SER

United States Department of Agriculture
Forest Service
Plumas National Forest
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(530) 283-2050 Voice
(530) 534-7984 Text (TDD)

Reviewed

File Code: 2540
Date: October 19, 2004

RECEIVED SACRAMENTO CVRWQCB 2004 OCT 29 PM 4:48

Mr. Steve Rosenbaum
California Regional Water Quality Control Board -
Central Valley Region
3443 Routier Road, Suite A
Sacramento, CA 95827-3003

Dear Mr. Rosenbaum:

Please find attached the results of surface and ground water monitoring performed by the U.S. Department of Agriculture, Forest Service, Plumas National Forest, at the Walker Mine Tailings in Plumas County. This report is for ground water samples collected May 21, 2004, and surface water samples collected May 24, 2004. All samples were transported to Henrici Water Laboratory near Quincy for analysis. The Henrici laboratory sent a portion of these samples to BC Laboratories in Bakersfield, California for metals analysis.

The 2001 Amended Record of Decision for the Walker Mine Tailings site provides for the diversion of Dolly Creek around the tailings material. A contract was awarded to Ecology and Environment, Inc., of San Francisco for the design of this diversion channel and the design work is now complete. Pending available funding, the Plumas National Forest hopes to implement construction of the diversion channel in summer 2005 or 2006. As in the past 4 years, two additional water-sampling events were conducted this past summer and the results will be reported to your office this fall. Additionally, the third installment of in-stream bio-assessment sampling has been completed and the macro invertebrate and periphyton analysis results will be available next spring. Negotiations with the Atlantic Richfield Company (ARCO), a Potentially Responsible Party, over remediation costs are still pending.

Please call Joe Hoffman of this office at (530) 283-7868 if you have questions.

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

Sincerely,

for JAMES M. PEÑA
Forest Supervisor

607530145

MONITORING REPORT

Discharger: USDA Forest Service, Plumas National Forest

Facility: Walker Mine Tailings, Plumas County

Reporting Frequency: Quarterly

Monitoring Period: May 2004

Findings:

(1) Surface water. Samples were collected on May 24, 2004. The surface water sample collected at the compliance station, R-5, Little Grizzly Creek near Brown's Cabin, remains in noncompliance with the limitation for copper, as highlighted in Table 1. Copper concentrations at R-1 and R-4 also exceeded limitations. Concentrations of zinc were detected in the all samples taken at sites 1 through 5, but none of these concentrations exceeded the limitation for zinc. The concentration of iron, highest at R-5, was within the limitation at all of the stations.

The surface water copper concentrations exhibit trends that are not consistent with results from the previous 13 years of sampling at these sites. The copper concentration was 380 ug/l at the compliance station, R-5; this is a higher concentration of copper than was observed in any of the 39 previous sampling events at this site (the previous high was 140 ug/l). This high concentration is not consistent with the low concentration in Dolly Creek just upstream of its confluence with Little Grizzly Creek (site R-2). Typically, this site exhibits the highest copper concentration of the 5 sampling sites due to the flow of Dolly Creek over the mine tailings. However, the copper concentration at R-2 for this event (2.8 ug/l) was measured to be the lowest of the 5 sampled sites and the lowest concentration measured at R-2 in the past 13 years.

Additionally, the copper concentration at R-5 typically represents a mixture of the high concentration associated with Dolly Creek's flow over the tailings (at R-2) and a much lower concentration found at R-4 in Little Grizzly Creek above its confluence with Dolly Creek. However, the R-2 and R-4 copper concentrations (2.8 and 42 ug/l, respectively) do not indicate that a mixture at R-5 of 380 ug/l would occur.

Since management practices at these sites did not change prior to this sampling event, it is our feeling that these curious and abnormal trends are not indicative of a significant change in water quality at the sites but are more a result of the inherent variability associated with metals concentrations measured in grab samples.

(2) Groundwater. Samples were collected on May 21, 2004. Table 2 summarizes the findings for groundwater samples collected from the site. Small concentrations of dissolved copper ($\leq$ 2.3 ug/l) were found in all three of the sampling wells (W-3, W-5, and W-7). Additionally, concentrations of dissolved zinc were found in all 3 wells, with a maximum zinc concentration of 62 ug/l at W-3. Dissolved iron was found in just one of the three wells with a measured concentration of 62 ug/l at W-3.

Groundwater elevations were measured in all seven wells installed at the site. Although measurements were taken at the same time last year, water levels were slightly lower at all wells, 2.07 feet lower in the case of W-4. The results show a definite gradient towards Little Grizzly Creek of approximately 0.9% along the Dolly Creek channel and approximately 1.3% 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 its course with 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

Henrici Water Laboratory Analysis Reports for surface water tests

Table 2. GROUND WATER SUMMARY

Map of the tailings area with the ground water monitoring sites

Map of tailings area with ground water elevations and flow direction

Water Level Data

Groundwater Monitoring, Water Sampling Field Data Sheet

Chain-Of-Custody record for ground water samples

Henrici Water Laboratory Analysis Reports for ground water tests

MAY 2004

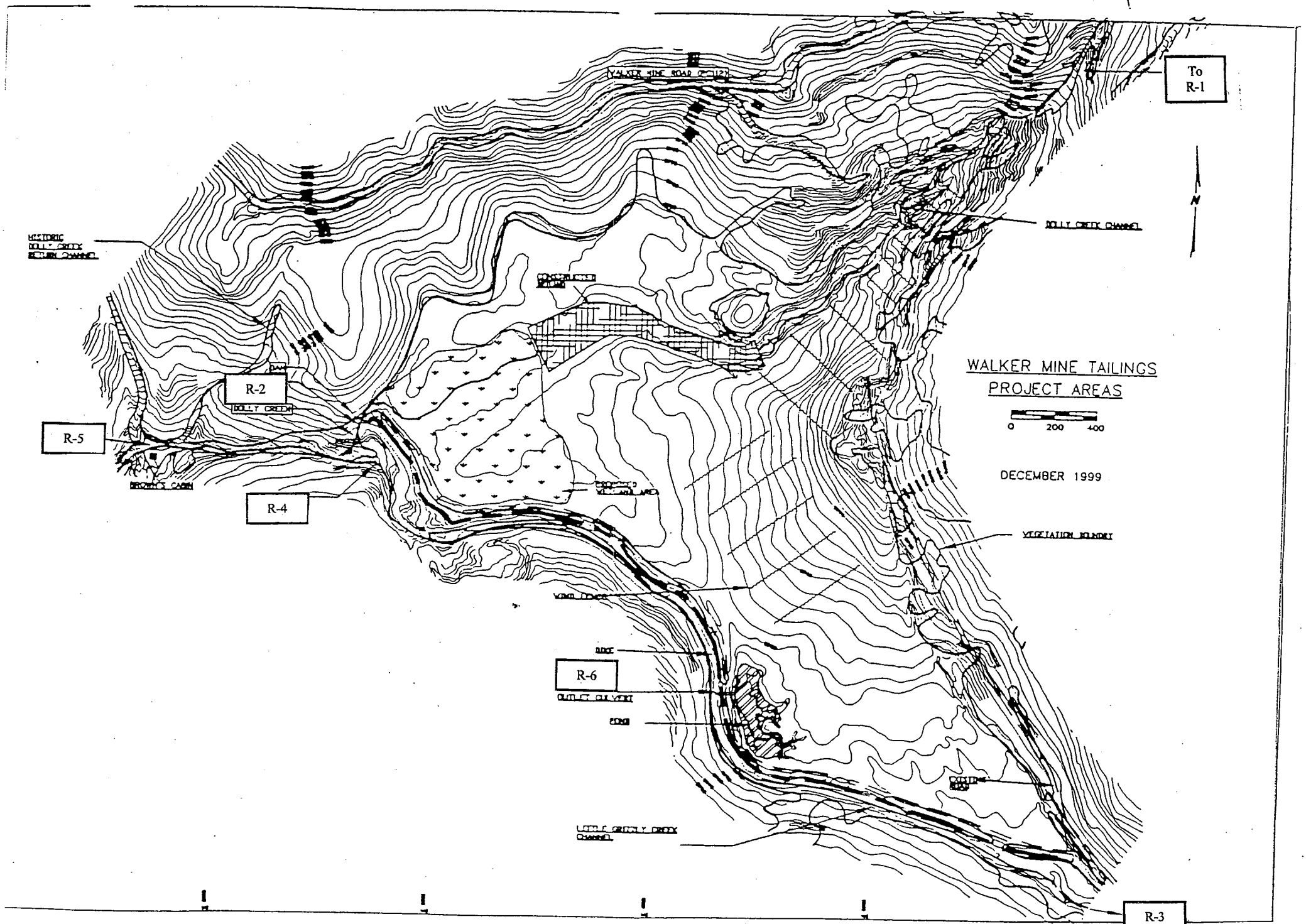
SURFACE WATER TEST RESULTS
AND
SUPPORTING DOCUMENTATION

Table 1. SURFACE WATER SUMMARY REPORT

MONITORING AND REPORTING PROGRAM NO. 5-00-028
U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE, PLUMAS NATIONAL FOREST
WALKER MINE TAILINGS, PLUMAS COUNTY
May 2004

CONSTITUENT	UNITS	DETECTION LIMITS	MONITORING STATIONS R-1	R-2	R-3[1]	R-4	R-5[2]	R-6	LIMITATION @ R-5[3]
Field Parameters									
Flow	cfs	N/A	1.37	1.29	8.95	11.92	13.39	0.00	N/A
pH	number	N/A	7.86	8.06	7.82	7.75	7.93	N/A	N/A
Specific Conductance	umhos/cm	N/A	72.8	100.4	44.3	45.2	46.3	N/A	N/A
Air Temperature	^{0}C	N/A	8.0	14.0	12.0	14.5	10.0	N/A	N/A
Water Temperature	^{0}C	N/A	6.1	15.6	8.0	9.0	6.4	N/A	N/A
Laboratory									
Turbidity	NTU	0.05	1.6	2.1	0.69	0.57	0.56	N/A	1.69
Total Hardness as CaCO3	mg/l	7	57	27	27	31	57	N/A	N/A
Total Alkalinity	mg/l	1	58	68	51	28	51	N/A	N/A
Sulfate	mg/l	0.5	ND	6.7	ND	ND	ND	N/A	N/A
Dissolved Copper	ug/l	1.0	28	2.8	3.4	42	380	N/A	5.5
Dissolved Iron	ug/l	50	170	150	110	210	630	N/A	1000
Dissolved Zinc	ug/l	2.0	8.4	29	5.6	6.2	27	N/A	73.4

[1] R-3 is the background station located above the tailings 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 57 mg/l as CaCO3.


WALKER MINE TAILINGS
PROJECT AREAS
0 200 400
DECEMBER 1999
To R-1
R-2
R-3
R-4
R-5
R-6
DOLLY CREEK CHANNEL
DOLLY CREEK
WALKER MINE ROAD
VEGETATION BOUNDRY
OUTLET CULVERT
POND
N

WALKER MINE TAILINGS MONITORING PROGRAM

9-275-1
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

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

Sta. No. R-1

Dolly Creek above Tailings @ Road 112

Date 5/24 2004 Party Flynn

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

Method 6/10 No. secs. _____ G. H. change _____ in _____ hrs. Susp. _____

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

Type of meter MMC

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 _____

GAGE READINGS

Time		Recorder	Inside	Outside
Weighted M. G. H.				
G. H. correction				
Correct M. G. H.				

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

Flow _____ Weather Clear/cool

Other _____ Air 8.0 °C @ 0928

Gage _____ Water 6.1 °C @ 0927

_____ Record removed _____ Intake flushed _____

Observer _____

Control _____

pH 7.86

CONDUCTANCE 72.8 umhos/cm

G. H. of zero flow _____ ft.

Sample @ 0925

River at

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	0.5										
	1.0		0.1				0				
	1.5		0.15				0				
	2.0		0.2				.30				
	2.5		0.35				.34				
	3.0		0.4				1.27				
	3.5		0.5				1.75				
	4.0		0.45				2.19				
	4.5		0.2				.94				
	5.0		0.1				0				
RB	5.6										

WALKER MINE TAILINGS MONITORING PROGRAM

9-275-P
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

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

Sta. No. R-2
Dolly Creek below Tailings Dam

Date 5/24 2004 Party Flynn

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

Method 6/10 No. secs. _____ G. H. change _____ in _____ hrs. Susp. _____

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

Type of meter MMC

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 _____

GAGE READINGS

Time		Recorder	Inside	Outside
Weighted M. G. H.				
G. H. correction				
Correct M. G. H.				

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

Flow _____ Weather Cool / Partly Cloudy

Other _____ Air 14.0 °C @ 1151

Gage _____ Water 15.6 °C @ 1152

_____ Record removed _____ Intake flushed _____

Observer _____

Control _____

pH 8.06

CONDUCTANCE 100.4 umhos/cm

G. H. of zero flow _____ ft.

Samples @ 1150

River at—

Angle coefficient	Dist. from initial point	Width	Depth	Description depth	Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	Adjusted for hor. angle or _____	Area	Discharge
LB	0.3										
	.5		.2				0				
	1		.3				.17				
	1.5		.35				.19				
	2		.25				.60				
	2.5		.5				1.06				
	3		.85				.77				
	3.5		.85				.46				
	4		.85				.71				
	4.5		.7				.17				
RB	5.1										

WALKER MINE TAILINGS MONITORING PROGRAM

9-275-1
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

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

Sta. No. R-3

Little Grizzly Creek above Tailings

Date 5/24 2004 Party Flynn

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

Method 6/10 No. secs. _____ G. H. change _____ in _____ hrs. Susp. _____

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

GAGE READINGS				
Time		Recorder	Inside	Outside
Weighted M. G. H.				
G. H. correction				
Correct M. G. H.				

Type of meter AMC

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 _____

Flow _____ Weather Cool / Clear

Other _____ Air 12.0 °C @ 1058

Gage _____ Water 8.0 °C @ 1100

_____ Record removed _____ Intake flushed _____

Observer _____

Control _____

pH 7.82

CONDUCTANCE 44.3 umhos/cm

G. H. of zero flow _____ ft.

Samples @ 1057

River at—

	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	1.5										
		2		.2				0				
		2.5		.2				0				
		3		.25				0				
		3.5		.4				0				
		4		.45				0				
		4.5		.5				.01				
		5		.65				0				
		5.5		.7				.04				
		6		.85				.18				
		6.5		1.05				1.29				
		7		1.2				1.22				
		7.5		1.2				1.79				
		8		1.3				1.96				
	o	8.5		1.35				2.26				
		9		1.4				2.62				
		9.5		1.5				1.30				
		10		1.0				.96				
		10.5		.5				.57				
		11		.5				.42				
		11.5		.2				.39				
	RB	11.9										

WALKER MINE TAILINGS MONITORING PROGRAM

9-275-P
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

Meas. No. _____

Comp. by _____

DISCHARGE MEASUREMENT NOTES

Checked by _____

Sta. No. R-4

Little Grizzly Creek below Tailings

Date 5/24 2004 Party Flynn

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

Method 6/10 No. secs. _____ G. H. change _____ in _____ hrs. Susp. _____

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

GAGE READINGS				
Time		Recorder	Inside	Outside
Weighted M. G. H.				
G. H. correction				
Correct M. 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%), good (5%), fair (8%), poor (over 8%), based on following conditions: Cross section _____

Flow _____ Weather Warm/Pt Cloudy

Other _____ Air 14.5 °C @ 1217

Cage _____ Water 9.0 °C @ 1216

_____ Record removed _____ Intake flushed _____

Observer _____

Control _____

pH 7.75

CONDUCTANCE 45.2 umhos/cm

G. H. of zero flow _____ ft.

Samples @ 1215

River at

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	1.3										
	1.5		.1				0				
	2		.15				0				
	2.5		.3				0				
	3		.7				0				
	3.5		1.0				0				
	4		1.2				.25				
	4.5		1.2				.34				
	5		1.3				.42				
	5.5		1.5				.59				
	6		1.4				1.04				
	6.5		1.5				1.26				
	7		1.4				1.40				
	7.5		1.6				1.55				
⊙	8		1.55				2.00				
	8.5		1.5				1.47				
	9		1.4				1.26				
	9.5		1.3				1.37				
	10		1.1				1.33				
	10.5		1.2				.93				
	11		1.15				.85				
	11.5		.9				.66				
	12		.9				.60				
	12.5		.8				.44				
	13		.7				.03				
	13.5		.6				.01				
RB	14										

WALKER MINE TAILINGS MONITORING PROGRAM

9-275-P
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

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

Sta. No. R-5

Little Grizzly Creek @ Brown's Cabin

Date 5/24 2004 Party Flynn

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

Method 6/10 No. secs. _____ G. H. change _____ in _____ hrs. Susp. _____

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

GAGE READINGS

Time		Recorder	Inside	Outside
Weighted M. G. H.				
G. H. correction				
Correct M. G. H.				

Type of meter MMC

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 _____

Flow _____ Weather Clear/Cool

Other _____ Air 10.0 °C @ 1011

Gage _____ Water 6.4 °C @ 1012

_____ Record removed _____ Intake flushed _____

Observer _____

Control _____

pH 7.93

CONDUCTANCE 46.3 umhos/cm

G. H. of zero flow _____ ft.

Samples @ 1010

River at—

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	.6										
	1		.1				0				
	1.5		.2				.19				
	2		.3				.06				
	2.5		.3				.14				
	3		.5				.60				
	3.5		.75				1.64				
	4		.8				1.37				
	4.5		.75				2.18				
	5		.75				2.24				
	5.5		.8				2.36				
	6		.9				2.68				
	6.5		1.15				2.01				
	7		1.3				2.14				
⊙	7.5		1.25				2.37				
	8		1.0				2.03				
	8.5		1.1				1.54				
	9		1.0				.77				
	9.5		1.0				1.30				
	10		.55				1.65				
	10.5		.6				1.22				
	11		.6				1.02				
	11.5		.5				.49				
	12.0		.3				.39				
RB	12.3										

WALKER MINE TAILINGS MONITORING PROGRAM

9-275-r
(May 1971)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WATER RESOURCES DIVISION

DISCHARGE MEASUREMENT NOTES

Meas. No. _____

Comp. by _____

Checked by _____

Sta. No. R-6

Sediment Basin Outlet

Date 5/24 2004 Party Flynn

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

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

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

GAGE READINGS				
Time		Recorder	Inside	Outside
Weighted M. G. H.				
G. H. correction				
Correct M. 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%), good (5%), fair (8%), poor (over 8%), based on following conditions: Cross section _____

Flow No Flow Weather Warm / Pt Cloudy

Other _____ Air _____ °C@ _____

Gage _____ Water _____ °C@ _____

_____ Record removed _____ Intake flushed _____

Observer _____

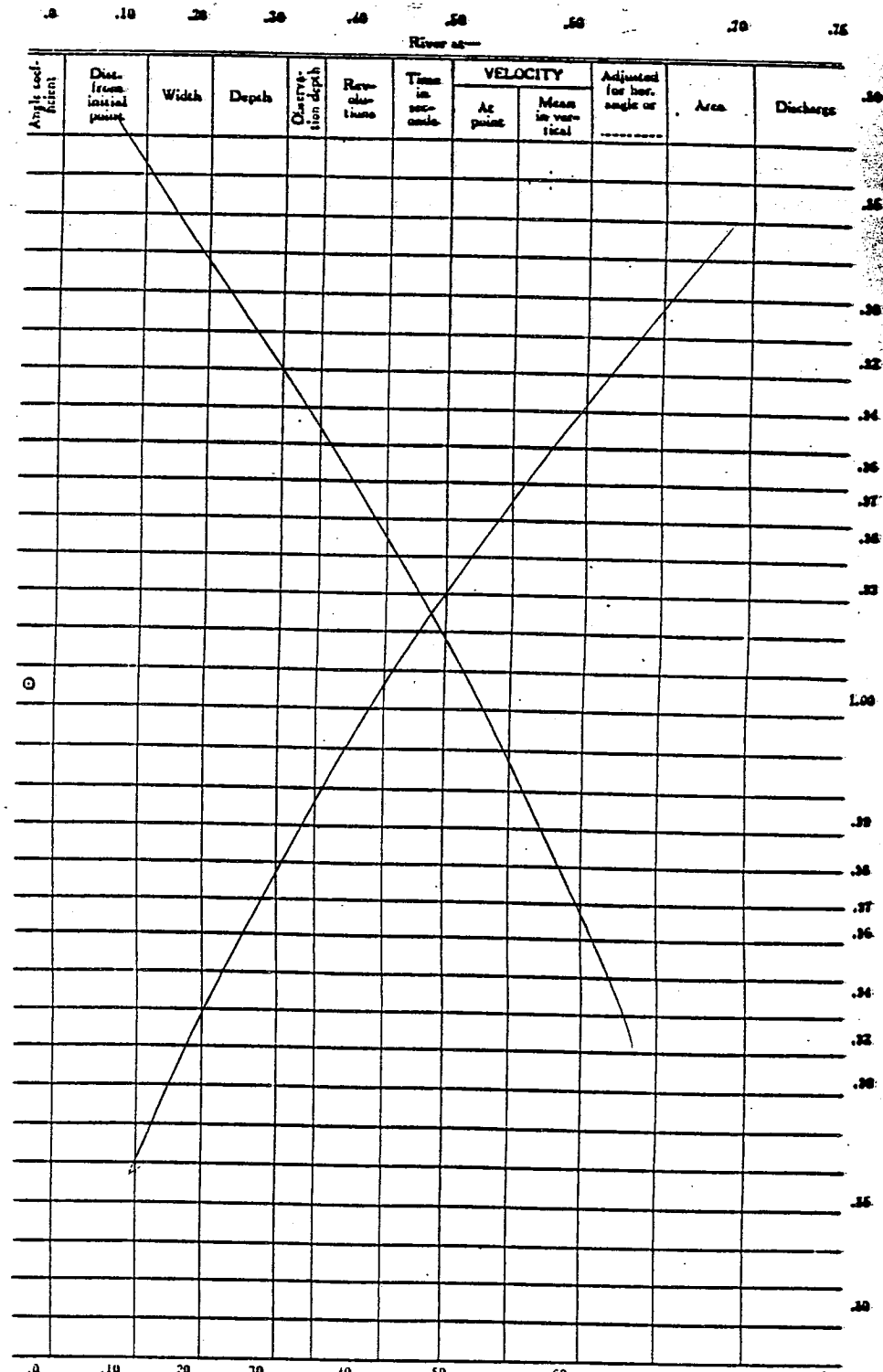
Control _____

pH _____

CONDUCTANCE _____ umhos/cm

G. H. of zero flow _____ ft.

No Sample (No Flow)



Henrici Water Laboratory Chain of Custody

Purveyor: USFS Plumas Nat Forest
159 Lawrence St.
Quincy CA 95971
Attn Joe Hoffman 530 283 2050

Sampler's Signature: [signature]

Type of Analyses

I.D. No.	Date	Time	Location	No. of Containers	Turbidity (NTU)	Hardness as $CaCO_3$	Alkalinity as $CaCO_3$	Sulfate	Copper (Dissolved)	Iron (Dissolved)	Zinc (Dissolved)	Remarks
	5/24	0925	R-1	1	X	X	X	X	X	X	X	
		1010	R-5	1	X	X	X	X	X	X	X	
		1057	R-3	1	X	X	X	X	X	X	X	
		1150	R-2	1	X	X	X	X	X	X	X	
		1215	R-4	1	X	X	X	X	X	X	X	

Relinquished By	Date	Time	Received By
[signature]	5/24/04	1430	R S Henrici

1832 Butterfly Valley Road, Quincy, CA 95971 Telephone & Fax (530) 281-6588

HENRICI WATER LABORATORY
1832 BUTTERFLY VALLEY ROAD, QUINCY, CALIFORNIA 95971
PHONE (530) 281-6588

Plumas National Forest
Supervisor's Office
P.O. Box 11500
Quincy, CA 95971

Account: 11616
Date: 07/30/04
Page: 1

ANALYSIS REPORT

Laboratory Number: C36418 Date Received: 05/24/04
Location: Walker Mine R-1
Date of Collection : 05/24/04 Time: 0925 Collector: Flynn

Hardness, Dissolved Copper, Dissolved Iron and Dissolved Zinc analysis by B.C. Laboratories, Bakersfield, CA.

Analysis	Date of Analysis	Method	Detection Limits	Results	Units
Total Hardness	07/26/04	SM 2340 B	7	57	mg/L
Total Alkalinity	05/25/04	SM 2320 B	1	58	mg/L
Sulfate	05/28/04	SM 375.4	0.5	<0.5	mg/L
Turbidity	05/24/04	SM 2130B	0.05	1.6	NTU
Dissolved Iron	07/26/04	EPA 6010	50	170	ug/L
Dissolved Copper	07/29/04	EPA 200.8	1.0	28	ug/L
Dissolved Zinc	07/29/04	EPA 200.8	2.0	8.4	ug/L

These results were obtained by following standard laboratory procedures: the liability of the laboratory shall not exceed the amount paid for this report.

DMH
Dawn M. Henton
Laboratory Director

HENRICI WATER LABORATORY
1832 BUTTERFLY VALLEY ROAD, QUINCY, CALIFORNIA 95971
PHONE (530) 281-6588

Plumas National Forest
Supervisor's Office
P.O. Box 11500
Quincy, CA 95971

Account: 11616
Date: 07/30/04
Page: 1

ANALYSIS REPORT

Laboratory Number: C36419 Date Received: 05/24/04
Location: Walker Mine R-2
Date of Collection : 05/24/04 Time: 1150 Collector: Flynn

Hardness, Dissolved Copper, Dissolved Iron and Dissolved Zinc analysis by B.C. Laboratories, Bakersfield, CA.

Analysis	Date of Analysis	Method	Detection Limits	Results	Units
Total Hardness	07/27/04	SM 2340 B	7	27	mg/L
Total Alkalinity	05/25/04	SM 2320 B	1	68	mg/L
Sulfate	05/28/04	SM 375.4	0.5	6.7	mg/L
Turbidity	05/24/04	SM 2130B	0.05	2.1	NTU
Dissolved Iron	07/27/04	EPA 6010	50	150	ug/L
Dissolved Copper	07/29/04	EPA 200.8	1.0	2.8	ug/L
Dissolved Zinc	07/29/04	EPA 200.8	2.0	29	ug/L

These results were obtained by following standard laboratory procedures: the liability of the laboratory shall not exceed the amount paid for this report.

pmd
Dawn M. Henton
Laboratory Director

HENRICI WATER LABORATORY
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PHONE (530) 281-6588

Plumas National Forest
Supervisor's Office
P.O. Box 11500
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Account: 11616
Date: 07/30/04
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ANALYSIS REPORT

Laboratory Number: C36420 Date Received: 05/24/04
Location: Walker Mine R-3
Date of Collection : 05/24/04 Time: 1057 Collector: Flynn

Hardness, Dissolved Copper, Dissolved Iron and Dissolved Zinc analysis by B.C. Laboratories, Bakersfield, CA.

Analysis	Date of Analysis	Method	Detection Limits	Results	Units
Total Hardness	07/26/04	SM 2340 B	7	27	mg/L
Total Alkalinity	05/25/04	SM 2320 B	1	51	mg/L
Sulfate	05/28/04	SM 375.4	0.5	<0.5	mg/L
Turbidity	05/24/04	SM 2130B	0.05	0.69	NTU
Dissolved Iron	07/26/04	EPA 6010	50	110	ug/L
Dissolved Copper	07/29/04	EPA 200.8	1.0	3.4	ug/L
Dissolved Zinc	07/29/04	EPA 200.8	2.0	5.6	ug/L

These results were obtained by following standard laboratory procedures: the liability of the laboratory shall not exceed the amount paid for this report.

Dawn M. Henton
Laboratory Director

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ANALYSIS REPORT

Laboratory Number: C36421 Date Received: 05/24/04
Location: Walker Mine R-4
Date of Collection : 05/24/04 Time: 1215 Collector: Flynn

Hardness, Dissolved Copper, Dissolved Iron and Dissolved Zinc analysis by B.C. Laboratories, Bakersfield, CA.

Analysis	Date of Analysis	Method	Detection Limits	Results	Units
Total Hardness	07/27/04	SM 2340 B	7	31	mg/L
Total Alkalinity	05/25/04	SM 2320 B	1	28	mg/L
Sulfate	05/28/04	SM 375.4	0.5	<0.5	mg/L
Turbidity	05/24/04	SM 2130B	0.05	0.57	NTU
Dissolved Iron	07/27/04	EPA 6010	50	210	ug/L
Dissolved Copper	07/29/04	EPA 200.8	1.0	42	ug/L
Dissolved Zinc	07/29/04	EPA 200.8	2.0	6.2	ug/L

These results were obtained by following standard laboratory procedures: the liability of the laboratory shall not exceed the amount paid for this report.

DMH
Dawn M. Henton
Laboratory Director

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ANALYSIS REPORT

Laboratory Number: C36422 Date Received: 05/24/04
Location: Walker Mine R-5
Date of Collection : 05/24/04 Time: 1010 Collector: Flynn

Hardness, Dissolved Copper, Dissolved Iron and Dissolved Zinc analysis by B.C. Laboratories, Bakersfield, CA.

Analysis	Date of Analysis	Method	Detection Limits	Results	Units
Total Hardness	07/26/04	SM 2340 B	7	57	mg/L
Total Alkalinity	05/25/04	SM 2320 B	1	51	mg/L
Sulfate	05/28/04	SM 375.4	0.5	<0.5	mg/L
Turbidity	05/24/04	SM 2130B	0.05	0.56	NTU
Dissolved Iron	07/26/04	EPA 6010	50	630	ug/L
Dissolved Copper	07/29/04	EPA 200.8	1.0	380	ug/L
Dissolved Zinc	07/29/04	EPA 200.8	2.0	27	ug/L

These results were obtained by following standard laboratory procedures: the liability of the laboratory shall not exceed the amount paid for this report.

Dawn M. Henton
Laboratory Director

MAY 2004

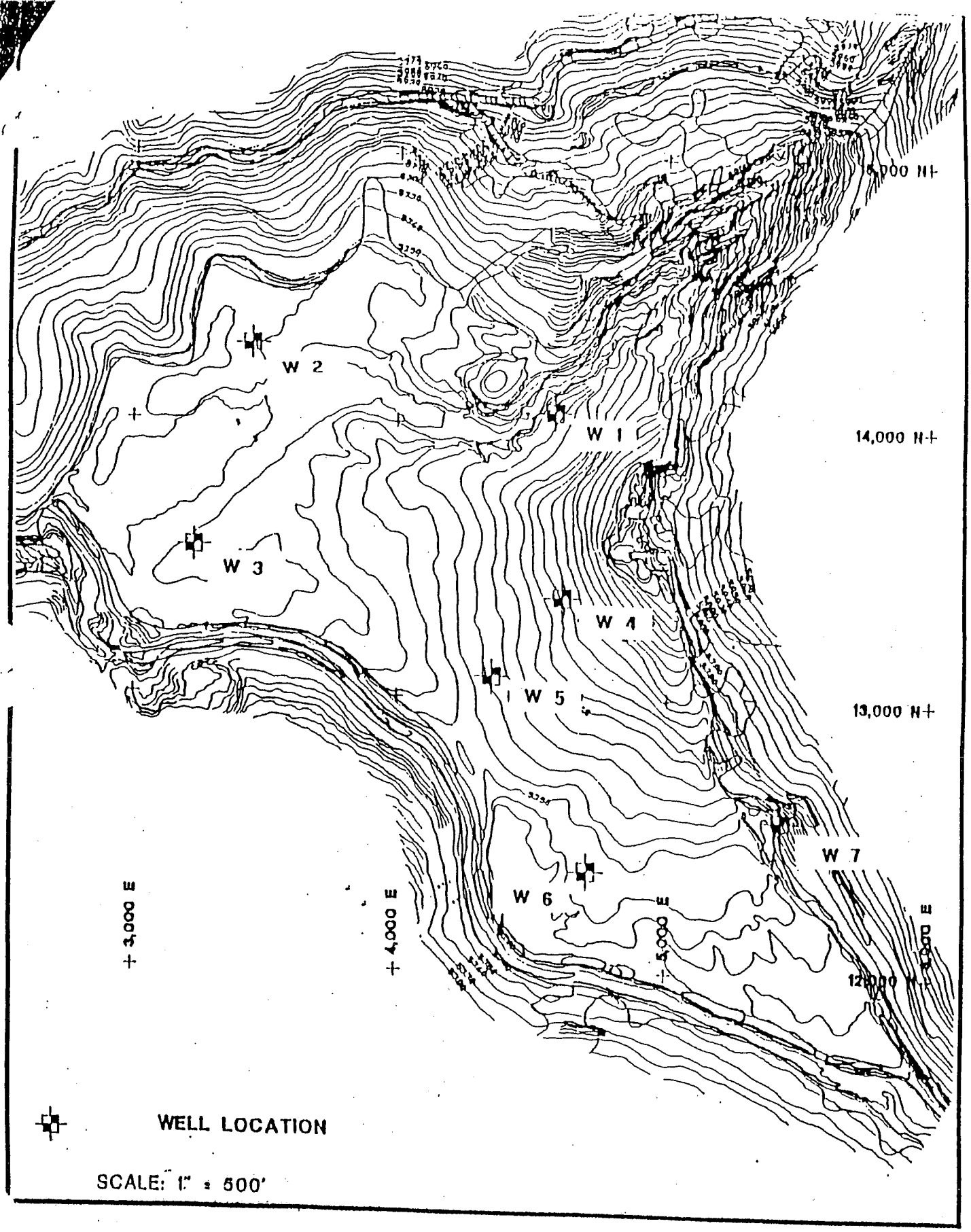
GROUND WATER TEST RESULTS
AND
SUPPORTING DOCUMENTATION

Table 2. GROUND WATER SUMMARY

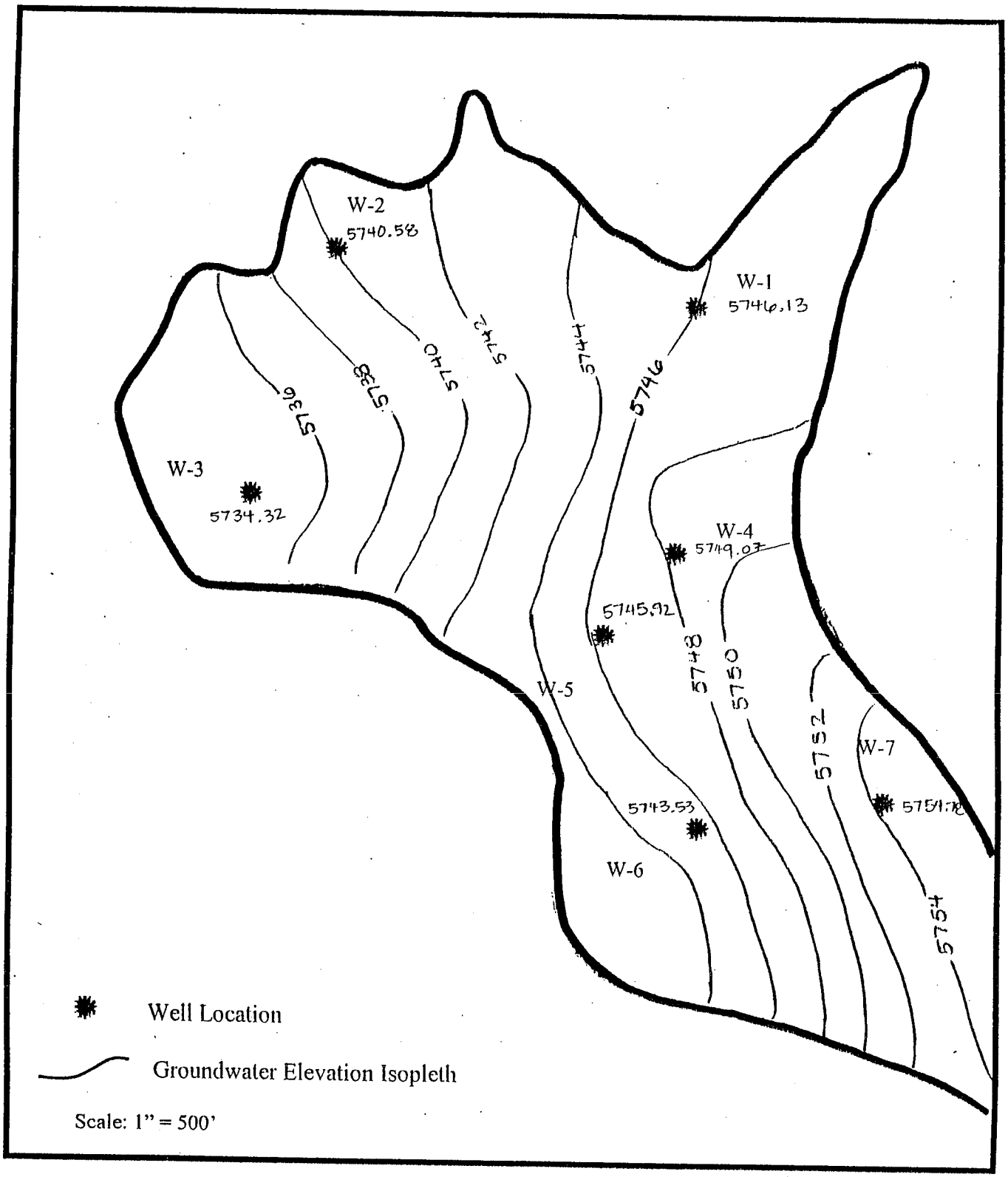
MONITORING AND REPORTING PROGRAM NO. 5-00-028
U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE, PLUMAS NATIONAL FOREST
WALKER MINE TAILINGS, PLUMAS COUNTY
May 2004

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	5759.50	5742.05	5739.15	5768.27	5754.28	5748.04	5753.85
Top of Cap Elevation	ft	0.01	5759.24	5741.74	5738.83	5768.00	5754.09	5747.87	5754.91
Depth to Water	ft	0.01	13.11	1.16	4.51	18.93	8.17	4.34	0.13
Water Surface Elevation	ft	0.01	5746.13	5740.58	5734.32	5749.07	5745.92	5743.53	5754.78
Laboratory									
Total Hardness as CaCO3	mg/l	7	N/A	N/A	199	N/A	196	N/A	34
Total Alkalinity	mg/l	1	N/A	N/A	90	N/A	64	N/A	37
Sulfate	mg/l	0.5	N/A	N/A	102.6	N/A	165.6	N/A	1.5
Dissolved Copper	ug/l	1.0	N/A	N/A	1.5	N/A	1.2	N/A	2.3
Dissolved Iron	ug/l	50	N/A	N/A	62	N/A	ND	N/A	ND
Dissolved Zinc	ug/l	2.0	N/A	N/A	62	N/A	5.4	N/A	9.0

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



WALKER MINE TAILINGS



Walker Mine Tailings
Groundwater Contour Map
May 2004

WALKER MINE GROUNDWATER MONITORING PROGRAM
FLUID LEVEL GAUGING

SITE LOCATION: Walker Mine Tailings DATE: 5/21/04
COMPANY NAME: USFS
PERSONNEL: P Flynn

WELL	TIME	DEPTH TO WATER	COMMENTS
W-1	1113	13.11	
2	0927	1.16'	
3	0940	4.51	
4	1147	18.93	
5	1321	8.17	
6	1305	4.34	
7	1207	0.13	

Note: Rain off and on during event

Water-Quality Sampling Information

Project Number: 5-00-028

Page 1 of 1

Project Name: Walker Mine Tailings

Date: 5/21/04

Project Location: Walker Mine

Day: M T W Th (F) S S

Site Conditions/Weather: Cloudy / Cool

Staff: ?Flynn

Comments :

SAMPLING METHOD

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

Sample Number: W-3

- [ ] FB:
- [ ] DUP:

Analysis Requested

Hard / Alk
SO4 / Cu / Zn / Fe

Number and Types of Bottle Used

1 — 0.5 gal plastic

Calculation Area

Height of water column =
Depth to water =

80% DTW

Method of shipment

Henrici
(lab name)

- [ ] Courier
- [x] Hand Deliver

Well Number: W-3
Depth of Water: 4.51
Well Depth: 34.25
Height of Water Column: 29.74
Volume in Well: (gallons) 4.76
3 Well Volumes: (gallons) 14.28

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
0943								Start Purge
1003		5		10.4	7.60	296	2.72	Low Tb / No odor
1025		10		9.6	7.92	283	1.94	" "
1044		15		9.5	7.97	282	2.53	" "
								Allow Recharge
1130								Sample W-3

Inlet Depth:

Signed: _____ Date: _____

Water-Quality Sampling Information

Project Number: _____ Page 1 of 1

Project Name: Walker Mine Tailings Date: 5/21/04

Project Location: Walker Mine Day: M T W Th (F) S S

Site Conditions/Weather: Cool/Cloudy Staff: PFlynn

Comments : _____

SAMPLING METHOD

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

Sample Number: W-5

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

Analysis Requested

Hard / Alk
SO4/Cu/Zn/Fe

Number and Types of Bottle Used

1 - 0.5 gal Plastic

Calculation Area

Height of water column =
Depth to water =

80% DTW _____

Method of shipment

Henrici
(lab name)

- [ ] Courier
- [x] Hand Deliver

Well Number: W-5
Depth of Water: 8.17
Well Depth: 40.3
Height of Water Column: 32.13
Volume in Well: (gallons) 5.14
3 Well Volumes: (gallons) 15.42

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
1324								Start Purge
1334		5		8.9	6.66	360	20.5	Low Tb / No odor
1344		10		8.4	6.98	358	5.8	" "
1354		15		8.4	6.98	358	5.7	" "
1410								Sample W-5

Inlet Depth: _____

_____ Signed: _____ Date: _____

Water-Quality Sampling Information

Project Number: 5-00-028

Page 1 of 1

Project Name: Walker Mine tailings

Date: 5-21-04

Project Location: Walker Mine

Day: M T W Th (F) S S

Site Conditions/Weather: Cloudy / Cool

Staff: P Flynn

Comments :

SAMPLING METHOD

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

Sample Number: W-7

- [ ] FB:
- [ ] DUP:

Analysis Requested

Hard / Alk
SO4 / Cu / Zn / Fe

Number and Types of Bottle Used

1 - 0.5 gal Plastic

Calculation Area

Height of water column =
Depth to water =

80% DTW

Method of shipment

Henrici
(lab name)

- [ ] Courier
- [x] Hand Deliver

Well Number: W-7
Depth of Water: 0.13
Well Depth: 11.00
Height of Water Column: 10.87
Volume in Well: (gallons)
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
1211								Start Purge
1214		2		8.8	6.15	62	4.94	Low Tb / No odor
1218		4		6.7	6.15	57	4.83	" "
1225		6		6.2	6.15	56	22.4	" "
								Allow Recharge
1250								Sample W-7

Inlet Depth:

Signed: Date:

Hearici Water Laboratory Chain of Custody Walker Tailings (Ground Waters) proj # 5-00-028

Purveyor: USFS Plumas National Forest
159 Lawrence St.
Quincy, CA 95971
Attn: Joe Hoffman 530 283 2050

Sampler's Signature: [signature]

Type of Analyses

I.D. No.	Date	Time	Location	No. of Containers	Hardness as $CaCO_3$	Alkalinity as $CaCO_3$	Sulfate	Copper (Dissolved)	Iron (Dissolved)	Zinc (Dissolved)	Remarks
	5/21	1130	W-3	1	X	X	X	X	X	X	Detection Limits
	5/21	1250	W-7	1	X	X	X	X	X	X	Cu: 1 ug/L
	5/21	1410	W-5	1	X	X	X	X	X	X	Zn: 2 ug/L
											Fe: 50 ug/L
											Walker Tailings
											Ground Water
											Proj # 5-00-028

Relinquished By	Date	Time	Received By
[signature]	5/21/04	1700	Dawn M Henton

1832 Butterfly Valley Road, Quincy, CA 95971 Telephone & Fax (530) 281-6588

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Date: 07/30/04
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ANALYSIS REPORT

Laboratory Number: C36408 Date Received: 05/21/04
Location: Walker Mine W-3
Date of Collection : 05/21/04 Time: 1130 Collector: Flynn

Hardness, Dissolved Copper, Dissolved Iron and Dissolved Zinc analysis by B.C. Laboratories, Bakersfield, CA.

Analysis	Date of Analysis	Method	Detection Limits	Results	Units
Total Hardness	07/26/04	SM 2340 B	7	199	mg/L
Total Alkalinity	05/22/04	SM 2320 B	1	90	mg/L
Sulfate	05/28/04	SM 375.4	0.5	102.6	mg/L
Dissolved Iron	07/26/04	EPA 6010	50	62	ug/L
Dissolved Copper	07/29/04	EPA 200.8	1.0	1.5	ug/L
Dissolved Zinc	07/29/04	EPA 200.8	2.0	62	ug/L

These results were obtained by following standard laboratory procedures: the liability of the laboratory shall not exceed the amount paid for this report.

DMH
Dawn M. Henton
Laboratory Director

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Date: 07/30/04
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ANALYSIS REPORT

Laboratory Number: C36409 Date Received: 05/21/04
Location: Walker Mine W-5
Date of Collection : 05/21/04 Time: 1410 Collector: Flynn

Hardness, Dissolved Copper, Dissolved Iron and Dissolved Zinc analysis by B.C. Laboratories, Bakersfield, CA.

Analysis	Date of Analysis	Method	Detection Limits	Results	Units
Total Hardness	07/26/04	SM 2340 B	7	196	mg/L
Total Alkalinity	05/22/04	SM 2320 B	1	64	mg/L
Sulfate	05/28/04	SM 375.4	0.5	165.6	mg/L
Dissolved Iron	07/26/04	EPA 6010	50	<50	ug/L
Dissolved Copper	07/29/04	EPA 200.8	1.0	1.2	ug/L
Dissolved Zinc	07/29/04	EPA 200.8	2.0	5.4	ug/L

These results were obtained by following standard laboratory procedures: the liability of the laboratory shall not exceed the amount paid for this report.

DMH
Dawn M. Henton
Laboratory Director

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ANALYSIS REPORT

Laboratory Number: C36410 Date Received: 05/21/04
Location: Walker Mine W-7
Date of Collection : 05/21/04 Time: 1250 Collector: Flynn

Hardness, Dissolved Copper, Dissolved Iron and Dissolved Zinc analysis by B.C. Laboratories, Bakersfield, CA.

Analysis	Date of Analysis	Method	Detection Limits	Results	Units
Total Hardness	07/26/04	SM 2340 B	7	34	mg/L
Total Alkalinity	05/22/04	SM 2320 B	1	37	mg/L
Sulfate	05/28/04	SM 375.4	0.5	1.5	mg/L
Dissolved Iron	07/26/04	EPA 6010	50	<50	ug/L
Dissolved Copper	07/29/04	EPA 200.8	1.0	2.3	ug/L
Dissolved Zinc	07/29/04	EPA 200.8	2.0	9.0	ug/L

These results were obtained by following standard laboratory procedures: the liability of the laboratory shall not exceed the amount paid for this report.

DMH
Dawn M. Henton
Laboratory Director