BLACK CAP, SHEPHERD AND LUCKY QUEEN ADITS

SITE# 25

MINFILE# 105M001ac

1. LOCATION AND ACCESS

This site includes three separate mine workings: the Black Cap open pit and adit, the Shepherd adit (also known as the Brewis Red Lake adit) and the Lucky Queen adit. The Black Cap, Shepherd and Lucky Queen (BSLQ) sites are situated within 450 metres of each other with Black Cap to the northeast and Shepherd in the southwest. They are all located on the western slopes of Keno Hill roughly a kilometre north of Erickson Gulch between elevations 1,360m and 1,480m (Figure 25-1; Photos 25-1, 25-2).

SITE LOCATIONS

	UTM Northing	UTM Easting	Elevation
Black Cap Pit	7,091,675m	486,950m	1,430m
Black Cap Adit	7,091,510m	486,910m	1,430m
Shepherd	7,091,310m	486,825m	1,375m
Lucky Queen	7,091,475m	486,750m	1,370m

A two-wheel drive road provides access to all three sites. The Black Cap road turns southeast off the Wernecke Road at 3.8km from Keno Hill town site. The road switchbacks once before reaching the Lucky Queen adit at 2.7km, the Shepherd adit at 3.9km and the Black Cap pit at 4.3km. The road is impassable past the Black Cap workings. A locked gate restricts larger vehicle access at the start of the Black Cap Road, although ATV's can easily get by (Photo 25-3). Site details and photograph locations can be found on Figure 1. Site photos are located in Attachment 1.

2. SITE PHYSIOGRAPHY (Photos 25-1, 25-2)

The BSLQ sites are situated at tree line on a west facing, moderately sloping area of thick colluvial soil and till, blocky talus and scattered bedrock outcrops. The slope increases across the site from 10° in the south to more than 15° in the north where bedrock outcrops are common.

Surface water is limited to small seeps below the site at 1,340m elevation. The only drainage channel connecting the site to Erickson Creek is the ditch along the upper road switchback. There are no culverts or waterbars along the entire 1km length to dissipate the spring surface water run off. Permafrost is likely present and solifluction is evident over much of the area.

3. GEOLOGY AND MINERALIZATION

The BSLQ site occurs at the contact between Earn Group sericite schist/phyllite to the south and medium to thick bedded Keno Hill quartzite with carbonaceous phyllite to the north. The Black Cap pit area occurs almost entirely in Keno Hill quartzites. The Lucky Queen adit was collared in Earn Group phyllites.

Siderite, galena and freibergite mineralization occurs in two zones of sheeted quartz veins on the Black Cap and Shepherd areas. The zones occur 15 metres apart along parallel sections of a regional shear structure striking 030°.

4. SITE HISTORY

Work on the site dates to before 1950 when a shaft was sunk on Black Cap. Between 1950 and 1952, the 6m winze and the 280m Brewis Red Lake adit were developed at Shepherd. Approximately 340m of drifting was completed on the Black Cap in 1967. Total production at the site is 44,068 tonnes grading 939 g/t silver, 1.61% lead and 0.28% zinc.

5. MINE DEVELOPMENT

There are two adits, one at Lucky Queen and one at Black Cap. The Shepherd was located roughly 180m southwest of the Lucky Queen Adit, however the site has been bulldozed level and no evidence of the adit or associated waste rock piles are apparent. The area was not investigated. There are two open pits at Black Cap; the North Black Cap Pit and the South Black Cap Pit. Five waste rock piles are associated with these excavations.

Mine development includes the Blackcap Road. The upper switchback of the Blackcap Road extends roughly 800 across the slope below the Lucky Queen Adit. There are no water bars or culverts to divert the ditch water back to the slope below the road. During spring runoff the ditch water runs off the end of the middle switchback into Erickson Gulch where poor slope stability and the excess runoff have caused minor slope failures.

5.1 Mine Openings and Excavations

Two adits and two open pits were encountered at this site.

Lucky Queen Adit (photo 25-7, 25-8, 25-9)

The adit is on the east side of the Black Cap Road, downslope of the Black Cap Pits. There is timber cribbing and wooden door at the collar of the adit. The timbers behind the adit door have collapsed, making the entrance impassible. An exterior wooden portal structure 4m wide by 2.5m high extends 15m between the door to the adit and the load-out building (building 25A). All the water lines (2 inch steel), air lines (6 inch steel), vent

tubing (0.5m plastic material) and electrical cable remain intact extending from the end of the portal underground. A 2 inch steel water line with a doubled copper heater coil inside it was installed to provide winter drainage. The water line drain and coil runs along the ditchline from underground, out the side of the load out building and then 70m northwest at azimuth 300° across the side hill. The heater coil extends a further 30m beyond the end of the pipe.

Black Cap Adit (photo 25-6)

The entrance to the adit is located roughly 100m south of the south end of the North Black Cap Pit. The opening measures about 2m high by 2.5m wide and is supported by timbers. No collapses were visible in the first 50m. The adit is filled with approximately 40cm of standing water making further investigation of the adit unpractical. A gravel berm located outside of the portal was built to damn mine drainage; however, water is seeping through the berm and a large puddle has formed on the other side. Water flowing from the puddle continues down the road for at least 50m before seeping back into the ground.

North (Upper) Black Cap Pit (photo 25-4)

The pit is located upslope of the Black Cap Adit. It measures roughly 130m long by 45m wide by 35m high. The steep-sided pit walls are comprised of predominantly quartzite containing some stacked quartz-siderite veins. A large volume of rock debris was observed at the base of the walls indicating a possible safety hazard. There was no vegetation observed in the pit.

South (Lower) Black Cap Pit (photo 25-5)

The pit is located between the North Pit and the Black Cap Adit. The pit measures roughly 80m by 50m by 15m high. The pit walls are composed of mainly quartzite with some outcropping of phyllite. There is a large volume of rock debris at the base of the pit walls. There was no vegetation observed in the pit.

5.2 Waste Rock Disposal Areas

There are five waste rock piles associated with the excavations on the BSLQ properties. No surface water was encountered on any of the piles; however, a strong flow of water was audible under Waste Rock Pile WR-02. There is very little vegetation growing on any of the waste rock piles. Rock samples were collected and analyzed. Paste pH tests were also performed. Refer to the attachments for these data.

Waste Rock Pile WR-01

The origin of the waste rock is likely from the South Black Cap Pit. The surface material comprises a mix of blocky quartzite with trace pyrite (65%), medium gray carbonaceous phyllitic schist (32%), and a small volume of rusty manganese-stained quartzite containing siderite-quartz veins and siderite-quartz-galena veins.

Location: The pile starts 120m southeast of Black Cap Adit.

Dimensions (L x W x H): 80m x 50m x (3 to 15m)

Sampling: Sample 25WR-01-01 was collected and analyzed.

Waste Rock Pile WR-02

The waste rock was excavated from the North Black Cap Pit. It is comprised of mainly phyllitic schists (62%) and thin to moderately banded quartzite (25%) with lesser amounts of blocky quartzite (10%), stacked quartz veins and veinlets (2%) and manganese stained siderite-quartz veins (1%).

WR-03 is potentially unstable. Large active solifluction lobes were observed in the natural soils at the toe of the southwest slope of WR-03. The southwest slope was also observed to be convex in shape and to have a profile of up to 40°.

Location: The pile is located immediately west of the North Black Cap Pit.

Dimensions (L x W x H): There are three lobes, comprising an area of 180m by 75m and an average height of 7m.

Sampling: Sample 25WR-02-01 was collected from the middle lobe and analyzed.

Waste Rock Pile WR-03 (photo 25-10, 25-12)

This waste rock is likely from the North Black Cap Pit but may also contain rock from the South Black Cap Pit. The pile is comprised of predominately phyllitic schist (50%) and massive, blocky quartzite (30%), with lesser amounts of thin to moderately banded quartzite (10%), quartzite with trace to 1% pyrite (5%), manganese stained siderite-quartz veins (3%) and stacked quartz veins and veinlets (1%). Tension cracks observed on the top of the pile and the over-steepened (40°), convex sides indicate that the toe of the slope is possibly moving due to solifluction.

Location: The pile is located to the southeast of the North and South Black Cap Pits.

Dimensions (L x W x H): 270m x 30m x 25m

Sampling: Sample 25WR-03-01 was collected and analyzed.

Waste Rock Pile WR-04

The waste rock was excavated from the Black Cap Adit. It is composed of almost all quartzite, both thin to moderately banded (60%) and massive (24%). There are minor amounts of greenstone (10%), stacked quartz veins and veinlets (5%) and manganese stained siderite-quartz veins (1%).

Location: The waste rock was dumped outside of the Black Cap Adit.

Dimensions (L x W x H): 110m x 40m x 15m

Sampling: Sample 25WR-04-01 was collected and analyzed.

Waste Rock Pile WR-05 (photo 25-11)

The waste rock in this pile was excavated from the Lucky Queen Adit. It is mostly quartzite, 50% banded with trace to 1% pyrite, and 20% massive. There is roughly 15% phyllitic schist, 10% greenstone and 5% stacked quartz veins and veinlets.

Location: The waste rock was dumped outside of the Lucky Queen Adit.

Dimensions (L x W x H): 200m x 50m x 35m

Sampling: Sample 25WR-05-01 was collected and analyzed.

5.3 Tailings Impoundments

No ore was processed at the site. No tailings were encountered.

5.4 Minesite Water Treatment

There is no water treatment facility at this site.

6. MINE SITE INFRASTRUCTURE

The tracks used to transport rock out of Lucky Queen Adit are still in place in the load-out structure outside of the adit. Various sized fuel containers were observed in the workshop nearby. Two more fuel storage areas were encountered on top of Waste Rock Pile WR-01.

6.1 Buildings (photo 25-13)

There are two buildings located on the BSLQ property; a load out and a workshop.

Building 25A: Load-Out

Outside of the Lucky Queen portal is a corrugated-metal clad building that was used as a load-out for the ore and waste rock. The rock was transported out of the adit and through the building by ore carts and then dumped into vehicles below. The building is L-shaped and measures 31m by 9m and 42m by 5m. It is in good condition and the rails are still in place. The building is a wood timber frame construction with no insulation and metal siding and roofing. No asbestos containing materials were encountered.

Building 25B: Workshop (photos 25-15, 25-16, 25-17)

To the east of the load-out is a 24m by 10m corrugated-metal clad workshop. The workshop has three rooms: a first aid room at one end, a garage area with two bay doors in the middle and a machine room at the other end. There are wooden floors in the first aid room and the machine room and a gravel floor in the garage area. There

were a number of fuel containers (described under Fuel Storage Areas below), drilling equipment, piping, pressure vessel and other miscellaneous debris. No asbestos containing materials were encountered.

6.2 Fuel Storage (Photos 25-15, 25-16 and 25-17)

There are two drum storage areas on the east side of Waste rock pile WR-01. One area contains 10 drums and the second has 5 drums. One of the drums in the 10 drum pile is roughly two-thirds full with 10% waste oil/transmission oil and the rest water. There is a 2m by 1m by 10cm stain, believed to be waste oil, near the 10 drum pile.

Inside the workshop there are three 45-gallon drums; one contains gasoline, one contains transmission oil and one is empty. There are a number of smaller pails that contain hydraulic oil, waste oil, transmission oil and some solvents. A number of stains were observed inside of the shop both on the wooden floorboards and on the gravel floor. One small stain was observed outside of the bay doors. Two soil samples were collected from each of two pits and analyzed for metals and petroleum hydrocarbons (LEPH/HEPH and VPH). Samples 25TP01-S01 and -02 were collected from soils inside the workshop (building 25B) where contamination from solvent was suspected. Samples 25TP04-S01 and -02 were background samples collected in front of the shop away from the suspected contamination. The area surrounding and inside the shop was graveled with up to 5cm of crushed rock from an unknown source.

6.3 Rail and Trestle (Photo 25-13)

There are roughly 75m of tracks that come out of the Lucky Queen Adit and into the load-out building (building 25A). The loadout is built up on a 3m high cribbed wall roughly 30m long. The track and loadout are in good condition and still functional.

Old trestle and rail have been pushed off the edge of the waste piles at the Blackcap adit (WR-04).

6.4 Milling and Processing Infrastructure

No ore was processed here. There is no milling or processing infrastructure at this site.

6.5 Electrical Equipment

No electrical equipment was encountered at the site. Electrical cable extends underground from the portal area of the Lucky Queen adit.

7. SOLID WASTE DUMPS (Photo 25-2)

Four abandoned and burnt out compressors are located at the south end of the North Black Cap Pit. They do not appear to be of any risk. No fuel or waste oil stains were observed on the ground adjacent to them and no fuel or oil remains in them. No soil samples were collected at the site.

8. POTENTIAL CONTAMINANTS OF CONCERN

There is impact associated with petroleum staining in the workshop. See Section 6.2 above for details. Other contaminants of concern are any metals washing from the pit walls, waste rock piles or underground workings.

9. WATER QUALITY (photos 25-14, 25-6)

Three water samples were collected on the site. Mine drainage water was collected from both the Black Cap and Lucky Queen adits. At the Blackcap adit, water seeps through gravel berm located just outside the portal and down the road at least 50m before seeping back into the ground. Sample 25WQ-A01-01/02 was collected from the water flowing outside the berm. Sample 25WQ-A02-01/02 was collected from water flowing in the mine ditch inside the portal of the Lucky Queen adit. A third sample was also collected from a seep above the Black Cap Road, down slope and roughly 170m southwest of the Lucky Queen adit (25WQ-S01-01/02). Analytical results are attached.

10. RECLAMATION

Very little vegetation is growing back in the disturbed areas.

12. REFERENCES

Minfile #100M001ac

United Keno Hill Mines Limited. 1996. *United Keno Hill Mines Limited – Site Characterization.* Report No. UKH/96/01, prepared by Access Mining Consultants Limited.

United Keno Hill Mines Limited. 1996. *United Keno Hill Mines Limited – Site Characterization, Technical Appendices I-VI.* Report No. UKH/96/01, prepared by Access Mining Consultants Limited.

ATTACHMENT 2: 1999 BLACKCAP/SHEPARD/LUCKY QUEEN ADIT WATER SAMPLES LABORATORY RESULTS						
Sample Number	**Detection Limit**	**Units**	**25 WQ - SO1 -02 Blackcap 18/9/99**	**25 WQ - A01 - 02 Blackcap 18/9/99**	**25 WQ - A01 - 04 Blackcap 18/9/99**	**25 WQ - A02 -02 Lucky Queen Sept17/99**
Site Desciption			**Seep downslope of the site**	**Blackcap Adit drainage**	**Blackcap Adit drainage - Duplicate**	**Lucky Queen Adit drainage**
pH (field)	N/A	pH	7.8	7.3	N/A	6.4
Conductivity (field)	N/A	µS/cm	80	40	N/A	150
pH (Lab)	0.01	pH	6.71	6.29	6.37	7.21
Conductivity (Lab)	0.01	µS/cm	69	38	37	590
Total Alkalinity	5	mg CaCO3/L	16	8	6	129
Chloride	0.25	mg/L	<0.25	<0.25	<0.25	<0.25
Hardness (CaCO3 equiv)	5	mg/L	30.7	12.4	12.5	261
Nitrate-N	0.05	mg/L	0.75	1.3	1.4	0.59
Nitrite-N	0.003	mg/L	0.003	<0.003	0.006	0.003
Sulphate	- 1	mg/L	9.2	4.6	4.7	123
Total Dissolved Solids	5	mg/L	51	34	38	366
Analysis by ICP-USN						
Aluminum	0.0008	mg/L	0.0171	0.0437	0.0426	0.324
Antimony	0.005	mg/L	<0.005	<0.005	<0.005	<0.005
Arsenic	0.01	mg/L	<0.01	<0.01	<0.01	<0.01
Barium	0.00004	mg/L	0.0239	0.00276	0.00289	0.021
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	0.00023	0.00833	0.00842	0.00272
Calcium	0.002	mg/L	9.03	3.21	3.27	77.2
Chromium	0.00006	mg/L	<0.00006	<0.00006	<0.00006	0.00082
Cobalt	0.00003	mg/L	<0.00003	<0.00003	<0.00003	0.00054
Copper	0.00003	mg/L	0.0003	0.00158	0.00162	0.00381
Iron	0.00001	mg/L	0.023	0.153	0.137	1.06
Lead	0.0003	mg/L	<0.0003	0.0478	0.0437	0.0072
Lithium	0.001	mg/L	0.003	0.002	0.001	0.006
Magnesium	0.0005	mg/L	1.51	0.775	0.777	27.4
Manganese	0.00002	mg/L	0.00192	0.0976	0.0988	0.16
Mercury	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.00007	mg/L	<0.00007	<0.00007	<0.00007	0.00019
Nickel	0.00001	mg/L	0.0006	0.0029	0.0029	0.007
Phosphorus	0.03	mg/L	<0.03	<0.03	<0.03	0.04
Potassium	0.4	mg/L	<0.4	<0.4	<0.4	0.5
Selenium	0.004	mg/L	<0.004	<0.004	<0.004	<0.004
Silicon	0.004	mg/L	2.98	2.64	2.62	3.46
Silver	0.00005	mg/L	<0.00005	0.00491	0.00491	0.00068
Sodium	0.004	mg/L	0.7	1.3	1.3	1.6
Strontium	0.00002	mg/L	0.0398	0.0218	0.0223	0.172
Sulphur	0.008	mg/L	3.19	1.51	1.5	40.1
Thallium	0.001	mg/L	<0.001	<0.001	<0.001	<0.001
Titanium	0.00002	mg/L	0.00074	0.00072	0.00068	0.0132
Vanadium	0.00003	mg/L	<0.00003	<0.00003	<0.00003	0.00073
Zinc	0.0002	mg/L	0.0395	0.415	0.425	0.195
Analysis by Hydride AA						
Arsenic	0.0002	mg/L	0.0014	0.0038	0.0031	0.003
Selenium	0.0001	mg/L	<0.0001	0.0002	<0.0001	0.0008

ATTACHMENT 2: 1999 BLACKCAP/SHEPARD/LUCKY QUEEN SOIL SAMPLES

LABORATORY RESULTS

Sample Number	Detection Limit	Units	25TP01-S01	25TP01-S02	25TP04-01	25TP04-02
Site Description						
pH in Soil (1:2 water)						
pH	0.01	pH	6.5	6.2	6.2	6.4
LEPH/HEPH in Soil						
LEPHs10-19	10	mg/kg	1490	7890	440	142
HEPHs19-32	10	mg/kg	15100	3930	116	61
Moisture						
% Moisture		%	3.4	9.1	9	8.6
PAH in Soil						
Naphthalene	0.05	mg/kg	0.07	0.08	<0.05	<0.05
Acenaphthylene	0.05	mg/kg	<0.05	0.06	<0.05	<0.05
Acenaphthene	0.05	mg/kg	<0.05	0.05	<0.05	<0.05
Fluorene	0.05	mg/kg	<0.05	0.25	<0.05	<0.05
Phenanthrene	0.05	mg/kg	0.26	0.68	<0.05	<0.05
Anthracene	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05
Fluoranthene	0.05	mg/kg	0.05	0.13	<0.05	<0.05
Pyrene	0.05	mg/kg	0.24	0.95	<0.05	<0.05
Benzo(a)anthracene	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05
Chrysene	0.05	mg/kg	<0.05	0.11	<0.05	<0.05
Benzo()fluoranthenes	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05
Ideno(1,2,3-c,d)pyrene	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05
Dibenzo(a,h)anthracene	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05
Surrogates						
Nitrobenzene-d5		%	na	99	110	117
2-Fluorobiphenyl		%	85	110	106	104
4-Terphenyl-d14		%	85	66	79	78
VPH in Soil						
VHs6-10	1	mg/kg	100	130	23	8.3
VPHs6-10	1	mg/kg	100	130	23	8.3
BTEX in Soil						
Benzene	0.02	mg/kg	<0.02	0.02	<0.02	<0.02
Toluene	0.02	mg/kg	<0.02	<0.02	<0.02	<0.02
Ethylbenzene	0.02	mg/kg	0.21	0.22	<0.02	<0.02
m,p-Xylene	0.05	mg/kg	<0.05	0.09	<0.05	<0.05
o-Xylene	0.03	mg/kg	0.05	0.85	0.04	<0.03
ICP Semi-Trace Scan - Metals						
Aluminum	5	µg/g wet	25600	15000	25600	23900
Antimony	2	µg/g wet	22	<2	38	47
Arsenic	2	µg/g wet	62	28	148	109
Barium	0.05	µg/g wet	439	283	663	503
Beryllium	0.1	µg/g wet	0.7	0.4	0.9	0.8
Bismuth	5	µg/g wet	<5	<5	<5	<5
Cadmium	0.1	µg/g wet	33.2	5.4	29.8	25.9
Calcium	5	µg/g wet	2130	2680	1670	1020
Chromium	0.5	µg/g wet	40.1	23	39.9	41.5
Cobalt	0.1	µg/g wet	11.1	11	12.4	9.5
Copper	0.5	µg/g wet	55	37.1	138	85.4
Iron	1	µg/g wet	45000	24000	54000	35000
Lead	1	µg/g wet	331	87	790	560
Lithium	0.5	µg/g wet	12.1	12	20.1	13.7
Magnesium	1	µg/g wet	1890	3680	2400	1750
Manganese	0.5	µg/g wet	8730	2130	12100	5880
Mercury	0.01	µg/g wet	0.06	<0.01	0.05	0.01
Molybdenum	1	µg/g wet	4	2	4	3
Nickel	0.2	µg/g wet	33.6	24.5	43.7	31.8
Phosphorus	5	µg/g wet	713	718	700	549
Potassium	20	µg/g wet	5300	2480	5100	4300
Selenium	2	µg/g wet	<2	<2	<2	<2
Silicon	5	µg/g wet	411	223	7	130
Silver	0.5	µg/g wet	26.7	5.3	70.8	60
Sodium	5	µg/g wet	1780	717	1780	1500
Strontium	1	µg/g wet	74	33	67	70
Sulphur	10	µg/g wet	1710	240	290	290
Thorium	1	µg/g wet	<1	2	<1	3
Tin	1	µg/g wet	4	1	3	4
Titanium	0.2	µg/g wet	175	584	298	143
Uranium	5	µg/g wet	<5	<5	6	<5
Vanadium	1	µg/g wet	49	40	55	51
Zinc	0.5	µg/g wet	2000	560	2160	1480
Zirconium	0.1	µg/g wet	26	15.4	24.1	23.3

ATTACHMENT 2: BLACKCAP/SHEPARD/LUCKY QUEEN WASTE ROCK SAMPLES
LABORATORY RESULTS

Site Number / Sample Desciption	Detection Limit	Units	25WR01-01 - Sept 18/99	25WR02-01 - Sept 18/99	25WR03-01 - Sept 18/99	25WR04-01 - Sept 18/99	25WR05-01 - Sept 18/99
Paste pH (field)	N/A	pH	6.7	6.1	7.1	6.2	7.5
Conductivity (field)	N/A	µS/cm	210	130	610	630	650
pH in Saturated Paste							
pH	0.1	pH	6.7	6.2	6.5	4.7	7
pH in Soil (1:2 water)							
pH	0.01	pH	7.9	7.3	6.9	4.2	7.4
ICP Semi-Trace Scan							
Aluminum	5	µg/g	29600	26500	30100	37900	21700
Antimony	2	µg/g	520	130	58	2	<2
Arsenic	2	µg/g	1140	228	57	76	28
Barium	0.05	µg/g	567	407	405	369	84.2
Beryllium	0.1	µg/g	0.8	0.9	1.2	1.2	0.5
Bismuth	5	µg/g	<5	<5	<5	<5	<5
Cadmium	0.1	µg/g	170	26.7	23.1	6	3.2
Calcium	5	µg/g	663	793	624	1830	21500
Chromium	0.5	µg/g	50.3	51.1	53.1	50.4	20.9
Cobalt	0.1	µg/g	8.1	2.7	9.1	16.7	15.4
Copper	0.5	µg/g	667	150	352	62.3	46.9
Iron	1	µg/g	47000	34000	42000	47000	39000
Lead	1	µg/g	10500	6390	2310	192	122
Lithium	0.5	µg/g	11.8	7.6	22.6	13.6	27.9
Magnesium	1	µg/g	647	648	1460	2690	14200
Manganese	0.5	µg/g	6370	2180	4520	1840	1310
Mercury	0.01	µg/g	1	0.19	0.13	<0.01	<0.01
Molybdenum	1	µg/g	2	2	3	3	8
Nickel	1	µg/g	17.8	11.4	30.3	52.2	45.3
Phosphorus	5	µg/g	1110	766	852	945	1460
Potassium	20	µg/g	9200	8400	7200	6600	3150
Selenium	2	µg/g	<2	<2	<2	<2	<2
Silicon	5	µg/g	303	752	99	678	475
Silver	0.5	µg/g	409	167	81	11.2	8.2
Sodium	5	µg/g	1520	961	1540	1430	102
Strontium	1	µg/g	78	60	90	66	32
Sulphur	10	µg/g	340	480	220	510	14600
Thorium	1	µg/g	4	4	5	6	2
Tin	1	µg/g	7	6	2	1	<1
Titanium	0.2	µg/g	58.3	64.3	33.4	178	35.4
Uranium	5	µg/g	<5	<5	<5	<5	<5
Vanadium	1	µg/g	49	48	56	61	23
Zinc	0.5	µg/g	1680	1260	1550	866	337
Zirconium	0.1	µg/g	22.6	25.1	29.2	32.9	31.9

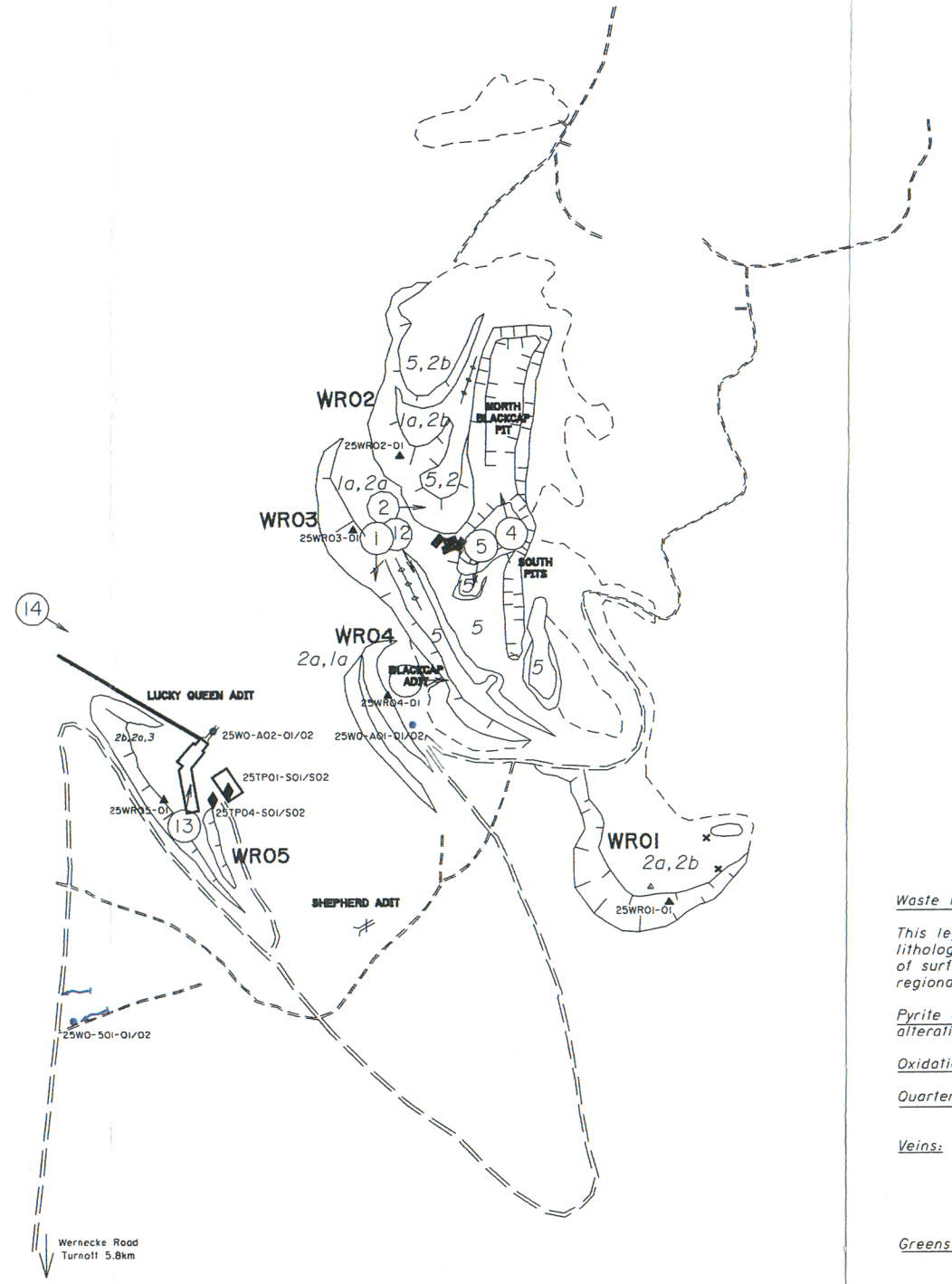
ATTACHMENT 2: 1999 BLACKCAP/SHEPARD/LUCKY QUEEN ADIT WASTE ROCK SAMPLES LABORATORY RESULTS
MODIFIED SOBEK METHOD ACID-BASE ACCOUNTING TEST

SAMPLE	SITE DESCRIPTION	PASTE pH	S(T) %	S(SO4) %	AP	NP	NET NP	NP/AP
25WR01-01 - Sept 18/99		7.5	0.02	0.02	0.0	-0.6	-0.6	---
25WR02-01 - Sept 18/99		7.1	0.03	0.02	0.3	-1.1	-1.4	<0.1
25WR03-01 - Sept 18/99		7.4	0.02	0.01	0.3	-0.8	-1.1	<0.1
25WR04-01 - Sept 18/99		6.2	0.04	0.01	0.9	0.2	-0.7	0.3
25WR05-01 - Sept 18/99		8.2	1.12	0.03	34.1	82.8	48.8	2.4

AP = ACID POTENTIAL IN TONNES CaCO3 EQUIVALENT PER 1000 TONNES OF MATERIAL.
NP = NEUTRALIZATION POTENTIAL IN TONNES CaCO3 EQUIVALENT PER 1000 TONNES OF MATERIAL.
NET NP = NET NEUTRALIZATION POTENTIAL = TONNES CaCO3 EQUIVALENT PER 1000 TONNES OF MATERIAL.
NOTE: WHEN S(T) AND/OR S(SO4) IS REPORTED AS <0.01, IT IS ASSUMED TO BE ZERO FOR THE AP CALCULATION.
N/D = NO DUPLICATE ASSAY. CALCULATIONS ARE BASED ON ASSAY RESULTS OF THE INITIAL SAMPLE.
RE = REPLICATE.

NOTE - A HIGH LEVEL OF SOLUBLE METALS (ESPECIALLY IRON) WERE OBSERVED IN MANY SAMPLES DURING THE ABA TITRATIONS.
SAMPLES WITH A NEGATIVE NET NP SHOULD BE TESTED FOR MOBILE METALS USING STANDARD SHAKE FLASK EXTRACTION TESTS.

- Building (22A: building site present reference*) 22A* 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
- 24501-01 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)



0 50 100 150 200

Scale 1:5000

CAD FILE: SITE25.DGN

Waste Rock Geological Legend

This legend intended for use as a key to the observed lithological content of the mine dumps and stockpiles of surficial materials investigated.It does not represent regional stratigraphy and no stratigraphic sequence is implied.

Pyrite content as percent: eg. Py 2%. Occurs as an alteration halo adjacent To vein fault structure.

Oxidation: Weak (wOx), moderate (mOx) and intense (iOx).

Quarternary: (5) Undifferentiated, unconsolidated colluvium, glacial till.

Veins: (4a) Quartz veins;
(4b) Quartz-pyrite veins;
(4c) Quartz-siderite *trace galena-sphalerite veins;
(4d) Siderite-quartz *trace galena-sphalerite veins;
(4e) Suphide (galena-sphalerite) *quartz*siderite veins.

Greenstone: (3) Amphibole-chlorite-plagioclase metadiorite or metagabbro.

Quartzite: (2a) Thick bedded, blocky gray quartzite;
(2b) Thin banded, broken, quartzite with carbonaceous phyllite interbeds;
(2c) Calcareous quartzite.

Phyllite: (1a) Broken sericite-chlorite phyllite;
(1b) Carbonaceous phyllite.

Public Works And Government Services Canada
Travaux publics et Services gouvernementaux Canada
Architectural & Engineering Services
Western Region

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drawn by: / dessiné par: C.S. Nov./99
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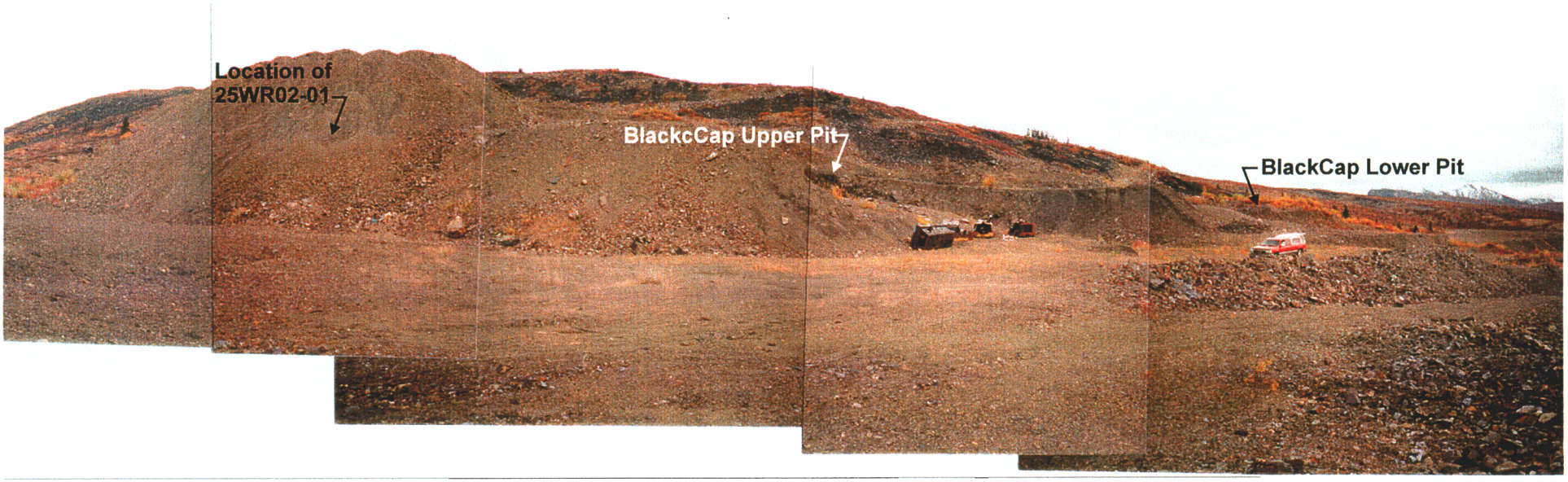
BlackCap /Shepherd and SQ Adit Site #25
Site Assessment
Yukon Territory

project no. / no. du projet: 125-12.01
dwg. no. / dessin no. 1 of 1

South

Photo 25-1: Panorama of the Shepherd and Lucky Queen mine sites.

East



Joins to Photo 25-1 →

Photo 25-2 : Panorama of the BlackCap mine site. Note abandoned and burnt compressors.

Photo 25-3: Locked gate at bottom of road limiting access to the Blackcap, Shepherd and Lucky Queen sites.(Azimuth 160^{0})

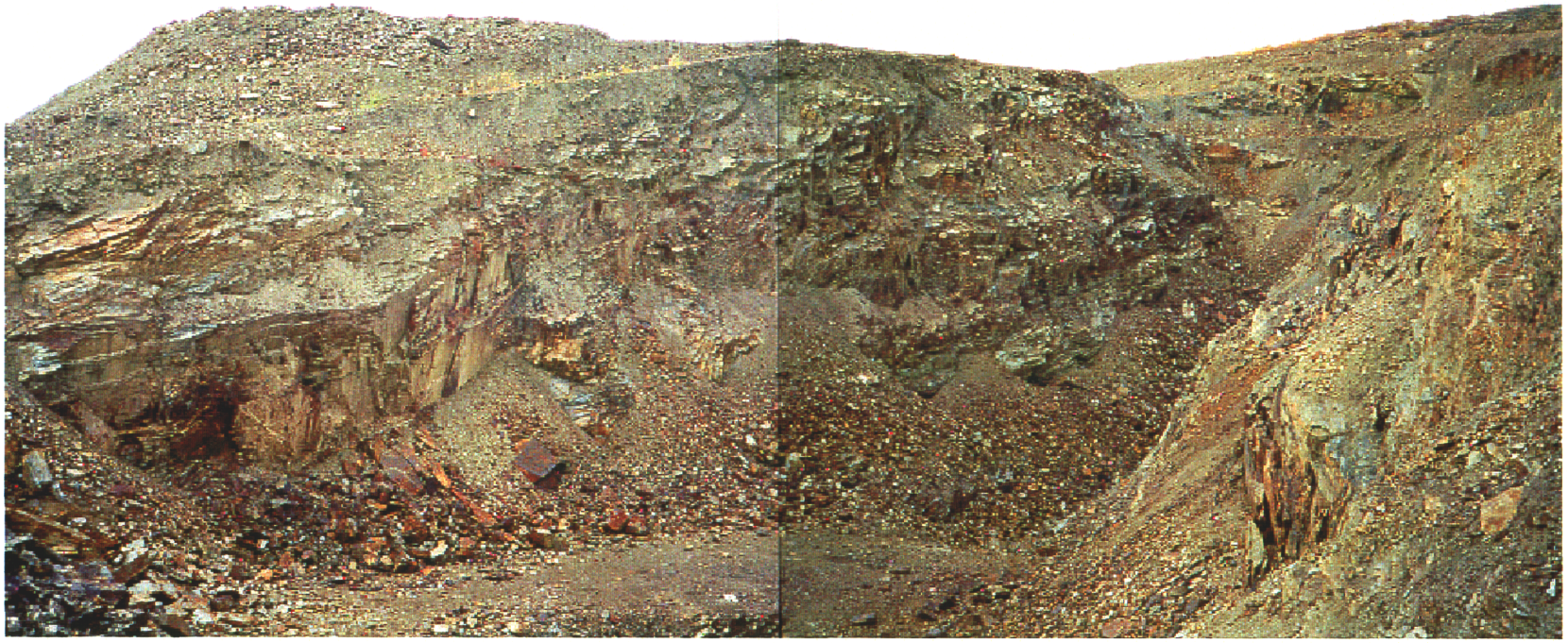


Photo 25-4: Upper Blackcap pit. Note unstable pit walls and recent rock debris at base.(Azimuth 340^{0})

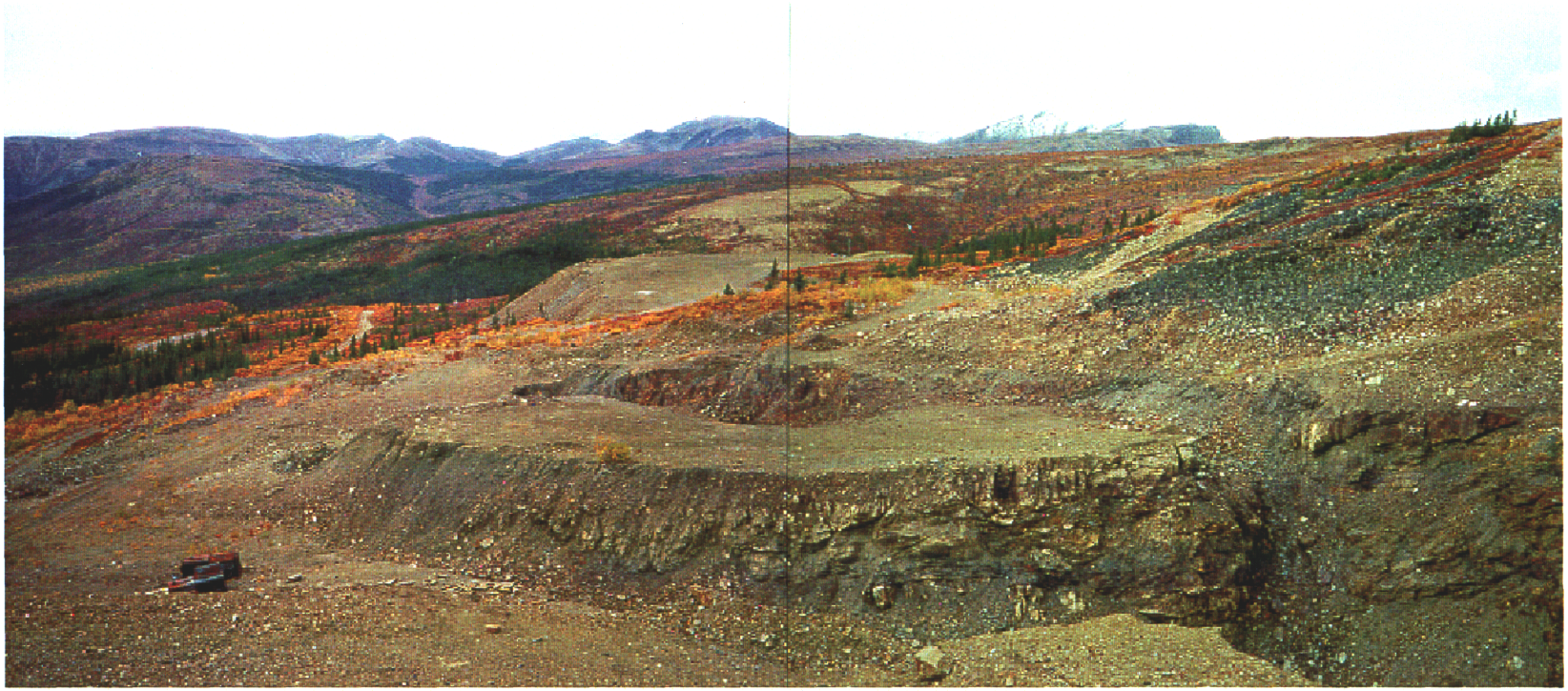


Photo 25-5: Lower Blackcap pits and waste rock pile WR01 in background. (Azimuth 000^{0})

Photo 25-6: Shepherd adit. Note mine drainage damned behind gravel berm.(Azimuth 090°)

Photo 25-7: Lucky Queen load out building and portal structure. Note cribbed portal in foreground and load-out in background. (Azimuth 200°)

Photo 25-8: Interior of portal. Note drainage ditch to bottom left and partially collapsed door. (Azimuth 060°)

Photo 25-9: Collapsed portal timbers behind door.

Photo 25-10: Waste rock pile WR03 sample (25WR03-01).

Photo 25-11: Waste rock sample site (25WR05-01) at Lucky Queen waste rock pile WRO5.

Photo 25-12: Tension cracks on edge of waste rock pile. Note slumped edge running along edge to mapper. (Azimuth 180°)

Photo 25-13: Lucky Queen load-out area. Workshop in background to right. (Azimuth 000°)

Photo 25-14: Mine drainage flume. Note copper heater coils extending out of pipe. (Azimuth 130^0)

Photo 25-15: Interior of workshop bays. Note drum of transmission oil and pails of waste oil in left corner. Test pits located just right of far up-right drum (TP01) and blue pail of solvent near centre (Tp02). Workshop area through door on far wall. (Azimuth 180°)

Photo 25-16: Interior of workshop area. Note leaking drum of hydrualic oil and full pan below. (Azimuth 250°)

Photo 25-17: Test pit TP01 in Lucky Queen shop.
Note heavy oil stain on surface gravel.