WERNECKE TAILINGS
Site #80
(not a MINFILE site)

1. LOCATION AND ACCESS

The bulk of the Wernecke tailings are located in an unnamed lake on the northwest side of Keno Hill, below the Wernecke Mill site (Site #100, Figure 1). The lake is situated at the head of Ladue Creek, just below 2500 feet (762 m) elevation. To the west of the lake is a low saddle which separates the Ladue Creek drainage from the McQuesten River drainage.

There is an old road to the site but its accessibility was not investigated. This site visit was conducted by helicopter. The NTS coordinates for the site are 7 095 400N 484 400E.

2. SITE PHYSIOGRAPHY

The lake is in the valley bottom on the north side of Keno Hill. Water from the unnamed lake discharges into Ladue Creek which enters Gambler Lake before continuing downstream. The tailings are from the Wernecke Mill situated 2.5 km to the south-southeast at an elevation of 3600 feet (1097m). The tailings were discharged into a small creek that drains the mine site, and empties into the lake (Photo 100-1). The creek contains some tailings and a small portion of tailings remain at Wernecke Mine site. The tailings have formed an alluvial fan in the lake, as can be seen in Photo 100-2.

3. GEOLOGY AND MINERALIZATION

The Wernecke Mill processed ore from the Sadie-Friendship and Ladue mines, and the Lucky Queen mine as well as other minor sources. These veins were generally rich in siderite and low in pyrite (Minfile report). The Lucky Queen was reported to also have pyrargyite (silver antimony sulphide) occuring as fine-grained stringers associated with quartz, siderite and pyrite.

No mineralogical study has been conducted of the tailings so the exact mineralogy is unknown.

4. SITE HISTORY

According to the Minfile Report, the Wernecke Mill operated from 1925 to 1931, and milled about 200,000 tons of ore. The method of processing is unknown, but bulk sulphide flotation is likely.

The mill was dismantled and moved to Elsa in 1936.

5. MINE DEVELOPMENT

5.1 Mine Openings And Excavations

There are no mine openings and excvations associated with the tailings deposit itself.

5.2 Waste Rock Disposal Areas

There is no waste rock associated with the tailings deposit.

5.3 Tailings Impoundments

Tailings Dams

There is no dam associated with the Wernecke tailings.

Tailings Ponds

Area: The exact extent of the the tailings within the lake is unclear because water covers much of the pile. However, it is likely that tailings cover the entire floor of the lake. The lake is approximately 800 m long and 500 m wide, giving a surface area of 400,000 m^2. The depth of the tailings is greater than one meter.

Oxidation: Most the the tailings sampled with the auger had iron oxide in mottles in the top 5 to 20 cm.

Slope of tailings: The slope of the exposed tailings at the stream output is gentle (<10 degrees).

Locations and area of saturated tailings: Most of the tailings are below the level of the lake. However, the tailings near the top of the alluvial fan (~1000m^2) are unsaturated.

Sampling: The tailings were sampled using a hand auger to a depth of 1 meter. Sampling to a greater depth was not possible given the difficulty in augering. Two grab samples of tailings were collected in the creek that carried the tailings from the Wernecke Mill site.

One sample of the tailings was also collected from the Wernecke Mill site during the 1996 Phase II study (WS2). Results of field paste pH and conductivity are listed in Table 1. Laboratory analyses are listed in Table 2.

5.5 Mine Site Water Treatment

There is no water treatment facility on site.

6. MINE SITE INFRASTRUCTURE

No mine infrastructure was encountered on site.

7. SOLID WASTE DUMPS

There are no solid waste dumps on site.

8. POTENTIAL CONTAMINANTS OF CONCERN

No industrial contaminants of concern were encountered at the site. However, it is likely that metal contamination of the local surface and groundwater, and of local vegetation has occurred as a result of the tailings deposition.

9. WATER QUALITY

Four water quality samples were collected. They are located on two creeks that flow into the lake from the southeast, the outflow of the lake on the west, and one lake water sample from the north side of the lake. Water quality sample locations are shown in Figure 2. The results of immediate parameters (pH, conductivity, acidity, alkalinity) and metals analyses (ICP) are listed in Table 2.

TABLE 1

Geochemistry of Tailings Solid Samples

Sample No.	Location	Field pH	Field Conductivity (µS)
WS2 (UKHM, 1996)			
100-01-84	Tailings pile	7.4	274
100-01-100	Tailings pile	7.5	129
100-02-50	Tailings pile	6.40	242
100-02-100	Tailings pile		
100-03-30	Tailings pile	5.49	332
100-03-100	Tailings pile	6.28	1005
100-04-25	Tailings pile	7.4	4
100-04-100	Tailings pile	6.9	
100-05-25	Tailings pile	7.1	
100-05-100	Tailings pile	6.9	
100-06-10	Tailings pile	6.8	
100-06-100	Tailings pile	6.8	
100-07-40	Tailings pile	6.54	405
100-07-100	Tailings pile		
100-08-25	Tailings pile	7.3	
100-08-100	Tailings pile	7.2	
100-10-01	Stream sediment	7.4	
100-10-02	Sand bar	6.42	171

Table 2. Water Quality Analyses

Parameter	Detection Limit	Units	99-100-WQ-03 (47699-1)	99-100-WQ-04 (47699-2)	99-100-WQ-02 (47699-3)	99-100-WQ-01 (47699-4)
Field pH			8.23	6.7	4.93	7.45
Field conductivity		µS	566	549	83.2	720
Aluminum	0.0008	mg/L	0.137	0.0141	0.0987	0.0093
Antimony	0.005	mg/L	<0.005	<0.005	0.015	0.01
Arsenic	0.01	mg/L	<0.01	<0.01	<0.01	<0.01
Barium	0.00004	mg/L	0.0185	0.0469	0.0455	0.0406
Beryllium	0.00001	mg/L	<0.00001	<0.00001	<0.00001	<0.00001
Bismuth	0.0004	mg/L	<0.0004	<0.0004	<0.0004	<0.0004
Boron	0.002	mg/L	<0.002	<0.002	<0.002	<0.002
Cadmium	0.00006	mg/L	0.00013	0.00489	0.00099	0.00027
Calcium	0.002	mg/L	7.73	108	80.8	78.9
Chromium	0.00006	mg/L	0.00032	<0.00006	0.00016	0.00014
Cobalt	0.00003	mg/L	0.00028	0.00014	0.00011	<0.00003
Copper	0.00003	mg/L	0.00208	0.00054	0.00184	0.0042
Iron	0.00001	mg/L	0.597	0.148	0.365	0.04
Lead	0.0003	mg/L	<0.0003	0.0009	0.035	0.0032
Lithium	0.001	mg/L	<0.001	0.005	0.004	0.003
Magnesium	0.0005	mg/L	2.34	25.6	23.6	22.4
Manganese	0.00002	mg/L	0.0291	0.119	0.0711	0.0103
Molybdenum	0.00007	mg/L	<0.00007	0.00087	0.00137	0.00118
Nickel	0.00001	mg/L	0.0028	<0.0001	<0.0001	<0.0001
Phosphorus	0.03	mg/L	<0.03	<0.03	<0.03	<0.03
Potassium	0.4	mg/L	<0.4	0.4	<0.4	<0.4
Selenium	0.004	mg/L	0.005	<0.004	<0.004	0.008
Silicon	0.004	mg/L	2.09	2.88	0.802	1.02
Silver	0.00005	mg/L	<0.00005	<0.00005	0.00101	<0.00005
Sodium	0.004	mg/L	<0.4	1.9	1.5	1.6
Strontium	0.00002	mg/L	0.0207	0.29	0.244	0.233
Sulphur	0.008	mg/L	0.895	67.5	62.1	58.3
Thallium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Titanium	0.00002	mg/L	0.00088	0.00026	0.00243	0.00012
Vanadium	0.00003	mg/L	0.00011	<0.00003	<0.00003	<0.00003
Zinc	0.0002	mg/L	0.0142	0.555	0.103	0.0788
Zirconium	0.00004	mg/L				
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic (hydride AA)	0.0002	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Selenium (hydride AA)	0.0001	mg/L	0.0005	0.0004	<0.0001	<0.0001
Total Alkalinity	5	mg CaCO3/	10	170	103	113
Chloride	2.5	mg/L	na	<0.25	<0.25	<0.25
Chloride	0.5	mg/L	<0.5	na	na	na
Electrical Conductivity	0.01	µS/cm	49	710	550	570
Hardness (CaCO3 equiv	5	mg/L	35	438	314	324
Nitrate-N	0.05	mg/L	na	0.09	<0.05	<0.05
Nitrate-N	0.1	mg/L	<0.1	na	na	na
Nitrite-N	0.003	mg/L	<0.003	<0.003	<0.003	<0.003
pH	0.01	pH	6.19	7.97	8.08	8.36
Sulphate	1	mg/L	1.4	204	175	180
Total Dissolved Solids	5	mg/L	103	487	388	434

10. RECLAMATION

Most of the approximatly 45,000m^2 area of the tailings that is exposed has revegetated naturally with some type of grass or moss, and up to 8 cm of organic matter has accumulated beneath the grasses. It is only an area of approximately 10,000 m^2, near the top of the alluvial fan, that has no vegetation cover. The reason for the exposed tailings in the alluvial fan is thought to be twofold. First, the tailings at the top of the fan are above the water level and are, therefore, dryer. Secondly, tailings are likely re-deposited in this area during each spring freshet, distrubing any vegetation that tries to take hold.

No active reclamation has taken place.

11. REFERENCES AND PERSONAL COMMUNICATIONS

Norecol, Dames and Moore, 1996. Final Report - Site Assessment Report, Wernecke Camp, Keno Hill, Yukon. For Public Works and Government Services. Job No. 20749-013-310, March 7, 1997.

Table 2. Tailings Solids Analysis

Parameter	Detection Limit	Unit	100-01-84 - Wernt	100-01-100 - Wernt	100-02-50 - Wernt	100-02-100 - Wernt
Sample Depth		**cm**	**84**	**100**	**50**	**100**
Paste pH			7.8	7.5	6.9	7.6
S(T)		%	1.47	1.75	1.12	1.99
S(SO4)		%	0.01	0.06	0.03	0.02
AP		tonne CaCO3 eq./ tonne	45.6	52.8	34.1	61.6
NP		tonne CaCO3 eq./ tonne	74.1	84.4	23.1	65.0
Net NP		tonne CaCO3 eq./ tonne	28.4	31.6	-10.9	3.4
NP/AP			1.6	1.6	0.7	1.1
pH in Saturated Paste						
pH	0.1	pH	6.7	6.5	6.1	6.6
pH in Soil (1:2 water)						
pH	0.01	pH	6.4	7	6.8	7.2
ICP Semi-Trace Scan - Metals						
Aluminum	5	µg/g wet	9070	3700	4370	6970
Antimony	2	µg/g wet	57	74	180	83
Arsenic	2	µg/g wet	75	70	77	121
Barium	0.05	µg/g wet	86.7	52.6	59	69.9
Beryllium	0.1	µg/g wet	<0.1	<0.1	<0.1	<0.1
Bismuth	5	µg/g wet	<5	<5	<5	<5
Cadmium	0.1	µg/g wet	447	456	390	515
Calcium	5	µg/g wet	14600	16000	4120	10500
Chromium	0.5	µg/g wet	8.3	5.4	6.9	9.1
Cobalt	0.1	µg/g wet	3.9	4.3	4.3	5.4
Copper	0.5	µg/g wet	88.6	106	127	98.2
Iron	1	µg/g wet	160000	190000	120000	140000
Lead	1	µg/g wet	1620	1620	3670	1970
Lithium	0.5	µg/g wet	3.1	2.4	1.8	2.9
Magnesium	1	µg/g wet	18300	19200	10600	15500
Manganese	0.5	µg/g wet	53600	55300	44200	49500
Mercury	0.01	µg/g wet	1.5	2.1	1	1.7
Molybdenum	1	µg/g wet	7	7	5	6
Nickel	0.2	µg/g wet	7.9	7.2	8.3	8.6
Phosphorus	5	µg/g wet	224	160	220	221
Potassium	20	µg/g wet	3440	2000	1590	3050
Selenium	2	µg/g wet	<2	<2	<2	<2
Silicon	5	µg/g wet	19	26	192	287
Silver	0.5	µg/g wet	73.9	76.5	293	89.8
Sodium	5	µg/g wet	240	156	169	209
Strontium	1	µg/g wet	<1	<1	<1	<1
Sulphur	10	µg/g wet	19500	22300	145	21000
Thorium	1	µg/g wet	<1	<1	<1	<1
Tin	1	µg/g wet	2	<1	1	3
Titanium	0.2	µg/g wet	86.5	39.1	48.3	51.8
Uranium	5	µg/g wet	<5	<5	<5	<5
Vanadium	1	µg/g wet	19	14	11	17
Zinc	0.5	µg/g wet	32000	37700	26200	36900
Zirconium	0.1	µg/g wet	5.9	5.7	7.4	7.9

Table 2. Tailings Solids Analysis

Parameter	Detection Limit	Unit	100-03-30 - Wernt	100-03-100 - Wernt	100-04-25 - Wernt	100-04-100 - Wernt
Sample Depth		**cm**	**30**	**100**	**25**	**100**
Paste pH			7.1	7.7	7.0	7.4
S(T)		%	0.87	1.19	0.81	1.50
S(SO4)		%	0.03	0.03	0.09	0.04
AP		tonne CaCO3 eq./ tonne	26.3	36.3	22.5	45.6
NP		tonne CaCO3 eq./ tonne	15.0	53.8	25.0	48.1
Net NP		tonne CaCO3 eq./ tonne	-11.3	17.5	2.5	2.5
NP/AP			0.6	1.5	1.1	1.1
pH in Saturated Paste						
pH	0.1	pH	6.3	6.7	6.4	6.6
pH in Soil (1:2 water)						
pH	0.01	pH	6.9	7.4	6.9	7.2
ICP Semi-Trace Scan - Metals						
Aluminum	5	µg/g wet	4040	6550	4800	6930
Antimony	2	µg/g wet	200	96	220	120
Arsenic	2	µg/g wet	58	71	69	73
Barium	0.05	µg/g wet	55.8	59	76.1	84.9
Beryllium	0.1	µg/g wet	<0.1	<0.1	<0.1	<0.1
Bismuth	5	µg/g wet	<5	<5	<5	<5
Cadmium	0.1	µg/g wet	246	333	211	323
Calcium	5	µg/g wet	3550	13400	3560	7720
Chromium	0.5	µg/g wet	7.4	9.1	9.7	10.2
Cobalt	0.1	µg/g wet	2.8	4.5	3.3	3
Copper	0.5	µg/g wet	155	73.2	175	88.5
Iron	1	µg/g wet	98000	120000	100000	100000
Lead	1	µg/g wet	3550	2340	3730	3070
Lithium	0.5	µg/g wet	1.7	2.6	2.2	1.9
Magnesium	1	µg/g wet	7080	12800	8440	9770
Manganese	0.5	µg/g wet	31400	41200	33700	34400
Mercury	0.01	µg/g wet	0.69	1.3	1	1.1
Molybdenum	1	µg/g wet	4	5	4	4
Nickel	0.2	µg/g wet	7.2	9.7	8.5	7.4
Phosphorus	5	µg/g wet	209	318	208	249
Potassium	20	µg/g wet	1460	2340	2020	2690
Selenium	2	µg/g wet	<2	<2	<2	<2
Silicon	5	µg/g wet	666	5550	349	6130
Silver	0.5	µg/g wet	261	82.2	335	130
Sodium	5	µg/g wet	140	190	198	187
Strontium	1	µg/g wet	<1	4	3	3
Sulphur	10	µg/g wet	9700	13400	9400	12400
Thorium	1	µg/g wet	<1	<1	<1	<1
Tin	1	µg/g wet	4	2	3	1
Titanium	0.2	µg/g wet	34.3	41.7	56	37.4
Uranium	5	µg/g wet	<5	<5	<5	<5
Vanadium	1	µg/g wet	10	14	13	14
Zinc	0.5	µg/g wet	16700	23500	16300	20800
Zirconium	0.1	µg/g wet	6.7	10	8.6	7.1

Table 2. Tailings Solids Analysis

Parameter	Detection Limit	Unit	100-05-25 - Wernt	100-05-100 - Wernt	100-06-60 - Wernt	100-06-100 - Wernt
Sample Depth		**cm**	**25**	**100**	**60**	**100**
Paste pH			7.2	7.3	7.3	7.6
S(T)		%	1.48	0.98	0.75	0.52
S(SO4)		%	0.03	0.02	0.03	0.02
AP		tonne CaCO3 eq./ tonne	45.3	30.0	22.5	15.6
NP		tonne CaCO3 eq./ tonne	39.8	26.8	29.3	18.8
Net NP		tonne CaCO3 eq./ tonne	-5.6	-3.2	6.8	3.1
NP/AP			0.9	0.9	1.3	1.2
pH in Saturated Paste						
pH	0.1	pH	6.4	6.3	6.7	7.1
pH in Soil (1:2 water)						
pH	0.01	pH	6.86	7.2	7.3	7.5
ICP Semi-Trace Scan - Metals						
Aluminum	5	µg/g wet	7010	4790	6250	6540
Antimony	2	µg/g wet	91	190	170	220
Arsenic	2	µg/g wet	66	48	47	36
Barium	0.05	µg/g wet	88.4	71	87	175
Beryllium	0.1	µg/g wet	<0.1	<0.1	<0.1	<0.1
Bismuth	5	µg/g wet	<5	<5	<5	<5
Cadmium	0.1	µg/g wet	402	276	219	98.2
Calcium	5	µg/g wet	11800	4260	6770	3900
Chromium	0.5	µg/g wet	8.1	8.6	9.6	12
Cobalt	0.1	µg/g wet	2.9	2.9	2.6	2.1
Copper	0.5	µg/g wet	88.9	114	105	108
Iron	1	µg/g wet	130000	100000	95000	80000
Lead	1	µg/g wet	3780	3950	4150	5100
Lithium	0.5	µg/g wet	2.6	1.3	1.5	1.7
Magnesium	1	µg/g wet	14200	7970	7650	4380
Manganese	0.5	µg/g wet	43300	35400	30400	24800
Mercury	0.01	µg/g wet	1.4	0.9	0.8	0.5
Molybdenum	1	µg/g wet	6	4	5	2
Nickel	0.2	µg/g wet	6	7.3	6.7	6.3
Phosphorus	5	µg/g wet	221	171	230	249
Potassium	20	µg/g wet	2070	1810	2200	2880
Selenium	2	µg/g wet	<2	<2	<2	<2
Silicon	5	µg/g wet	6260	966	6420	170
Silver	0.5	µg/g wet	146	235	159	157
Sodium	5	µg/g wet	291	147	220	226
Strontium	1	µg/g wet	<1	<1	4	5
Sulphur	10	µg/g wet	17400	11300	9100	6100
Thorium	1	µg/g wet	<1	<1	<1	<1
Tin	1	µg/g wet	<1	3	2	4
Titanium	0.2	µg/g wet	59.8	38.7	41	36.9
Uranium	5	µg/g wet	<5	<5	<5	<5
Vanadium	1	µg/g wet	14	11	13	14
Zinc	0.5	µg/g wet	29800	18800	15800	9520
Zirconium	0.1	µg/g wet	7.5	8.2	7.9	7.2

Table 2. Tailings Solids Analysis

Parameter	Detection Limit	Unit	100-07-40 - Wernt	100-07-100 - Wernt	100-08-25 - Wernt	100-08-100 - Wernt
Sample Depth		**cm**	**40**	**100**	**25**	**100**
Paste pH			7.3	7.7	7.5	7.7
S(T)		%	1.34	1.37	0.96	1.06
S(SO4)		%	0.03	0.01	0.06	0.01
AP		tonne CaCO3 eq./ tonne	40.9	42.5	28.1	32.8
NP		tonne CaCO3 eq./ tonne	45.8	52.3	31.8	43.8
Net NP		tonne CaCO3 eq./ tonne	4.8	9.8	3.6	10.9
NP/AP			1.1	1.2	1.1	1.3
pH in Saturated Paste						
pH	0.1	pH	6.6	6.7	6.8	7.4
pH in Soil (1:2 water)						
pH	0.01	pH	7.2	6.7	7.1	7
ICP Semi-Trace Scan - Metals						
Aluminum	5	µg/g wet	8870	10500	21100	6640
Antimony	2	µg/g wet	43	75	33	76
Arsenic	2	µg/g wet	64	80	47	59
Barium	0.05	µg/g wet	143	130	440	99.3
Beryllium	0.1	µg/g wet	<0.1	<0.1	<0.1	<0.1
Bismuth	5	µg/g wet	<5	<5	<5	<5
Cadmium	0.1	µg/g wet	332	320	207	217
Calcium	5	µg/g wet	13600	11900	14900	8820
Chromium	0.5	µg/g wet	11.5	10.5	23.8	8.8
Cobalt	0.1	µg/g wet	4	3.2	6	3.2
Copper	0.5	µg/g wet	65.8	80.3	69.1	62.5
Iron	1	µg/g wet	120000	130000	94000	94000
Lead	1	µg/g wet	1470	2170	1460	1980
Lithium	0.5	µg/g wet	3.7	3.2	11.9	2.7
Magnesium	1	µg/g wet	13500	13000	11900	8750
Manganese	0.5	µg/g wet	36300	43600	22800	30400
Mercury	0.01	µg/g wet	0.25	1.4	0.67	0.02
Molybdenum	1	µg/g wet	5	6	5	5
Nickel	0.2	µg/g wet	9.4	7.4	18.9	8.6
Phosphorus	5	µg/g wet	323	338	686	326
Potassium	20	µg/g wet	2660	4080	5800	2370
Selenium	2	µg/g wet	<2	<2	<2	<2
Silicon	5	µg/g wet	761	286	278	434
Silver	0.5	µg/g wet	54.9	82.4	48.6	73.9
Sodium	5	µg/g wet	567	308	1300	323
Strontium	1	µg/g wet	9	1	29	5
Sulphur	10	µg/g wet	13700	14900	10200	9900
Thorium	1	µg/g wet	<1	<1	<1	<1
Tin	1	µg/g wet	<1	2	3	4
Titanium	0.2	µg/g wet	110	68.3	345	55.5
Uranium	5	µg/g wet	<5	<5	<5	<5
Vanadium	1	µg/g wet	21	18	44	13
Zinc	0.5	µg/g wet	24100	26100	15100	16600
Zirconium	0.1	µg/g wet	9.2	6.3	13.3	7.2

Table 2. Tailings Solids Analysis

Parameter	Detection Limit	Unit	100-10-01 - Wernt	100-10-02 - Wernt
Sample Depth		**cm**	**0**	**0**
Paste pH			7.3	7.2
S(T)		%	0.77	0.36
S(SO4)		%	<0.01	0.02
AP		tonne CaCO3 eq./ tonne	24.1	10.6
NP		tonne CaCO3 eq./ tonne	35.8	22.5
Net NP		tonne CaCO3 eq./ tonne	11.7	11.9
NP/AP			1.5	2.1
pH in Saturated Paste				
pH	0.1	pH	6.7	6.8
pH in Soil (1:2 water)				
pH	0.01	pH	6.7	6.9
ICP Semi-Trace Scan - Metals				
Aluminum	5	µg/g wet	4260	5260
Antimony	2	µg/g wet	96	71
Arsenic	2	µg/g wet	69	44
Barium	0.05	µg/g wet	49.3	84.8
Beryllium	0.1	µg/g wet	<0.1	<0.1
Bismuth	5	µg/g wet	<5	<5
Cadmium	0.1	µg/g wet	180	57.7
Calcium	5	µg/g wet	7590	3640
Chromium	0.5	µg/g wet	6.4	8.1
Cobalt	0.1	µg/g wet	3.3	1.6
Copper	0.5	µg/g wet	77.9	38.1
Iron	1	µg/g wet	100000	84000
Lead	1	µg/g wet	2040	1960
Lithium	0.5	µg/g wet	1.8	1.6
Magnesium	1	µg/g wet	9810	6510
Manganese	0.5	µg/g wet	35000	28000
Mercury	0.01	µg/g wet	0.08	0.35
Molybdenum	1	µg/g wet	3	1
Nickel	0.2	µg/g wet	6.8	5.6
Phosphorus	5	µg/g wet	220	207
Potassium	20	µg/g wet	1500	1970
Selenium	2	µg/g wet	<2	<2
Silicon	5	µg/g wet	247	363
Silver	0.5	µg/g wet	84.8	57
Sodium	5	µg/g wet	160	130
Strontium	1	µg/g wet	<1	<1
Sulphur	10	µg/g wet	7400	2930
Thorium	1	µg/g wet	<1	<1
Tin	1	µg/g wet	2	3
Titanium	0.2	µg/g wet	42.7	29
Uranium	5	µg/g wet	<5	<5
Vanadium	1	µg/g wet	10	10
Zinc	0.5	µg/g wet	14200	5450
Zirconium	0.1	µg/g wet	5.5	5.6

22A* Building (22A: building site present reference*) Indicates Asbestos Material

22A Collapsed Building

Adit

Collapsed Adit

Shaft

Collapsed/Backfilled Shaft

Mine Rock Dump

Bedrock Open Pit

Trench

Stripped Overburden Stockpile

Stripped / Disturbed Area

Outcrop Boundary

Highway

Road (gravel, 2 wheel drive)

Road (gravel, 4X4 accessible)

Road (inaccessible)

Trail

Culvert

2450I-01 1999 Soil Sample (this study)

Pre 1999 Soil Sample (other sources)

25WR04-01 1999 Waste Rock Sample (this study)

Pre 1999 Waste Rock Sample (other sources)

WO-12-06 1999 Water Sample

Pre 1999 Water Sample

Tension Cracks

Mass Movement (note: for Forms; BelleKeno)

Groundwater Seep

Surface Water Flow (Stream, Creek, River)

Lake

Settling Pond / Water Treatment Pond

Tailings Dam / Tailings Pond / Mill Tails

Ponded Water / Trench

Barrels

Abandoned Equipment (compressors, ore cars, rails, air and water pipe)

Mine Rails / Trestle

Collapsed Trestle

Solid Waste Disposal Site

Area of Soil Contamination

*(6) Transformer Loaction (number of transformer in brackets)

Power Line

Power Line Collapsed

Aerial Transmission Towers

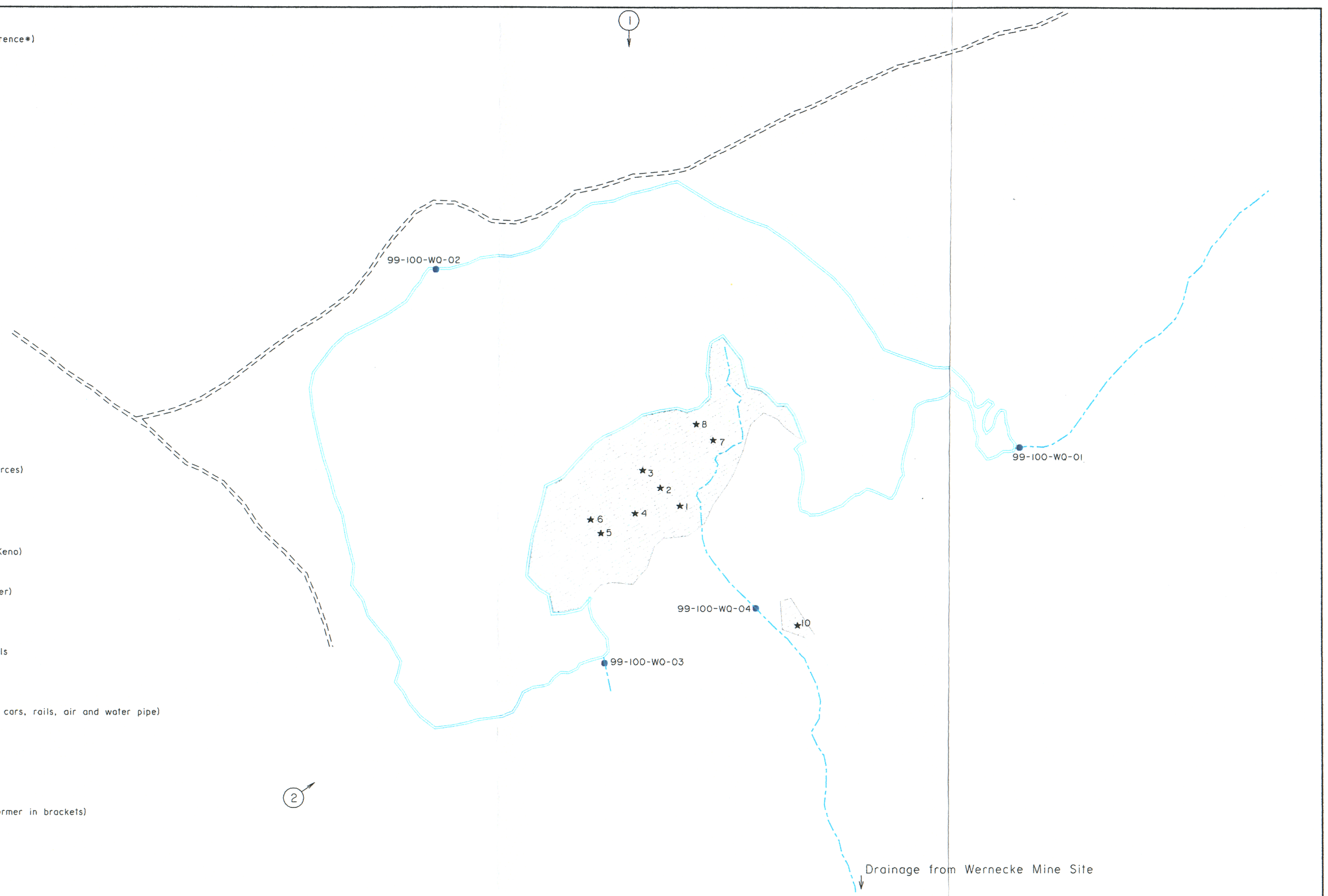
5 Photo Site (arrow shows view direction)

GPS Survey Location

Former Building Site (Elsa)

★ 1999 Tailings Sample

Tailings



0 50 100 150 200

Scale 1:5000

CAD FILE: SITE80.DGN

Public Works And Government Services Canada / Travaux publics et Services gouvernementaux Canada

Architectural & Engineering Services
Western Region

Drawing title: / Titre du dessin:

Wernecke Tailings Site #80
Site Assessment
Yukon Territory

designed by: / concu par:
date:
drawn by: / dessine par: C.S. Nov./99
approved by: / approuve par:
revisions:
project no. / no. du projet: 125-12.01
dwg. no. / dessin no. 1 of 1

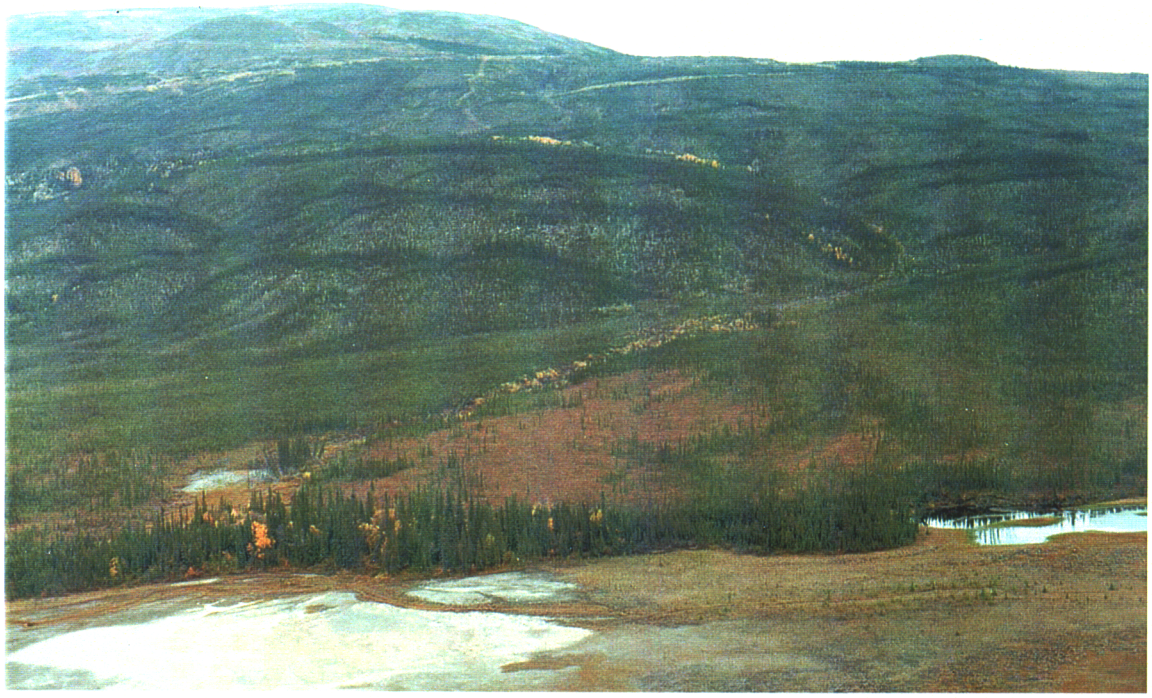


Photo 80-1. View of small creek (visible by line of yellow willows) which carried tailings into the lake.

Photo 80-2. Aerial view of tailings, looking eastward. Note that much of the tailings fan is submerged or has naturally revegetated.