SDMS Document ID
2001394

AMERICAN FORK CANYON WATERSHED RECLAMATION PROJECT

PROJECT LOCATION MAP

End Species Bonneville Cutthroat May be in AF Habitat for Spotted Frog?

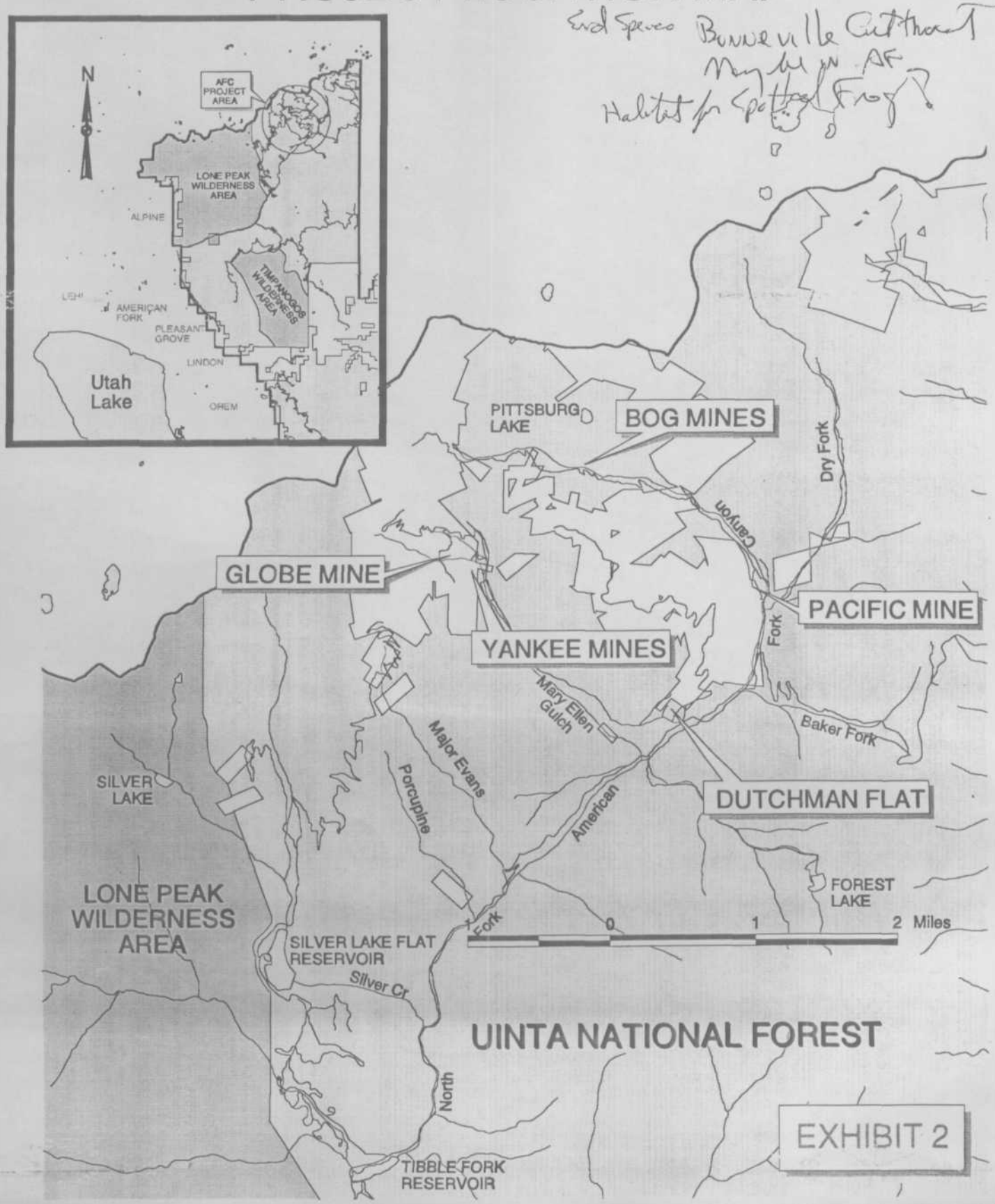
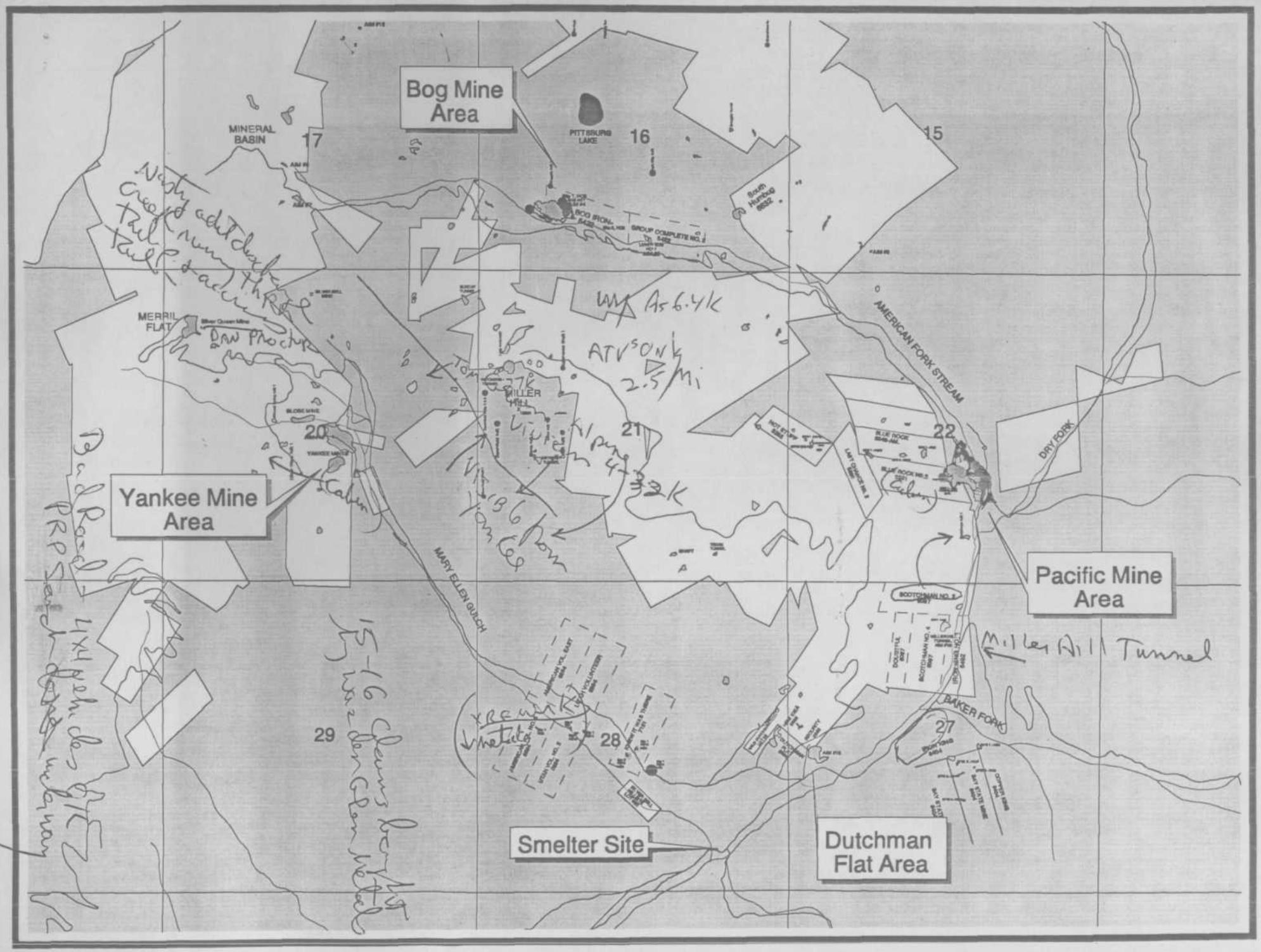
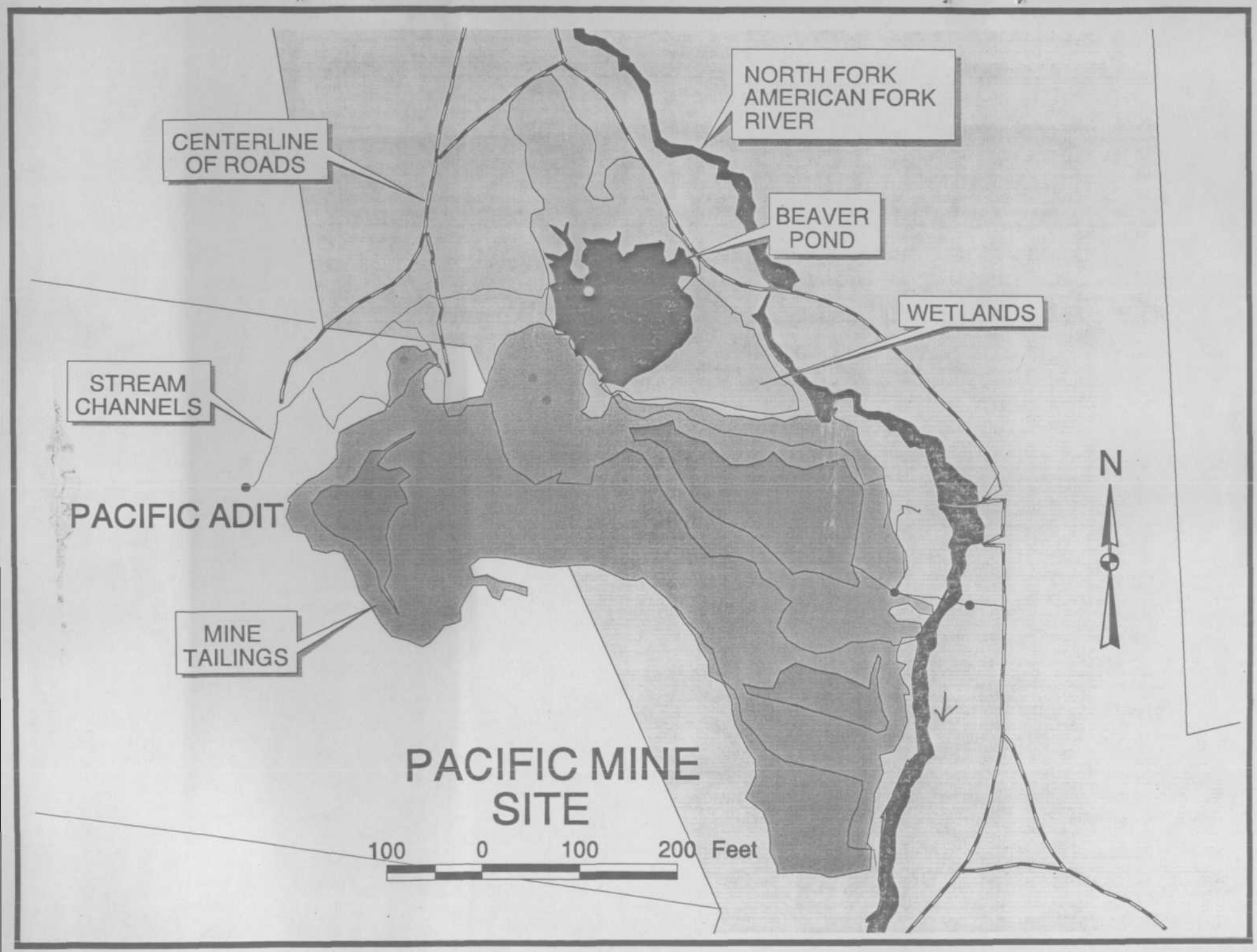
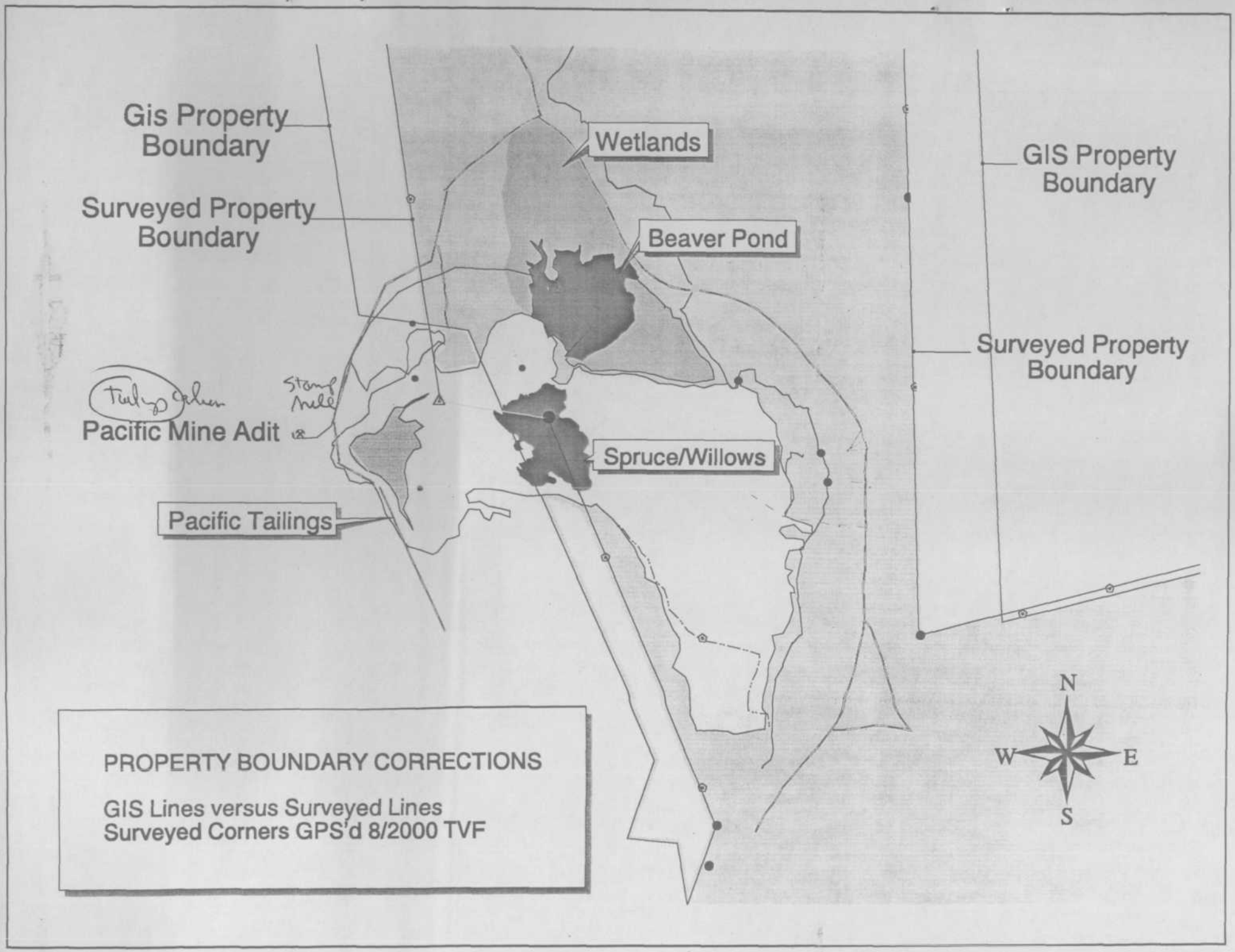
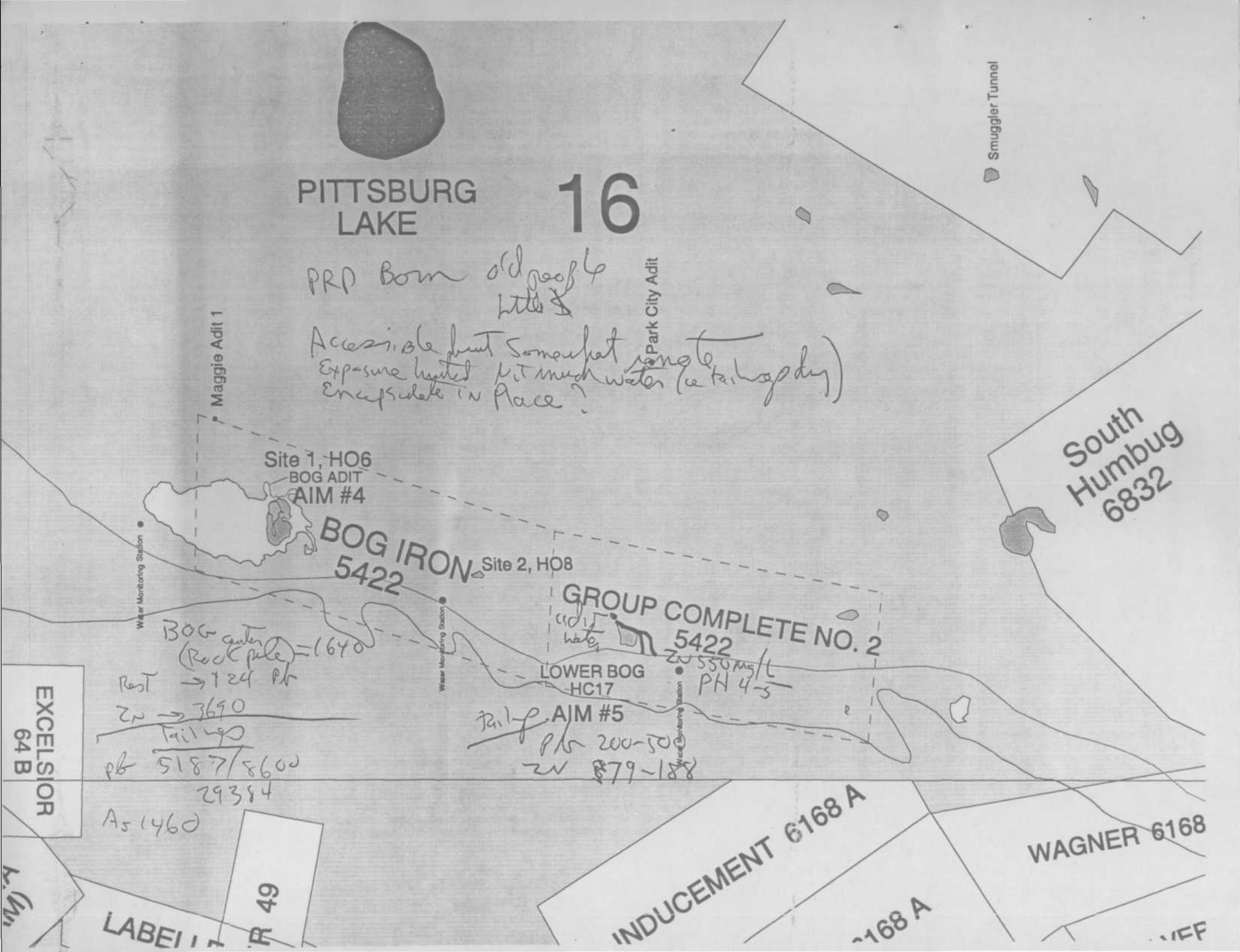


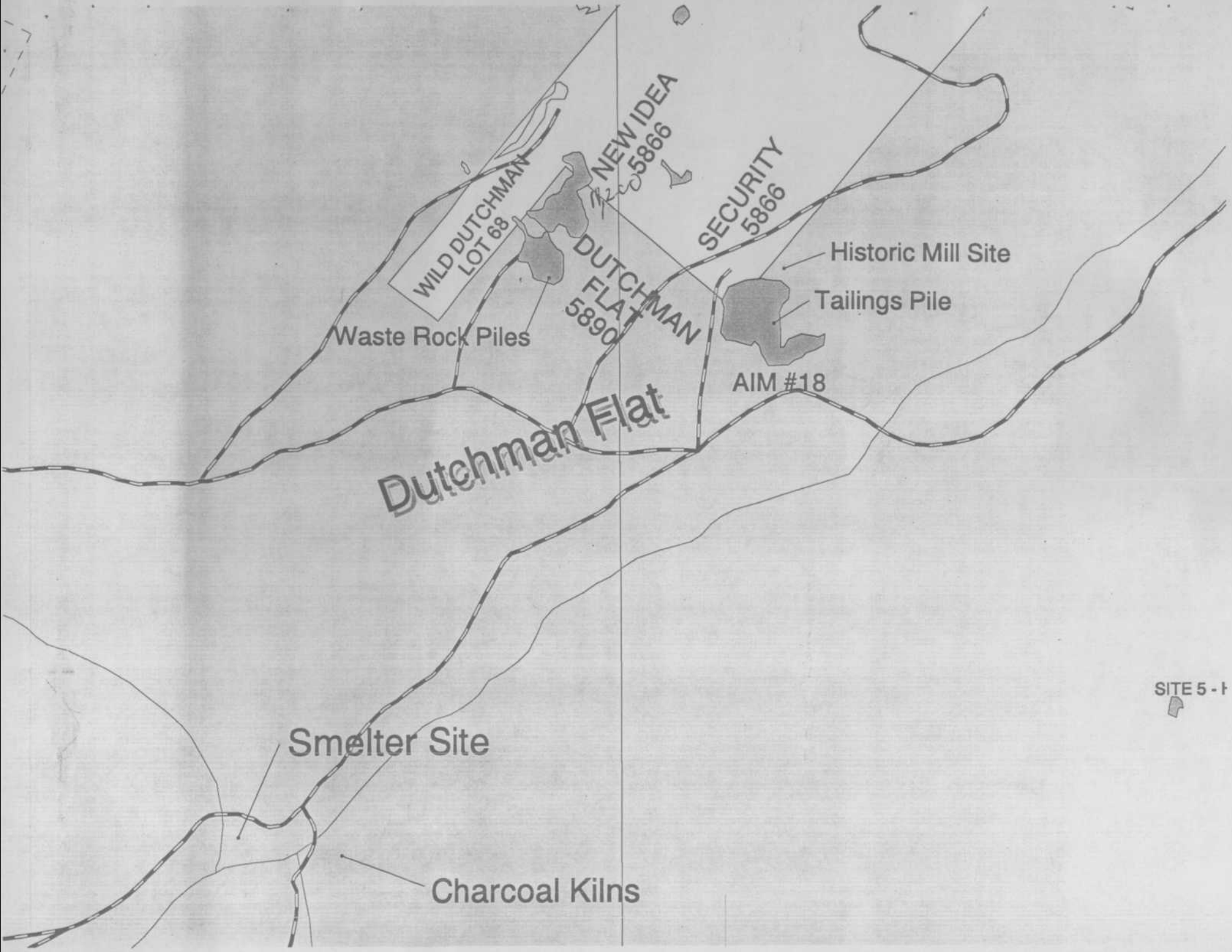
EXHIBIT 2


Bog Mine Area
Yankee Mine Area
Pacific Mine Area
Smelter Site
Dutchman Flat Area
MINERAL BASIN
MERRIL FLAT
PITTSBURG LAKE
MILLER HILL
AMERICAN FORK STREAM
DRY FORK
MARY ELLEN GULCH
BAKER FORK
15
16
17
20
21
22
27
28
29


NORTH FORK
AMERICAN FORK
RIVER
CENTERLINE
OF ROADS
BEAVER
POND
WETLANDS
STREAM
CHANNELS
PACIFIC ADIT
MINE
TAILINGS
N
PACIFIC MINE
SITE
100 0 100 200 Feet

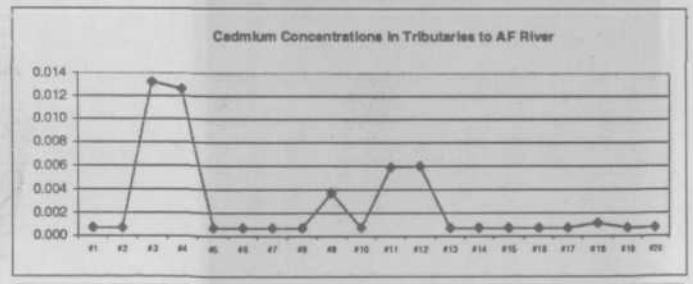

Gis Property Boundary
Surveyed Property Boundary
Wetlands
Beaver Pond
GIS Property Boundary
Surveyed Property Boundary
Stamp Mill
Pacific Mine Adit
Spruce/Willows
Pacific Tailings
N
W
E
S
PROPERTY BOUNDARY CORRECTIONS
GIS Lines versus Surveyed Lines
Surveyed Corners GPS'd 8/2000 TVF

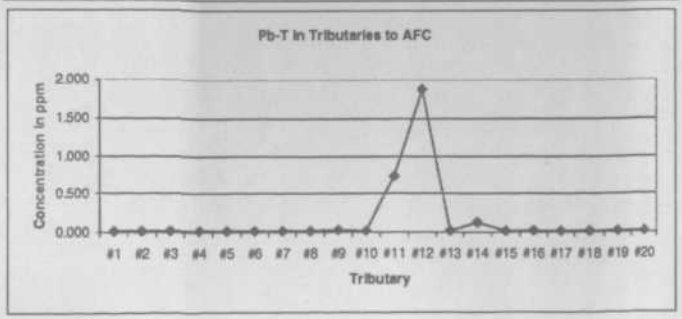

PITTSBURG LAKE
16
Smuggler Tunnel
Maggie Adit 1
Park City Adit
Site 1, HO6
BOG ADIT
AIM #4
BOG IRON
5422
Site 2, HO8
GROUP COMPLETE NO. 2
5422
LOWER BOG
HC17
AIM #5
South Humbug
6832
EXCELSIOR
64 B
INDUCEMENT 6168 A
WAGNER 6168
LABEL
49
Water Monitoring Station
PRD Born old people
Accessible but somewhat remote
Exposure limited pit much water (a tailings dry)
Encapsulate in Place?
BOG center (Rock pile) = 1640
Pb 5187/8600
29384
As 1460
Zn 550 mg/L
PH 4-5
Pb 200-500
Zn 879-188

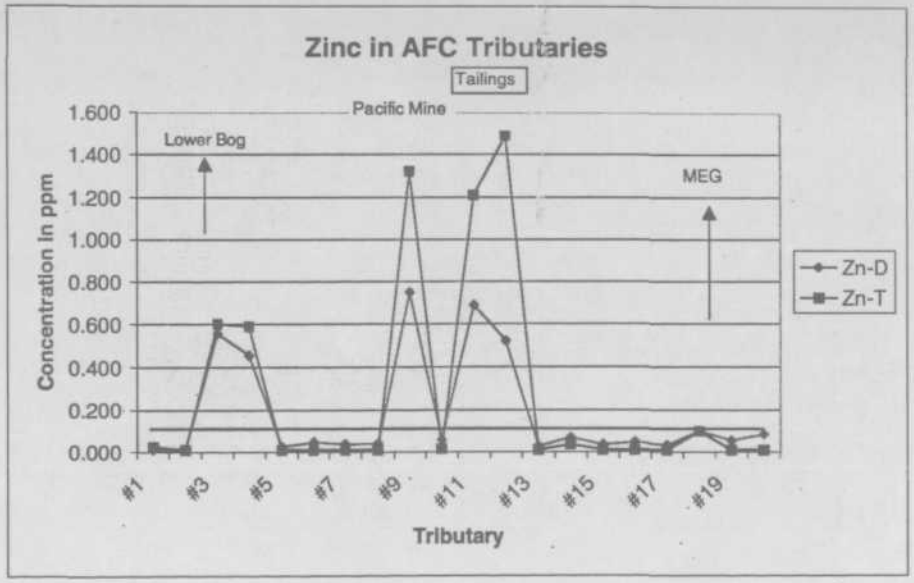

NEW IDEA
5866
SECURITY
5866
WILD DUTCHMAN
LOT 68
DUTCHMAN
FLAT
5890
Historic Mill Site
Tailings Pile
Waste Rock Piles
AIM #18
Dutchman Flat
SITE 5 - I
Smelter Site
Charcoal Kilns

1999 USGS Tracer Study - Tributaries to AF River

Site	Trib	Dist	Filter	ID	pH	Cond	Li	Na	Al	As	Ca	Cd	Cu	Fe	K	Mg	Mn	Sr	Zn-D	Zn-T	Pb-D	Pb-T
#1	1	59	0.45	Drains marsh with Fe ppt	6.52	116.67	0.004	1.40	0.026	0.019	11.6	0.001	0.001	0.173	0.999	4.49	0.384	0.034	0.010	0.026	<0.015	0.015
#2	1	416	0.45	Cascades down bedrock	7.09	42.38	0.001	1.05	0.140	0.016	4.52	0.001	0.001	0.122	0.344	1.48	0.001	0.021	0.010	0.010	<0.015	0.015
#3	1	735	0.45	Discharge from Lower Bog Adit	4.38	138.17	0.001	1.51	1.23	0.002	10.4	0.013	0.013	0.039	1.12	3.48	0.526	0.044	0.558	0.602	<0.015	0.015
#4	1	736	0.45	Spring draining out toe of mine dump	5.42	134.26	0.001	1.49	0.537	0.001	10.0	0.013	0.014	4.43	1.15	3.28	0.281	0.042	0.457	0.590	<0.015	0.015
#5	1	3,128	0.45	Draining LB ponds	8.37	248.66	0.001	1.01	0.015	0.007	29.9	0.001	0.001	0.016	0.374	15.4	0.001	0.026	0.026	0.010	<0.015	0.015
#6	1	3,198	0.45	Red ppt draining pond	8.27	247.66	0.001	1.08	0.022	0.008	30.0	0.001	0.001	0.061	0.391	15.5	0.005	0.027	0.048	0.010	<0.015	0.015
#7	1	3,303	0.45	Also draining LB ponds	8.08	256.66	0.001	1.11	0.023	0.006	30.9	0.001	0.001	0.221	0.439	15.8	0.075	0.028	0.038	0.010	<0.015	0.015
#8	1	3,331	0.45	Draining ponds enters just above culvert	8.26	292.67	0.001	1.24	0.025	0.014	36.1	0.001	0.003	0.125	0.478	18.2	0.032	0.032	0.040	0.010	<0.015	0.015
#9	1	3,345	0.45	Draining beaver pond that receives adit flow	7.62	370.68	0.001	1.42	0.018	0.004	45.2	0.004	0.001	0.093	0.723	23.1	0.241	0.060	0.747	1.320	<0.015	0.027
#10	1	3,385	0.45	Draining LB ponds--crosses road	8.22	313.67	0.001	1.32	0.023	0.004	38.8	0.001	0.001	0.068	0.471	19.5	0.025	0.035	0.057	0.014	<0.015	0.015
#11	1	3,475	0.45	Discharge draining tailings	8.10	379.68	0.002	1.48	0.022	0.027	45.7	0.006	0.001	0.022	0.810	23.5	0.119	0.063	0.687	1.210	<0.015	0.738
#12	1	3,485	0.45	Drains from tailings pile	8.38	359.68	0.002	1.43	0.030	0.001	43.3	0.006	0.004	0.017	0.804	22.8	0.008	0.065	0.521	1.490	<0.015	1.88
#13	1	4,200	0.45	Flow from moss-covered rocks	8.17	367.68	0.002	1.62	0.020	0.003	45.5	0.001	0.001	0.017	0.500	23.7	0.001	0.045	0.028	0.010	<0.015	0.015
#14	1	4,255	0.45	Seepage from mine waste at Beaver pond	8.74	270.67	0.005	1.72	0.022	0.031	29.6	0.001	0.001	0.022	1.66	18.8	0.002	0.048	0.069	0.035	<0.015	0.130
#15	1	4,435	0.45	Spring from limestone	7.92	338.68	0.012	1.28	0.019	0.003	43.4	0.001	0.001	0.015	0.612	20.1	0.001	0.047	0.036	0.010	<0.015	0.015
#16	1	5,065	0.45	Discharge from base of hill	7.98	396.69	0.002	1.69	0.018	0.011	53.7	0.001	0.001	0.015	0.583	23.5	0.001	0.058	0.047	0.010	<0.015	0.015
#17	1	5,140	0.45	Another discharge from base of hill	8.17	422.69	0.002	1.72	0.018	0.008	57.2	0.001	0.001	0.017	0.547	25.0	0.001	0.057	0.033	0.010	<0.015	0.015
#18	1	6,290	0.45	Mary Ellen Gulch	8.33	260.66	0.001	0.911	0.023	0.001	35.2	0.001	0.001	0.020	0.553	13.3	0.001	0.046	0.099	0.099	<0.015	0.015
#19	1	8,407	0.45	Maj. Evans	8.69	331.68	0.001	1.09	0.021	0.014	45.7	0.001	0.001	0.016	0.537	19.0	0.001	0.065	0.055	0.010	<0.015	0.015
#20	1	10,307	0.45	Silver Fork	7.95	360.68	0.002	1.96	0.018	0.010	65.1	0.001	0.001	0.019	0.604	7.79	0.001	0.279	0.084	0.010	<0.015	0.015
				Maximum Concentration	8.74	422.69	0.01	1.96	1.23	0.03	65.14	0.01	0.01	4.43	1.66	24.95	0.53	0.28	0.75	1.49		1.88
				Minimum Concentration	4.38	42.38	0.00	0.91	0.02	0.00	4.52	0.00	0.00	0.02	0.34	1.48	0.00	0.02	0.01	0.01		0.02
				Average Concentration	7.73	282.51	0.00	1.38	0.11	0.01	35.61	0.00	0.00	0.28	0.68	15.89	0.09	0.06	0.18	0.27	<0.015	0.15

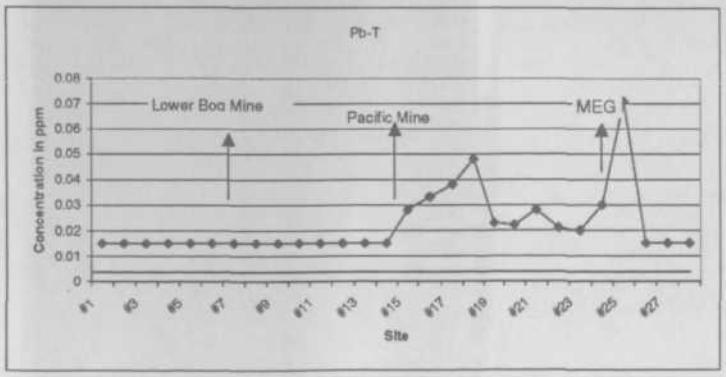


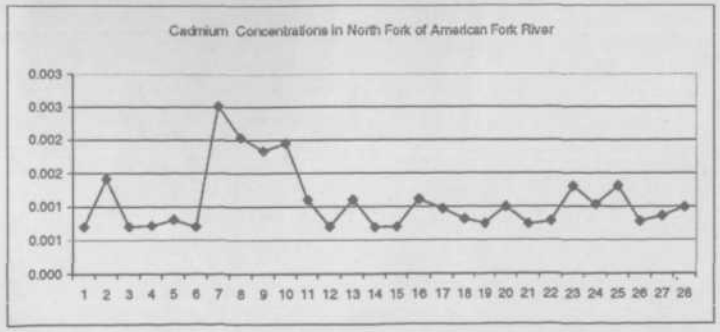


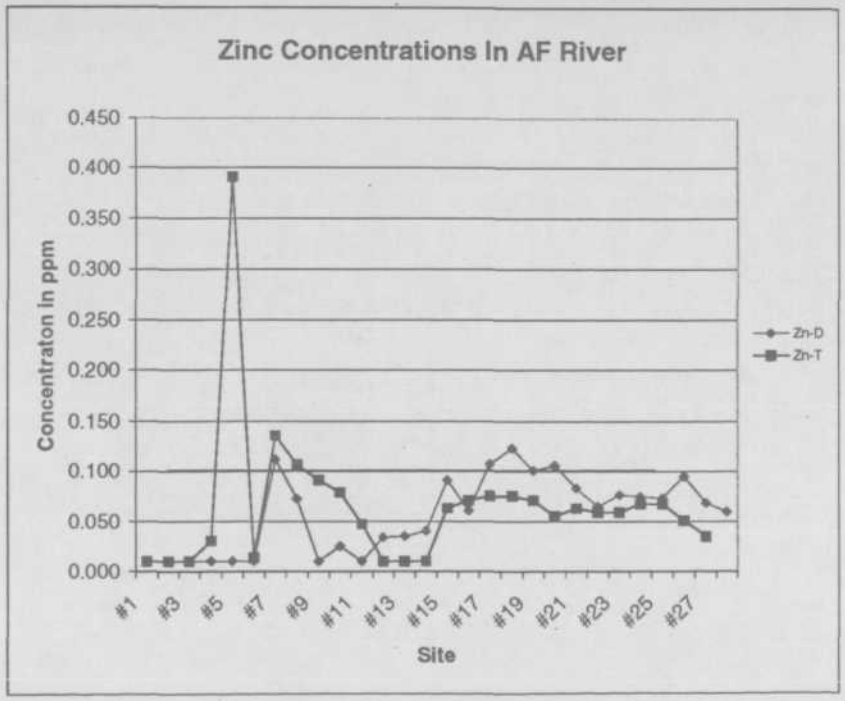


1999 USGS Tracer Study Water Quality Test Results

Site	Trib	Dist	Filter	ID	pH	Cond	Li	Na	Al	As	Ca	Cd	Cu	Fe	K	Mg	Mn	Sr	Zn-D	Zn-T	Pb-D	Pb-T
#1	0	0	0.45	T0--Above injection site	7.46	248.63	0.001	0.893	0.033	0.001	32.5	0.001	0.001	0.107	0.837	11.8	0.022	0.063	0.010	0.010	<0.015	0.015
#2	0	25	0.45	Upstream from first beaver pond	7.91	329.76	0.001	16.8	0.042	0.023	32.5	0.001	0.001	0.148	0.940	11.7	0.024	0.064	0.010	0.010	<0.015	0.015
#3	0	109	0.45	Near beginning of Bog Mine waste	7.80	318.03	0.001	15.2	0.035	0.017	31.4	0.001	0.001	0.182	0.957	11.3	0.044	0.062	0.010	0.010	<0.015	0.015
#4	0	259	0.45	On bedrock blw Bog Mine influence	8.07	311.19	0.001	13.9	0.072	0.003	31.2	0.001	0.001	0.204	0.978	11.3	0.048	0.063	0.010	0.030	<0.015	0.015
#5	0	414	0.45	At base of bedrock cascades ab LB inflow	8.10	307.28	0.001	13.8	0.085	0.007	31.3	0.001	0.002	0.221	0.987	11.3	0.045	0.062	0.010	0.391	<0.015	0.015
#6	0	651	0.45	Above lower Bog Mine	7.56	288.71	0.001	11.8	0.071	0.019	30.1	0.001	0.001	0.188	0.957	10.9	0.033	0.061	0.010	0.014	<0.015	0.015
#7	0	835	0.45	Below Lower Bog Mine	7.90	248.63	0.001	9.48	0.115	0.006	25.3	0.003	0.002	0.116	1.02	9.16	0.105	0.056	0.112	0.136	<0.015	0.015
#8	0	1,035	0.45	300 m below Lower Bog Mine	8.13	242.77	0.001	8.81	0.104	0.011	25.0	0.002	0.001	0.139	0.982	9.05	0.088	0.055	0.073	0.107	<0.015	0.015
#9	0	1,253	0.45	Above LB inflow	8.13	238.86	0.001	8.13	0.099	0.011	24.9	0.002	0.001	0.141	0.976	9.04	0.073	0.055	0.010	0.091	<0.015	0.015
#10	0	1,603	0.45	"Almost" to truck parking	8.18	235.92	0.001	7.09	0.093	0.008	25.2	0.002	0.001	0.177	0.980	9.33	0.051	0.054	0.025	0.079	<0.015	0.015
#11	0	2,003	0.45	Above series of beaver ponds--end of top	8.19	241.79	0.001	4.38	0.072	0.003	28.1	0.001	0.001	0.131	0.881	11.0	0.019	0.054	0.010	0.047	<0.015	0.015
#12	0	2,983	0.45	T0 Site--Above lower injection	7.87	270.67	0.001	1.13	0.031	0.009	34.8	0.001	0.001	0.053	0.699	15.0	0.011	0.048	0.034	0.010	<0.015	0.015
#13	0	3,123	0.45	Ab pond inflows	8.31	281.67	0.738	1.15	0.030	0.001	34.7	0.001	0.001	0.052	0.697	15.0	0.008	0.047	0.035	0.010	<0.015	0.015
#14	0	3,344	0.45	Below draining pond at end of culvert	8.38	269.67	0.404	1.11	0.022	0.011	33.3	0.001	0.001	0.046	0.565	15.4	0.008	0.039	0.040	0.010	<0.015	0.015
#15	0	3,625	0.45	T1 site--Below Pacific tailings--B	8.41	275.67	0.349	1.21	0.024	0.007	34.3	0.001	0.003	0.058	0.573	16.0	0.015	0.040	0.091	0.063	<0.015	0.028
#16	0	3,625	0.45	T1 site--Below Pacific tailings--A	8.42	276.67	0.353	1.17	0.025	0.011	34.0	0.001	0.001	0.056	0.584	15.9	0.015	0.040	0.061	0.071	<0.015	0.033
#17	0	3,775	0.45	Upstream from Dry Fork	8.40	276.67	0.351	1.16	0.025	0.003	34.2	0.001	0.001	0.058	0.588	16.0	0.015	0.040	0.108	0.075	<0.015	0.038
#18	0	4,035	0.45	Below small beaver pond	8.51	275.67	0.343	1.16	0.024	0.006	33.9	0.001	0.001	0.059	0.582	15.9	0.015	0.040	0.123	0.075	<0.015	0.048
#19	0	4,385	0.45	T2 Site--Below beaver ponds at bedrock	8.44	279.67	0.333	1.16	0.026	0.017	34.7	0.001	0.001	0.051	0.565	16.3	0.013	0.040	0.101	0.071	<0.015	0.023
#20	0	4,665	0.45	Below limestone stream	8.34	297.67	0.246	1.20	0.024	0.009	37.0	0.001	0.001	0.043	0.576	17.5	0.010	0.042	0.106	0.055	<0.015	0.022
#21	0	4,965	0.45	Above Baker Fork	8.32	297.67	0.240	1.23	0.024	0.002	37.5	0.001	0.001	0.041	0.578	17.6	0.009	0.042	0.083	0.063	<0.015	0.028
#22	0	5,370	0.45	T3 site--Above Dutchman Flat culvert	8.43	299.67	0.222	1.21	0.025	0.008	37.8	0.001	0.001	0.038	0.583	17.7	0.008	0.043	0.065	0.059	<0.015	0.021
#23	0	5,715	0.45	Below larger beaver pond below culvert	8.40	297.67	0.212	1.14	0.026	0.015	38.1	0.001	0.001	0.043	0.576	17.8	0.010	0.042	0.076	0.059	<0.015	0.020
#24	0	6,452	0.45	Below Mary Ellen Gulch	8.13	293.67	0.166	1.13	0.024	0.009	37.4	0.001	0.001	0.041	0.569	17.0	0.009	0.043	0.075	0.067	<0.015	0.030
#25	0	6,717	0.45	Within canyon below Mary Ellen Gulch	7.97	292.67	0.163	1.14	0.026	0.014	37.7	0.001	0.001	0.035	0.575	17.0	0.008	0.043	0.073	0.067	<0.015	0.071
#26	0	8,507	0.45	Blw Maj. Evans	8.64	299.67	0.150	1.23	0.026	0.013	39.0	0.001	0.001	0.033	0.608	17.4	0.004	0.047	0.095	0.051	<0.015	0.015
#27	0	10,407	0.45	Blw Silver Fork	8.32	337.68	0.087	1.46	0.021	0.012	45.5	0.001	0.001	0.024	0.564	17.7	0.001	0.105	0.068	0.035	<0.015	0.015
#28	0	11,962	0.45	Ab Tibble Reservoir	8.29	567.71	0.037	2.55	0.023	0.006	84.4	0.001	0.001	0.020	0.669	26.6	0.001	0.981	0.059		<0.015	0.015
				Maximum Concentration	8.64	567.71	0.738	16.817	0.115	0.023	84.351	0.003	0.003	0.221	1.016	26.580	0.105	0.981	0.123	0.391		0.071
				Minimum Concentration	7.46	235.92	0.001	0.893	0.021	0.001	24.948	0.001	0.001	0.020	0.564	9.044	0.001	0.039	0.010	0.010		0.015
				Average Concentration	8.18	292.93	0.157	4.710	0.045	0.009	35.209	0.001	0.001	0.089	0.737	14.566	0.025	0.085	0.057	0.065	<0.015	0.022



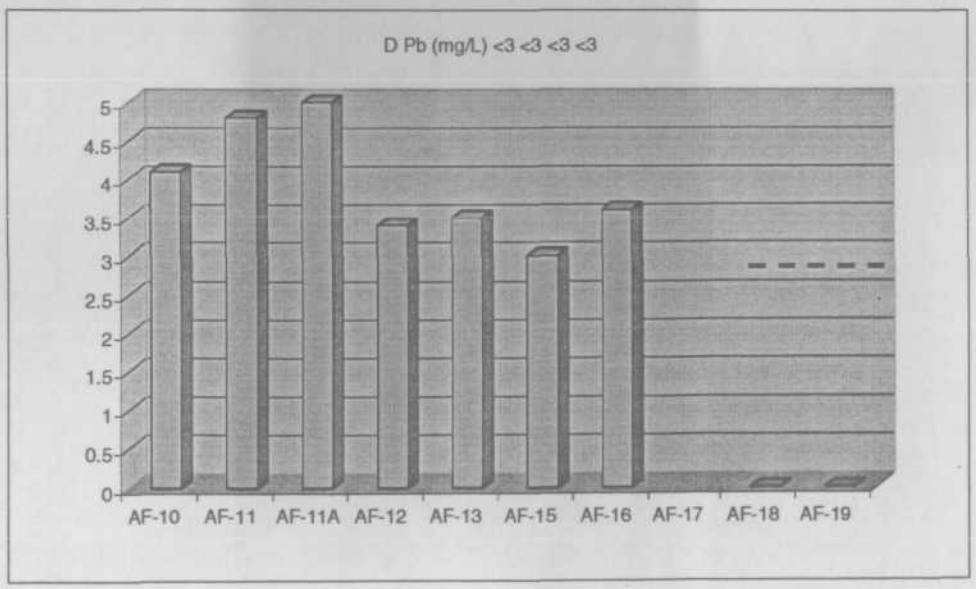


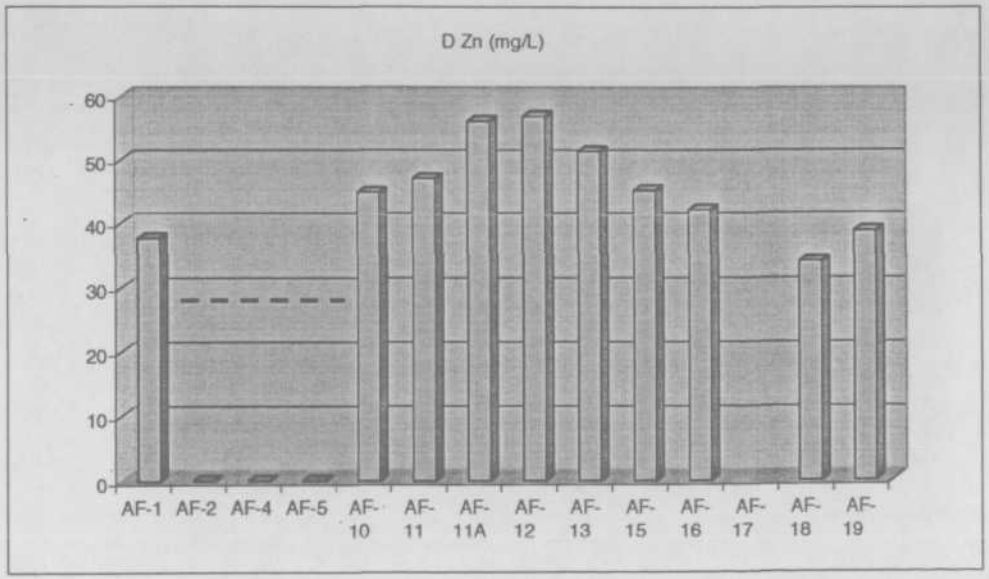


American Fork Canyon

2000 Water Quality Data

Lab #	Site No.	Site Name	Date	Q Cfs	T Hardness	L pH	D Pb (µg/L)	T Pb	D As (µg/L)	T As	D Cd (µg/L)	T Cd	D Zn (µg/L)	T Zn
200004781	AF-1	NFAF Above Bog mine	6/1/00	26	88.9	8.18	<3	5.8	<5	<5	<1	<1	37.6	31.2
200004783	AF-2	NFAF between Bog Mines	6/1/00	26.5	76.7	7.93	<3	10.9	<5	<5	<1	<1	<30	45.2
200004787	AF-4	NFAF Below Lower bog mine	6/6/00	21.3	81	8.02	<3	4.3	<5	<5	<1	<1	<30	43.4
200004789	AF-5	NFAF Above Pacific mine	6/6/00	28.1	88	8.02	<3	3.9	<5	<5	<1	<1	<30	41.6
200004793	AF-10	NFAF Below Pacific mine	6/6/00	35	93.5	8.15	4.1	42.3	<5	<5	<1	<1	44.8	74.8
200005000	AF-11	NFAF @ Dutchman Flat ab Mary Ellen Gulch	6/7/00	35.5	118.6	8.26	4.8	30.3	<5	<5	<1	<1	47	70.8
200005010	AF-11A	NFAF bl Shaffer, ab Mary Ellen	6/8/00	37.1	115.5	8.21	5		<5		<1		56.1	
200004996	AF-12	NFAF Below Mary Ellen	6/7/00	44.4	118	8.19	3.4		<5		<1		56.8	
200005006	AF-13	NFAF Above Major Evans	6/7/00	41.6	120.3	8.31	3.5		<5		<1		51.3	
200005002	AF-15	NFAF Below Major Evans	6/8/00	42	126.1	8.37	3		<5		<1		45.1	
200005012	AF-16	NFAF Above Silver Creek Confl	6/8/00	48.5	130.6	8.32	3.6		<5		<1		42	
200005308	AF-17	NFAF Below Silver Creek	6/15/00	44.6	123.5	8.45		13.3		<5		<1		65.2
200005310	AF-18	NFAF Above Tibble Fk. Res.	6/13/00	60.2	190.9	8.38	<3	10.3	<5	<5	<1	<1	34	52.1
200005312	AF-19	NFAF Below Tibble Fk. Res	6/15/00	73.7	179	8.44	<3	4.2	<5	<5	<1	<1	38.7	39.5





American Fork Canyon
2000 Water Quality Data

Lab #	Site Name	Date	Time	L pH	F pH	F D.O.	Q Cfs	F Sp Cond	F Temp C H2O	NO2+NO3 (mg/L)	HCO3- (mg/L)	SO4 (mg/L)	Tot Alk (mg/L)	CO3 solids (mg/L)	TSS (mg/L)	CO2 (mg/L)	T PO4 (mg/L)	L Turb (NTU)
200004781	AF-1 Abandon mine site NFAF ab Bog mine	06/01/00	1300	8.18	7.9	faulty prb	26	100	5.8		88	<20	72	43	5.6	1		1.8
200004783	AF-2 Abandon mine site NFAF ab Bog mine	06/01/00	1426	7.93	6.9	faulty	26.5	89	6.6		84	21	69	41	11.2	2		2.77
200004785	AF-3 Abandon mine site Lower bog site	06/01/00	1435	4.15	6.7	faulty	0.4	86	8.4		0	43.5	0	0	10	0		14.3
200004787	AF-4 Abandon mine site bl Lower bog mine	06/06/00	1130	8.02	7.5	9.6	21.3	98	8		88	<20	72	43	11.6	1		1.36
200004789	AF-5 Abandon mine site NFAF ab Pacific mine	06/06/00	1345	8.02	7.9	12.8	26.1	160	11		97	<20	79	48	7.2	1		1.01
200004791	AF-6 Abandon mine site Pacific mine adit	06/01/00	1645	7.74	8	6.6	0.9	159	6.5		230	28.2	189	113	6	7		3.72
200005003	AF-7 Spring near Pacific Mine	06/07/00	1400	7.49	7.4	12	0.1	410	7.7	0.2	272	28.3	223	134	29.6	14	<.02	0.552
200004991	AF-8 Pacific mine beaver pond outlet to NFAF	06/07/00	1045	7.93	7.7	8	0.4	389	10	0.1	248	28.9	203	122	<4.0	5	<.02	0.955
200005015	AF-9A Pacific Mine discharge from tailings upper	06/07/00	1120	8.09	7.7	8	0.03	340	15	0.1	230	37.1	189	113	130	0	<.02	13.7
200004993	AF-9B Pacific mine discharge from tailings middle	06/07/00	1130	8.22	7.8	5	0.3	360	15	0.1	212	35.4	174	104	118.7	2	<.02	19.4
200005007	AF-9C Pacific Mine discharge from mine tailings lower	06/07/00	1145	8.07	7.6	4	0.01	380	22	0.1	189	26.8	155	93	116	3	<.02	17
200004793	AF-10 Abandon mine site NFAF bl Pacific mine	06/06/00	1510	8.15	7.6	0.2	35	59	12			<20	84	0	14.8	1		2.21
200004999	AF-11 NF of AF @ Dutchman Flat ab Mary Ellen Gulch	06/07/00	1545	8.26	8	11	35.5	190	14	0.2	116	30.3	95	57	8.8	1	<.02	1.16
200005009	AF-11A NFAF bl Shaffer, ab Mary Ellen	06/08/00	930	8.21	8.2	12	37.1	199	7.4	0.2	120	26	99	59	6.4	1	<.02	1
200004995	AF-12 NF OF AF BL Mary Ellen	06/07/00	1100	8.19	8.26	11.5	44.4	185	8.6	0.2	114	26.7	93	56	13.2	1	<.02	2.2
200005005	AF-13 NFAF ab Major Evans	06/07/00	1305	8.31	8.05	5	41.6	165	10.9	0.2	120	<20	98	59	6.8	1	<.02	0.952
200005013	AF-14 Major Evans @ mouth ab NF	06/08/00	1350	8.81	8.1	10	7.4	300	11.9	0.2	202	27.6	166	99	6	1	<.02	0.744
200005001	AF-15 NF of AF bl Major Evans	06/08/00	1445	8.37	7.9	13	42	206	10.6	0.2	124	27.9	102	61	6	1	<.02	0.782
200005011	AF-16 NFAF ab Silver Creek Confl	06/08/00	1545	8.32	8	8	48.5	214	11.5	0.2	129	28	106	64	6	1	<.02	1.26
200005308	AF-17 NFAF blw.Silver Creek	06/15/00	1300	8.45	8.26	13	44.6	215	12	0.1	126	<20.0	103	62	11.6	1	0.025	2.06
200005309	AF-18 NFAF Ab. Tibble Fk. Res.	06/12/00	1615	8.38	7.5	9.5	60.2	306	12	0.01	144	49.7	118	71	<4	1	0.02	1.25
200005311	AF-19 NFAF blw. Tibble Fk. Res	06/15/00	1000	8.44	8.12	5	73.7	327	9.82	0.1	154	39.3		76	<4	1	0.02	0.0784

All Samples			CO3 (mg/L)	OH- (mg/L)	D Cu (µg/L)	D As (µg/L)	D Ag (µg/L)	Chloride
			0	0	<12	<5	<2	<3

			D Na (mg/L)	D Ba (µg/L)	D Ca (mg/L)	D Pb (µg/L)	D Mn (µg/L)	D Se (µg/L)	D Al (µg/L)	D Hg (µg/L)	D Cd (µg/L)	D Cr (µg/L)	D Fe (µg/L)	D Mg (µg/L)	D K (mg/L)	D Zn (µg/L)	TDS @ 180C (mg/L)	T Hardness	L Sp Cond
200004781	AF-1 Abandon mine site NFAF ab Bog mine		<1.0	70.9	22.1	<3	<5	<1	53.7	<.2	<1	<5	41.4	8.21	<1	37.6	88	88.9	150
200004783	AF-2 Abandon mine site NFAF ab Bog mine		<1	38.9	19.1	<3	<5	<1	65.2	<.2	<1	<5	65	7.06	<1	<30	82	76.7	130
200004785	AF-3 Abandon mine site Lower bog site		1.63	39.7	10.6	<3	253	1.7	191	<.2	9.3	<5	6400	3.55	<1	442	84	41.1	131
200004787	AF-4 Abandon mine site bl Lower bog mine		<1	51.2	19.8	<3	6.4	<1	55.4	<.2	<1	<5	93.5	7.68	<1	<30	72	81	137
200004789	AF-5 Abandon mine site NFAF ab Pacific mine		<1	57.2	21.3	<3	6.1	<1	55	<2	<1	<5	76.8	8.47	<1	<30	90	88	148
200004791	AF-6 Abandon mine site Pacific mine adit		1.77	82.8	45.1	<3	10.2	1.1	<30	<.2	8.9	<5	112	24.9	<1	1300	202	215	352
200005003	AF-7 Spring near Pacific Mine		1.58	136	36.5	4.7	<5	<1	<30	<0.2	<1	<5	<20	29.2	<1	94	232	211.2	416
200004991	AF-8 Pacific mine beaver pond outlet to NFAF		1.62	106	34.5	<3	29.1	<1	<30	<0.2	4.1	<5	26.4	28.2	<1	557	220	252	380
200005015	AF-9A Pacific Mine discharge from tailings upper		1.48	123	49.4	23.3	36.1	1.3	<30	<0.2	7.7	<5	36.1	26.3	<1	836	202	231.5	361
200004993	AF-9B Pacific mine discharge from tailings middle		1.53	110	48.3	10.9	6	1.4	<30	<0.2	6.8	<5	<20	26.3	<1	927	198	228.7	354
200005007	AF-9C Pacific Mine discharge from mine tailings lower		1.54	134	48.6	130	6.6	6.6	<30	<0.2	27.1	<5	<20	25.3	<1	2520	212	225.4	356
200004793	AF-10 Abandon mine site NFAF bl Pacific mine		<1	45.4	22.3	4.1	6.7	<1	55.3	0.219	<1	<5	143	9.2	<1	44.6	94	93.5	157
200004999	AF-11 NF of AF @ Dutchman Flat ab Mary Ellen Gulch		<1	59.5	27.9	4.8	5.3	<1	44.7	<0.2	<1	<5	72.8	11.9	<1	47	104	118.6	183
200005009	AF-11A NFAF bl Shaffer, ab Mary Ellen		<1	50.2	27	5	6.9	<1	36	<0.2	<1	<5	64.6	11.7	<1	56.1	108	115.5	186
200004995	AF-12 NF OF AF BL Mary Ellen		<1.0	51.9	28	3.4	5.7	<1	35.3	<0.2	<1	<5	41.9	11.7	<1	56.8	106	118	186
200005005	AF-13 NFAF ab Major Evans		<1	56.8	28.8	3.5	<5	<1	37.2	<0.2	<1	<5	52.4	11.9	<1	51.3	108	120.3	188
200005013	AF-14 Major Evans @ mouth ab NF		<1	53.2	44.3	<3	<5	<1	<30	<0.2	<1	<5	<20	19.1	<1	<30	164	189.1	290
200005001	AF-15 NF of AF bl Major Evans		<1	56.2	30.1	3	<5	<1	33.7	<0.2	<1	<5	48.9	12.4	<1	45.1	112	126.1	199
200005011	AF-16 NFAF ab Silver Creek Confl		<1	51.9	31.4	3.6	<5	<1	31.4	<0.2	<1	<5	35.1	12.7	<1	42	120	130.6	206
200005308	AF-17 NFAF blw.Silver Creek		1.54		30.7									11.4	<1		132	123.5	221
200005309	AF-18 NFAF Ab. Tibble Fk. Res.		1.96	47.5	48.8	<3	<5	<1	<30	<0.2	<1	<5		16.8	<1	34	198	190.9	346
200005311	AF-19 NFAF blw. Tibble Fk. Res		2.13	63.4	48.5	<3	8.9	<1	<30	<0.2	<1	<5	27	14.1	<1	38.7	194	179	326

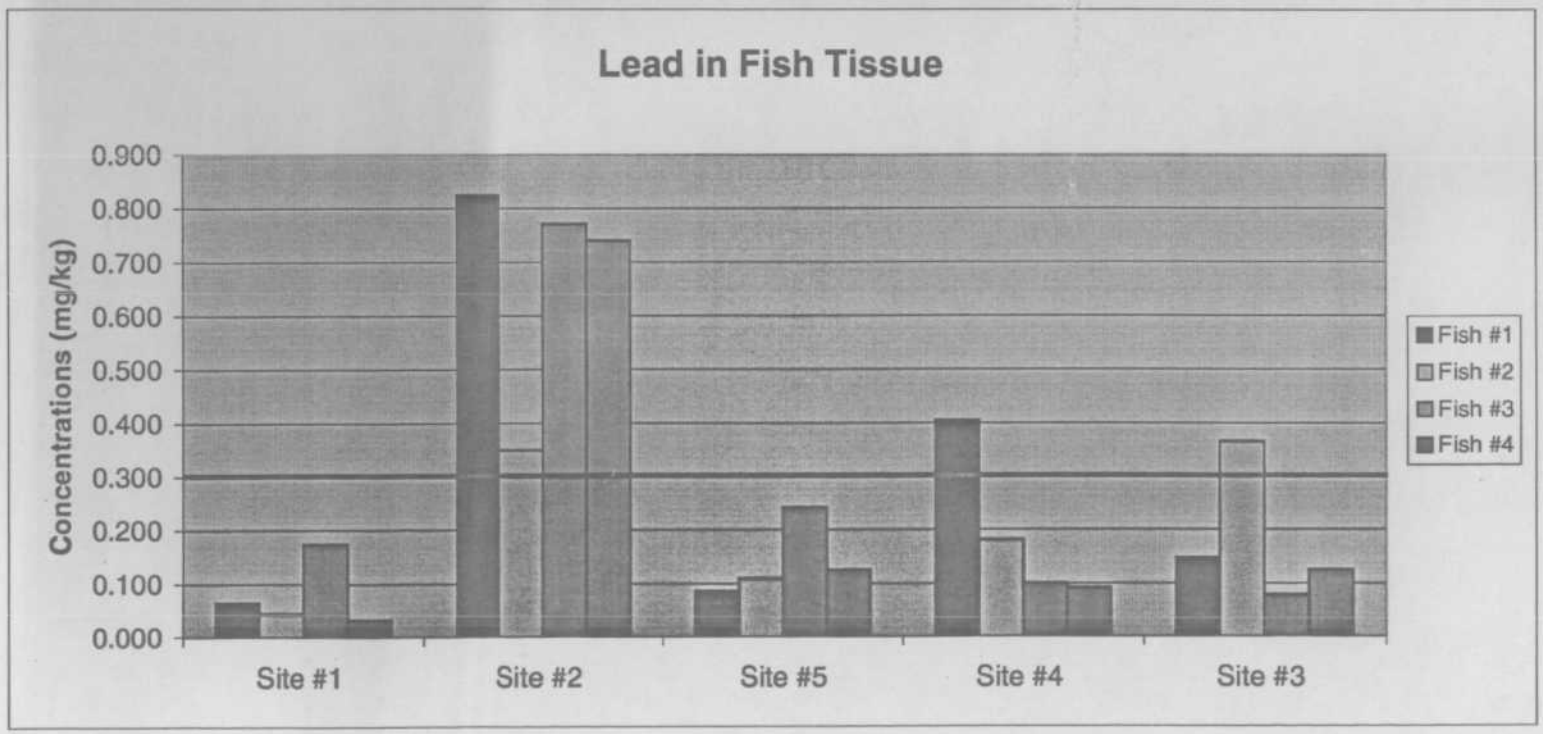
Lab #	Site Name	Date	Time	L pH	F pH	F D.O.	Q Cfs	F Sp Cond	F Temp C H2O	NO2+NO3 (mg/L)	HCO3- (mg/L)	SO4 (mg/L)	Tot Alk (mg/L)	CO3 solids (mg/L)	TSS (mg/L)	CO2 (mg/L)	T PO4 (mg/L)	L Turb (NTU)
200005313	AF-25 Yankee Adit #1	06/12/00	1150	7	6.85	8	0.3	213	7	0.1	50	93.4	41	24	25.3	8	0.045	69.2
200005314	AF-26 Yankee Audit #2	06/12/00	1300	8.06	6.9	7	0.03	144	6.7	0.1	214	62.4	175	105	<4.0	3	0.021	1.09
200005315	AF-27 Yankee Audit #3	06/12/00	1340	8.26	7.46	6.5	0.1	301	6.5	0.1	191	25.5	157	94	15.6	2	0.348	3.66
200005316	AF-28 Yankee Audit #4	06/12/00	1410	7.93	7.2	8	0.1	270	8.5	0.2	141	<20	115	69	73	3	<0.02	34.9
200005317	AF-28AYankee Audit #5	06/13/00	1140	8.27	7.9	11.5	0.2	253	6	0.2	170	<20	139	84	<4	1	0.022	0.457
200005318	AF-29 Mary Ellen Gulch blw. Mines	06/13/00	1035	8.16	7.9	14.5	6.9	122	8	0.2	86	<20	70	42	<4.0	1	<.02	1.11
200004997	AF-31 mouth of Mary Ellen	06/08/00	1038	8.28	8.3	13	14.1	197	7.6	0.2	113	26.9	93	56	<4	1	<.02	0.728
200005320	AF-32 Silver Cr ab Silver Lk Ree	06/15/00	1600	7.68	7.7	5	16.9	72.6	14.8	0.1	39	<20.0	32	19	4.4	1	<0.02	1.47
200005322	AF-33 Silver Cr bl Silver Lk Flat Ree	06/15/00	1500	7.59	7.9	17	15.7	75	15.2	0.1	39	<20.0	32	19	<4.0	2	0.025	1.53
200005324	AF-35 Deer Cr before mouth @ Tibble Fork Ree	06/15/00	1125	8.54	8.3	21.5	13.7	280	9.1	0.1	172	<20.0	141	85	<4.0	1	<0.02	0.718

		D Na (mg/L)	D Ba (µg/L)	D Ca (mg/L)	D Pb (µg/L)	D Mn (µg/L)	D Se (µg/L)	D Al (µg/L)	D Hg (µg/L)	D Cd (µg/L)	D Cr (µg/L)	D Fe (µg/L)	D Mg (µg/L)	D K (mg/L)	D Zn (µg/L)	TDS @ 180C (mg/L)	T Hardness	L Sp Cond
200005313	AF-25 Yankee Adit #1	1.37		34.8									14.1	1.02		178	144.8	283
200005314	AF-26 Yankee Audit #2	1.14		56									29.6	1.3		258	261.5	451
200005315	AF-27 Yankee Audit #3	1.05		42.8									21.1	<1		178	193.1	337
200005316	AF-28 Yankee Audit #4	<1		31.1									16.8	<1		140	146.7	264
200005317	AF-28AYankee Audit #5	1.01		34.6									20	<1		178	165.6	292
200005318	AF-29 Mary Ellen Gulch blw. Mines	<1.0	45.1	22.9	<3	13	<1	48.3	<0.2	1	5	50.7	8.93	<1	147	106	93.9	172
200004997	AF-31 mouth of Mary Ellen	<1	42.4	29.2	3.4	<5	<1	<30	<0.2	<1	<5	39.7	11.1	<1	82.4	104	118.5	187
200005320	AF-32 Silver Cr ab Silver Lk Ree	<1.0	29.5	11.5	<3	<5	<1	<30	<0.2	<1	<5	36	1.15	<1.0	<30	44	33.4	694
200005322	AF-33 Silver Cr bl Silver Lk Flat Ree	<1.0	<5	11.8	<3	<5	<1	<30	<0.2	<1	<5	<20	1.23	<1	<30	50	34.5	698
200005324	AF-35 Deer Cr before mouth @ Tibble Fork Ree	1.9	84.7	49.4	<3	<5	<1	<30	<0.2	<1	<5	<20	7.22	<1	<30	170	153	273

Lead Concentrations By Site

SAMPLE LOCATIONS	Sites	Fish #1	Fish #2	Fish #3	Fish #4	Average
Above Pacific Mine	Site #1	0.065	0.043	0.173	0.032	0.078
Below Pacific Mine	Site #2	0.824	0.349	0.770	0.740	0.671
Above Major Evans	Site #5	0.085	0.109	0.241	0.125	0.140
Above Tibble Fork	Site #4	0.405	0.181	0.100	0.091	0.194
Below Tibble Fork	Site #3	0.148	0.365	0.078	0.125	**0.179**

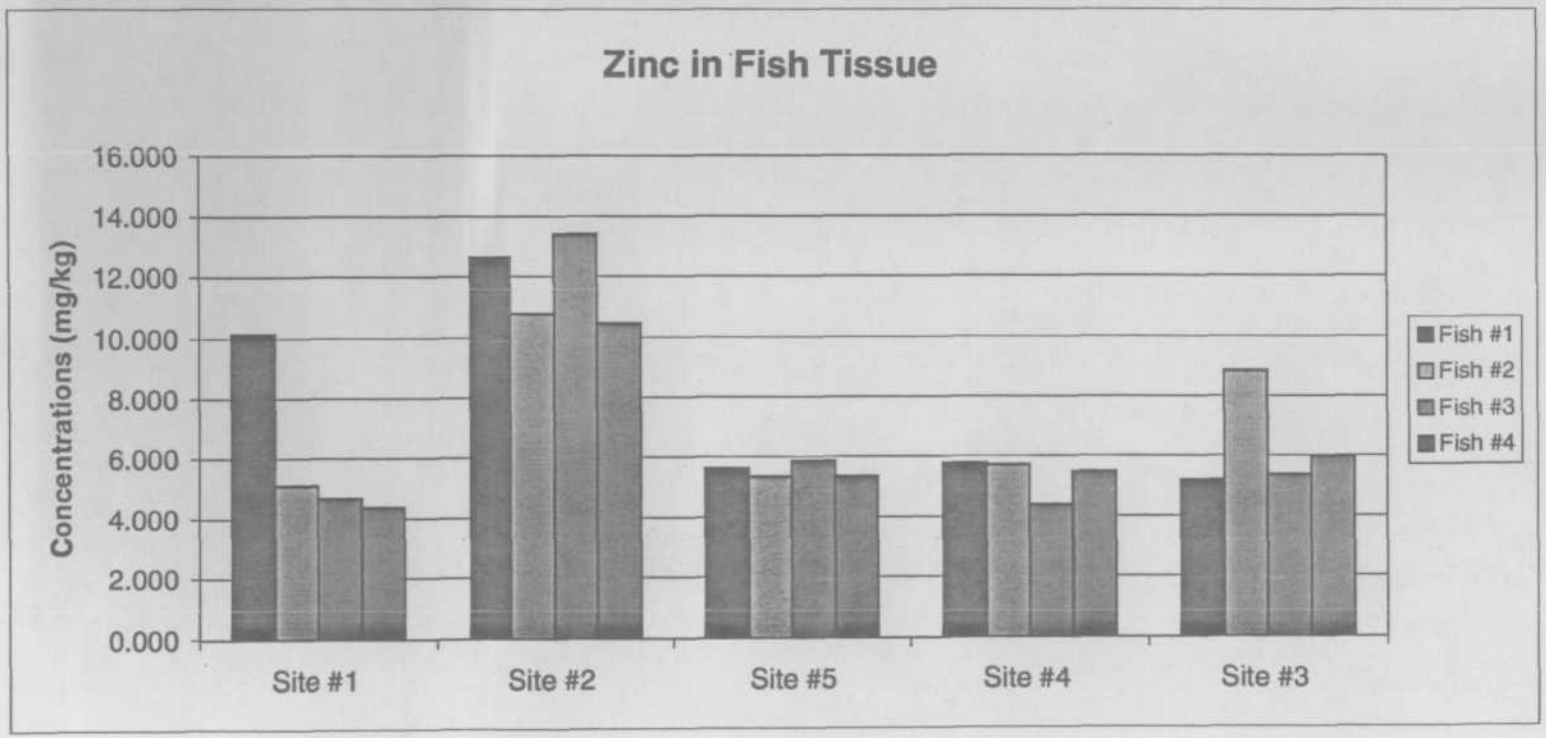
Maximum	Minimum	Order of Magnitude
0.824	0.043	19



Zinc Concentrations By Site

SAMPLE LOCATIONS	Sites	Fish #1	Fish #2	Fish #3	Fish #4	Average
Above Pacific Mine	Site #1	10.120	5.100	4.674	4.378	6.068
Below Pacific Mine	Site #2	12.639	10.778	13.396	10.445	11.815
Above Major Evans	Site #5	5.616	5.345	5.850	5.326	5.534
Above Tibble Fork	Site #4	5.759	5.703	4.370	5.470	5.326
Below Tibble Fork	Site #3	5.191	8.826	5.377	5.986	6.345

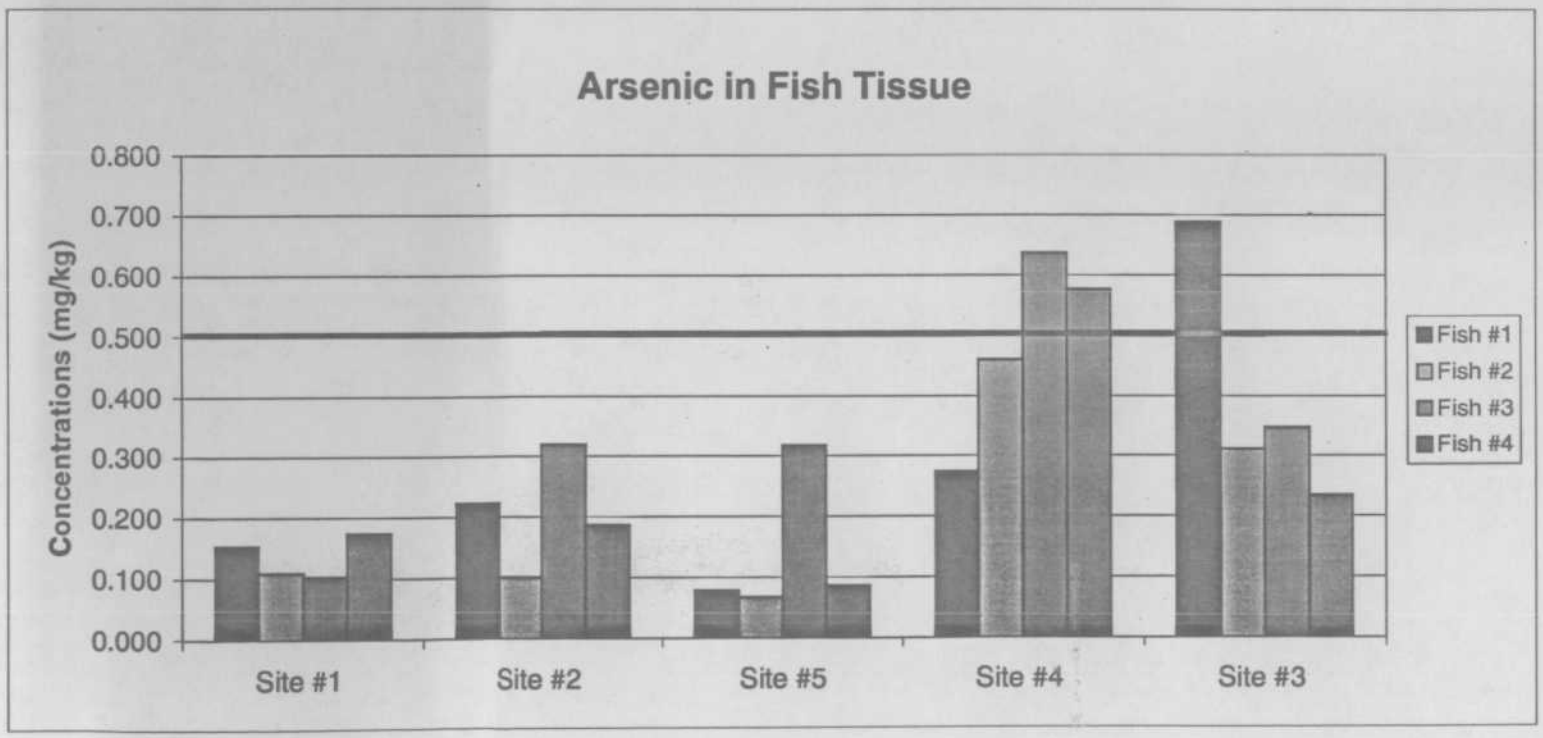
Maximum	Minimum	Order of Magnitude
13.396	4.370	3



Arsenic Concentrations By Site

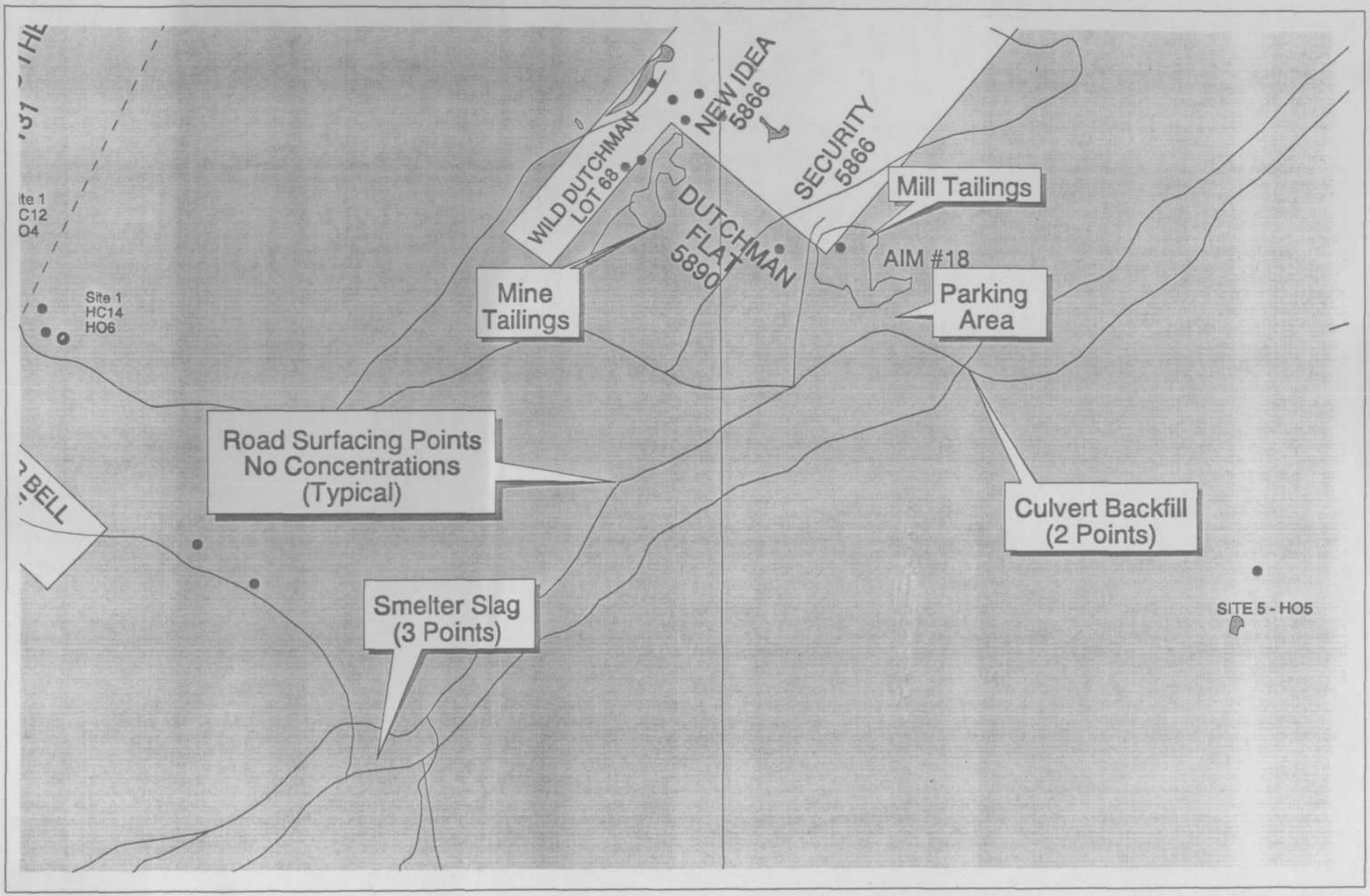
SAMPLE LOCATIONS	Sites	Fish #1	Fish #2	Fish #3	Fish #4	Average
Above Pacific Mine	Site #1	0.153	0.110	0.104	0.174	0.135
Below Pacific Mine	Site #2	0.222	0.101	0.319	0.186	0.207
Above Major Evans	Site #5	0.079	0.067	0.317	0.086	0.137
Above Tibble Fork	Site #4	0.274	0.460	0.637	0.577	0.487
Below Tibble Fork	Site #3	0.688	0.311	0.346	0.234	0.395

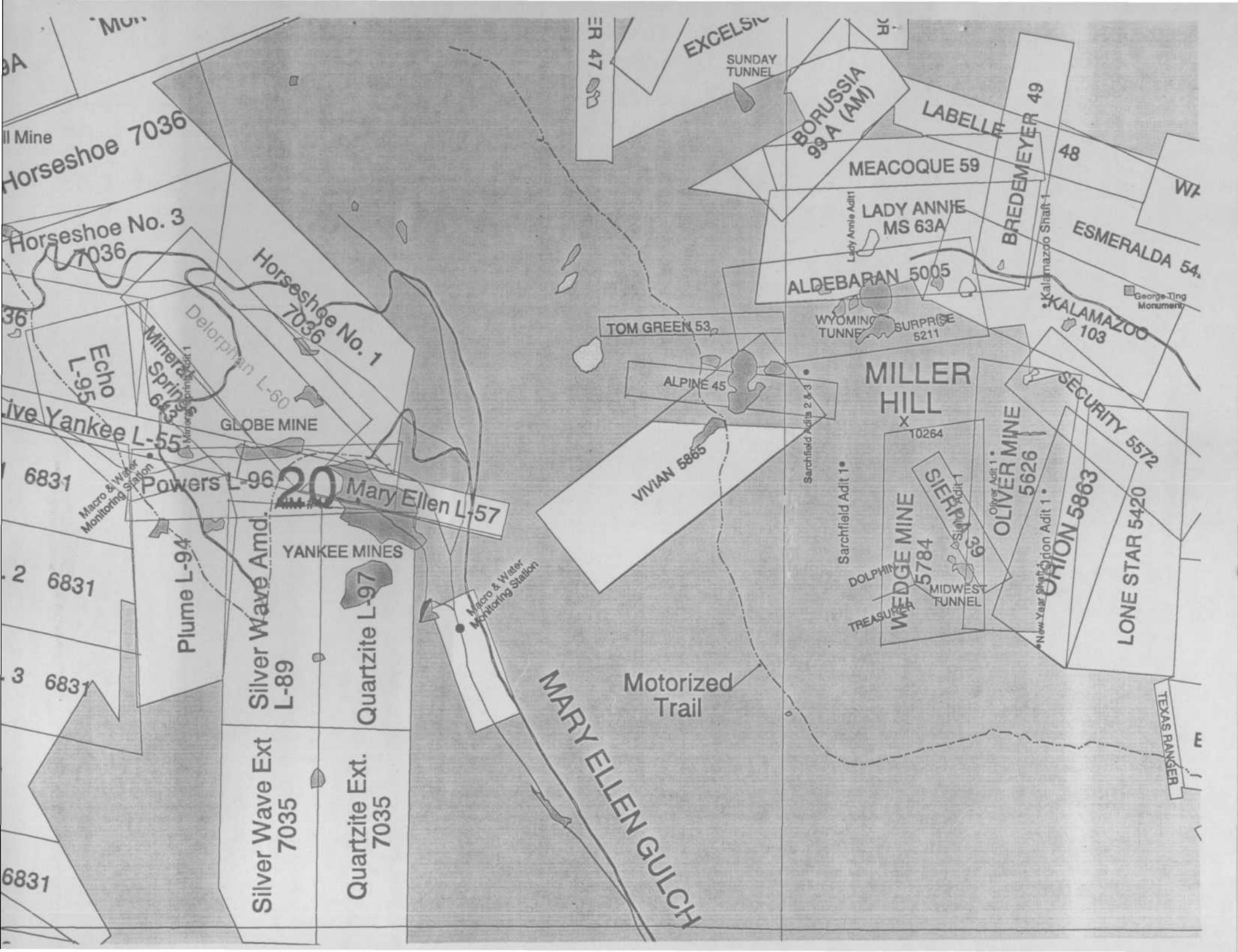
Maximum	Minimum	Order of Magnitude
0.688	0.067	10



Heavy Metals Sampling Sites (Red)

USING B.O.R.'s XRF - MAY 24, 2000




Horseshoe 7036
Horseshoe No. 3 7036
Horseshoe No. 1 7036
Echo L-95
Mineral Springs 643
Delorphan L-60
GLOBE MINE
Live Yankee L-55
Powers L-96
20
Mary Ellen L-57
Macro & Water Monitoring Station
Plume L-94
Silver Wave Amd.
YANKEE MINES
Quartzite L-97
Silver Wave Ext 7035
Quartzite Ext. 7035
Macro & Water Monitoring Station
MARY ELLEN GULCH
Motorized Trail
VIVIAN 5865
TOM GREEN 53
ALPINE 45
EXCELSIOR
SUNDAY TUNNEL
BORUSSIA 99 A (AM)
LABELLE
BREDEMEYER 49
48
MEACOQUE 59
LADY ANNIE MS 63A
Lady Annie Adit1
ALDEBARAN 5005
WYOMING TUNNEL
SURPRISE 5211
Kalamazoo Shaft 1
KALAMAZOO 103
George Ting Monument
ESMERALDA 54
MILLER HILL
10264
Sarchfield Adits 2 & 3
Sarchfield Adit 1
SECURITY 5572
OLIVER MINE 5626
Oliver Adit 1
SIERRA 39
Sierra Adit 1
WEDGE MINE 5784
DOLPHIN
TREASURE
MIDWEST TUNNEL
New Year Shaft 1
Orion Adit 1
ORION 5863
LONE STAR 5420
TEXAS RANGER
6831

Metal Concentrations in Soils at Dutchman Flat Sites

05/24/2000 Ted V. Fitzgerald, FS
Linda Calton, BOR

FS ID #	Location	North Coord	East Coord	Method	Mo	Zr	Sr	Rb	Pb	As	Hg	Zn	Cu	Fe	Mn	Ba	Sb	Sn	Cd
1	Parking Area	4,486,344	449,055	In-Situ	7	8	17	*	5718	*	*	1250	89	2330	*	1100	129	161	*
2	Parking Area	4,486,347	449,055	In-Situ	7	32	21	16	4058	*	*	1460	*	3869	*	1300	112	128	*
3	Parking Area	4,486,324	449,045	In-Situ	13	115	57	84	3259	147	*	5968	*	16691	*	1150	163	152	78
4	Tailings Pile	4,486,369	449,023	In-Situ	18	137	91	158	8384	581	*	5680	*	41498	*	1659	468	116	*
5	Tailings Pile	4,486,381	449,023	In-Situ	*	*	15	36	3600	155	*	6269	*	15898	546	303	317	107	57
5A	Tailings Pile	4,486,381	449,023	Dry Lab	*	*	34	34	3370	107	*	5248	*	16090	718	451	312	184	105
6	Tailings Pile	4,486,401	449,015	In-Situ	16	130	92	92	4650	942	*	3718	*	41498	*	5949	404	194	61
7	Tailings Pile	4,486,408	449,017	In-Situ	55	*	*	*	**21491**	771	*	**24691**	385	15296	*	1610	338	*	136
7A	Tailings Pile	4,486,408	449,017	Dry Lab	198	*	148	*	**68454**	2440	**297**	**54477**	1160	44186	*	5440	527	263	217
8	Tailings Pile	4,486,370	448,991	In-Situ	27	109	46	170	1110	59	*	301	*	13197	*	251	59	121	*
9	Tailings Pile	4,486,359	448,983	In-Situ	13	69	13	122	156	51	*	945	*	24794	*	142	*	82	*
10	Tailings Pile	4,486,361	448,993	In-Situ	9	67	27	57	984	71	*	1150	*	16000	*	204	*	127	*
11	Access Road	no gps		In-Situ	11	168	100	100	1979	148	*	1810	*	16896	752	694	*	154	*
1	Mine Spoils	4,486,484	448,812	In-Situ	*	*	30	*	2659	111	*	7706	289	9619	1560	700	112	118	45
1A	Mine Spoils	4,486,484	448,812	Dry Lab	*	*	47	*	4400	*	*	9824	410	13888	2019	1739	281	188	85
2	Mine Spoils	4,486,485	448,792	In-Situ	*	*	91	*	**11200**	286	**71**	**12000**	1190	25894	*	5459	802	*	173
3	Mine Spoils	4,486,470	448,822	In-Situ	*	*	17	*	2709	98	*	3728	208	9606	2019	161	73	114	*
4	Mine Spoils	4,486,433	448,785	In-Situ	*	*	11	22	233	*	*	339	*	10995	519	39	*	115	*
5	Mine Spoils	4,486,424	448,802	In-Situ	*	*	10	13	1110	*	*	1580	*	6147	1010	180	*	95	*

* <LOD Measurement result does not exceed the detection limit

D Flat: 6/8 area high off stream Tailings Pile

Metal Concentrations in Soils at the Smelter Site Near Dutchman Flat

05/24/2000 Ted V. Fitzgerald, FS
Linda Calton, BOR

FS ID #	Location	North Coord	East Coord	Method	Mo	Zr	Sr	Rb	Pb	As	Hg	Zn	Cu	Co	Fe	Mn	Ba	Sb	Sn	Cd
2	AFC Smelte	4,485,862	448,483	In-Situ	22	*	45	*	21990	966	*	13696	2659	*	69376	2170	701	201	113	*
2A	AFC Smelte	4,485,862	448,483	Dry	29	*	78	*	38400	1160	*	23296	4189	*	109978	2600	616	332	157	*
3	AFC Smelte	4,485,853	448,504	In-Situ	*	26	64	29	3629	92	23	1140	227	235	10598	630	299	*	103	*
4	AFC Smelte	4,485,852	448,483	In-Situ	*	*	40	*	9837	343	*	18688	1250	*	48282	990	83	208	107	58

* <LOD Measurement result does not exceed the detection limit

Smelter Site - @ confluence of Mary Ellen Gulch on Rd - Camp areas
also Rd Sample (Gray) #5 or 6 - high Pb & Zn (Cd?)