	"	"	"	"
W5 Surface Water (9090985-02) Sampled:09/22/09 10:21 Received:09/25/09 11:34									
Copper	ug/l	10.1		0.1	0.5	EPA 200.8	10/07/09	09/29/09	B9I0742
Iron	"	13100		3	10	"	"	"	"
Zinc	"	4.8		0.4	2.0	"	"	"	"
W3 Surface Water (9090985-03) Sampled:09/22/09 12:21 Received:09/25/09 11:34									
Copper	ug/l	0.5		0.1	0.5	EPA 200.8	10/07/09	09/29/09	B9I0742
Iron	"	681		3	10	"	"	"	"
Zinc	"	1.8	J	0.4	2.0	"	"	"	"
R4 Surface Water (9090985-04) Sampled:09/22/09 13:00 Received:09/25/09 11:34									
Copper	ug/l	3.3		0.1	0.5	EPA 200.8	10/07/09	09/29/09	B9I0742
Iron	"	544		3	10	"	"	"	"
Zinc	"	1.8	J	0.4	2.0	"	"	"	"
R3 Surface Water (9090985-05) Sampled:09/22/09 13:52 Received:09/25/09 11:34									
Copper	ug/l	0.5		0.1	0.5	EPA 200.8	10/07/09	09/29/09	B9I0742
Iron	"	322		3	10	"	"	"	"
Zinc	"	1.6	J	0.4	2.0	"	"	"	"
R1 Surface Water (9090985-06) Sampled:09/22/09 14:33 Received:09/25/09 11:34									
Copper	ug/l	45.0		0.1	0.5	EPA 200.8	10/07/09	09/29/09	B9I0742
Iron	"	1560		3	10	"	"	"	"
Zinc	"	8.6		0.4	2.0	"	"	"	"
R5 Surface Water (9090985-07) Sampled:09/22/09 15:07 Received:09/25/09 11:34									
Copper	ug/l	3.5		0.1	0.5	EPA 200.8	10/07/09	09/29/09	B9I0742
Iron	"	479		3	10	"	"	"	"
Zinc	"	2.2		0.4	2.0	"	"	"	"

Approved By
BSK Laboratory, Inc.
[illegible]

basic

Report To: USDA FOREST SERVICE - PLUMAS NAT'L FOREST
POST OFFICE BOX 11500
QUINCY, CA 95971
Attention: RYAN NUPEN
Project: SURFACE & GROUND WATER TESTING WALKER MINE TAILINGS

Lab No
Reported:
Phone: (530) 283-7761
P.O. #

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag). The J flag is equivalent to the DHS Estimated Concentration flag.
H-03	Sample was received past the EPA recommended holding time.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the detection limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
<	Less than reporting limit
≤	Less than or equal to reporting limit
>	Greater than reporting limit
≥	Greater than or equal to reporting limit
MDL	Method Detection Limit
PQL/ML	Minimum Level of Quantitation
MCL/AL	Maxium Contaminant Level/Action Level
mg/kg	Results reported as wet weight
TTLC	Total Threshold Limit Concentration
STLC	Soluble Threshold Limit Concentration
TCLP	Toxicity Characteristic Leachate Procedure

roved By
c Laboratory, Inc.