

LUCKY QUEEN

SITE #26

MINFILE# 105M001ad

1. LOCATION AND ACCESS

The Lucky Queen site is located on the northwestern slope of Keno Hill at an approximate elevation of 1510m. It is roughly 1.25km east and uphill of the Wernecke Camp/Sadie Ladue Mine site. Approximate UTM coordinates are 7092 700m N and 487 700m E. The Silver Queen site is located 7.3km north by road from the Wernecke Road/Keno Mine Road junction in Keno City. Access is gained via the Upper Faro Gulch Trail, a rough two-wheel drive truck road which branches to the east off the Wernecke Road 5.1km north from Keno City.

2. SITE PHYSIOGRAPHY (photos 26-1, 26-2)

The Lucky Queen site area gently slopes down to the northwest. It is located at the upper limit of the subalpine and is vegetated with grasses, willows and a few lone spruce trees. Soil cover is sparse and is composed mostly of residual soils formed by the weathering of the underlying bedrock and from the decomposition of granular till.

Given the aspect of the slope and the elevation, the site is likely underlain by permafrost. According a report prepared by Access in 1996 for United Keno Hills Mines, mine workings on the north slope of Keno Hill intersected permafrost 400 feet below ground surface.

The first significant bottom drainage system is Ladue Creek located roughly 4.8km to the northwest. The surface runoff from the mine site drains towards the northwest before it dissipates into the porous soil cover. No other surface water was observed in the vicinity of the site at the time of inspection.

3. GEOLOGY AND MINERALIZATION

The deposit is characterized by the presence of silver/lead/zinc mineralization (Roots and Murphy, 1992). The host rocks includes Mississippian Keno Hill quartzite, Upper Devonian and Mississippian sedimentary and felsic meta-volcanic rocks.

4. SITE HISTORY

Underground mining from an inclined shaft and from the 50, 100, 200 and 300 levels was undertaken from 1928 to 1932 (level elevations refer to feet below surface). Ore was transported to the Wernecke mill located at the Wernecke site using an aerial tramway. In the 1970s the inclined shaft was rehabilitated down to the 300

level and covered with a building. Between 1984 to 1988, UKHM constructed a 1,737m adit at the 500 level to explore the Lucky Queen vein (for further discussion, see Site #25 report: Blackcap, Shepherd and LQ Adit). Surface bulldozer and excavator stripping around the shaft was undertaken during the late 1980s.

5. MINE DEVELOPMENT (photos 26-1, 26-2)

Mine development at the site consists of the 3 shafts, six main trenches and associated waste rock piles. Site details can be found on Figure 1; see Attachment 1 for site photos.

5.1 Mine Openings and Excavations

There are 3 shafts and six main trenches/pit excavations. One shaft is still open; another has collapsed; the last one has presumably been filled and buried under the waste cover. A few smaller trenches oriented northwest-southeast, are located west of trench #6.

Shaft #1

Shaft #1 was rehabilitated in the 1970s and is still open. A wooden building (for description, see Section 6.1 below; also photo 26-7) has been built to cover the inclined shaft.

Location: The building and shaft are upgradient of the trenches, on the east side of the Lucky Queen Road.

Dimensions (L x W x H): 4m x 3m x 5m

Supports: Large wooden timber structure.

Condition: Sound, safe.

Accessibility: The shaft is enclosed in building 26-A, although access is easily gained through the unsealed ore dump. Inside, the manway and ladders are open and easily accessed.

Shaft #2

Description

Location: The shaft is located between Trench 2 and Trench 3, 40m southwest of Shaft #1.

Dimensions (L x W x H): Not able to determine.

Supports: Wooden log timbers.

Condition: Caved by recent surface trenching work.

Accessibility: Inaccessible.

Trench #1 (photo 26-3)

There is a small pond of water within Trench #1. The back wall is approximately 4 metres high. The depth of the pit was not determined, although it is estimated to be less than 2 metres.

Location: 55m south of the 90° bend in the Lucky Queen Road, 120m south of the building.

Dimensions (L x W x H): 28m x 7.0m x ≥4m (depth not determined.)

Condition: Stable; minor loose rock.

Accessibility: Access to the edge of the trench/pit is easily made on foot, notable the higher upper edge. However it is full of water which limits access inside.

Trench #2 (photo 26-4)

This trench is L-shaped; there is a small L-shaped pond of water within it. There is a large outcrop along the eastern wall. Depth of the water is less than 1 metre.

Location: One arm of the trench is oriented at roughly 010°, the second is at 270°.

Dimensions (L x W x H): 19m x 14m x 1m – 3m

Condition: Stable; minor loose rock.

Accessibility: The trench can be easily accessed by foot. The water limits access inside the trench.

Trench #3

Trench #3 has been excavated in overburden. There is a small pond of water within trench #3 of less than 1 metre.

Location: The trench is oriented at 300°. It is located a few meters to the west of trench #2.

Dimensions (L x W x H): 23m x 9.0m x 1.5m

Condition: Stable.

Accessibility: The trench can be easily accessed by foot.

Trench #4 (photo 26-5)

Trench #4 has been excavated in overburden. There is no surface water within Trench #4. There is a minor, intermittent flow along the bed of the trench.

Location: It is at the same orientation as Trench #3, on the other side of the road.

Dimensions (L x W x H): 46m x 8.0m x 1.5m

Condition: Stable.

Accessibility: The trench can be easily accessed by foot.

Trench #5 (photo 26-6)

Trench #5 is T-shaped. There is no surface water within Trench #5.

Location: It is 130m southwest of the Lucky Queen Road, prior to the road reaching the other trenches and shafts. The top of the "T" is oriented at 315°; the other section is oriented at 220°.

Dimensions (L x W x H): 52m x 5.0m x 1.5m (top part), 25m x 5.0m x 1.5m

Condition: Stable.

Accessibility: The trench can be easily accessed by foot.

Trench #6

There is no surface water within Trench #6.

Location: The trench is oriented at 115°, 30m northeast of the inclined shaft.

Dimensions (L x W x H): 47m x 5m x 1.5m

Condition: Stable.

Accessibility: The trench can be easily accessed by foot.

5.2 Waste Rock Disposal Areas

Waste rock covers much of the Lucky Queen site. For the purposes of this report, the waste rock has been broken down into six individual piles based on composition and association with excavations (refer to Figure 1 and to photos 26-1 and 26-2).

Waste Rock Pile WR-01

The waste rock has been excavated from Trench #5 and is composed at surface of greenstone, phyllite and 50% overburden. Oxidation is minor, limited mostly to the overburden material included in the pile.

Location: The pile is to the west of the powerline, between Trench #5 and Trench #1.

Dimensions (L x W x H): The waste rock pile is irregular in shape with maximum dimensions of 70m in length and 50m wide and an average depth of 2m. The total volume of the pile is roughly 8500m³.

Sampling: No samples were collected.

Waste Rock Pile WR-02

The waste rock has been excavated from Trench #1 and is composed at surface of graphitic phyllite and 40% overburden. Oxidation is minor, limited mostly to the overburden material included in the pile.

Location: The pile is to the west of Trench #1.

Dimensions (L x W x H): 35m x 35m x 1.5m

Sampling: No samples were collected.

Waste Rock Pile WR-03

Most likely the majority of the waste rock was excavated from Trenches 2 and 3 and Shaft #2. Some waste rock material may have originated in Trenches 1 and 4. The composition of the waste rock at the surface is greenstone, phyllite and 50% overburden. Oxidation is minor. A small seep drains from trench 1 up to 20

metres across waste rock pile WR-03 before it dissipates into the coarse rock. This was sampled (see Section 9 below).

Location: The pile is located west of Trenches 2 and 3, south of Lucky Queen Road.

Dimensions (L x W x H): The waste rock pile is irregular in shape with maximum dimensions of 100m in length, 40m in width and an average depth of 1.5m. The total volume of the pile is roughly 11,425 m³.

Sampling: No samples were collected.

Waste Rock Pile WR-04

The majority of the waste rock is likely from trench #4 however some of the waste rock may be from Shaft #1. The surface waste rock in the pile is graphitic phyllite with 1-3% veining. Surface water is limited to the trench and pits described above. Surface water drains slowly from the old collapsed shaft into Trench #3, through the coarse rock to Trench #4 and then down the slope off the waste rock piles. This was sampled before it dissipated into the soils down slope (see Section 9 below).

Location: The pile is north of Trench #4; across the road from the building.

Dimensions (L x W x H): The dimensions of the pile are 60m x 45m x 2m; the volume is roughly 5400m³.

Sampling: No samples were collected.

Waste Rock Pile WR-05

Located between the road leading to shaft #1 and trenches 2 and 3, the waste rock was most likely originated from both these sources. No significant oxidation and no surface water were observed.

Location: It is located immediately south of the road leading to the building and shaft #1.

Dimensions (L x W x H): 45m x 11m x 2.5m

Sampling: No samples were collected.

Waste Rock Pile WR-06

The waste rock was excavated from Shaft #1 and from Trench #6 and the surface rock is greenstone phyllite and 60% overburden. No significant oxidation and no surface water were observed.

Location: Between Shaft #1 and Trench #6 on the east side of Lucky Queen Road.

Dimensions (L x W x H): 30m x 20m x 1.5m

Sampling: No samples were collected.

5.3 Tailings Impoundments

Ore was processed downslope at the Wernecke Camp; no tailings were present on the site.

5.4 Minesite Water Treatment

There is no water treatment facility located at this site.

6. MINE SITE INFRASTRUCTURE

There is one building located at this site. Wooden towers for the aerial tramway extend from the Lucky Queen site down to the Wernecke camp. Power lines extend up the hill to service other sites beyond Lucky Queen. Site details are located on Figure 1: site photos can be found in Attachment 1.

6.1 Building 26A (photo 26-7)

This building was built to protect the entrance to the Shaft #1 and house a generator plant (since removed). The building is in good condition.

Dimensions (L x W x H): 13m x 5.0m x 5m

Location: On the east side of the Lucky Queen Road.

Construction: Wood construction with steel sheet siding and roofing

Paint: None observed

Asbestos: None observed

Foundation: Concrete pillars with wood flooring

Non-Hazardous Contents: Old electrical panel generator plant.

Hazardous Contents: None observed.

6.2 Fuel Storage

No fuel storage tanks or drums were encountered at this site.

6.3 Aerial Tramway

The aerial tramway has some historic and tourism significance

Location: Extends from the Lucky Queen site down to the Wernecke camp.

Fabrication: The towers are constructed with untreated lumber; there are no longer any wires or hardware attached to the towers.

Amount of materials: There are more than 20 towers between the two sites.

Condition: The towers are still in fair condition and pose no immediate safety hazard.

6.4 Milling and Processing Infrastructure

The ore was processed off-site, at the Wernecke camp. There is no milling or processing infrastructure located at Lucky Queen.

6.5 Electrical Equipment

There is a decommissioned power line that runs across the west side of the site and continues further up the hill. One of the power poles located on waste rock pile #1 has collapsed so that the line lies along the ground for roughly 20 metres.

7. SOLID WASTE DUMPS

No solid waste dumps were encountered.

8. POTENTIAL CONTAMINANTS OF CONCERN

No hazardous materials were observed at the site. Potential contaminants of concern are dissolved metals washing from the waste rock piles.

9. WATER QUALITY

There are two minor drainages on site. One drainage drains Trenches 2, 3 and 4 and Shaft #2 and flows across waste rock pile WR-04 at a rate of <1L/s. The drainage dissipate into the natural soils roughly 50 metres down slope of the site. No surface water was observed in Trenches 5 and 6. The other drainage flows at a rate of <0.5L/s from trench 1. The water flows less than 20 metres before it seeps into the coarse rock of waste rock pile WR-03.

Water samples were collected for analysis of pH, conductivity, hardness, acidity, alkalinity, sulphate and total metals. Conductivity and pH values at the sampling sites were measured in the field. Water samples, 26WQ-TR4-01 and 26WQ-TR4-02, were collected from Trench #4. The field pH was 6.6 and the conductivity was 40uS/cm. Water samples, 26WQ-TR1-01 and 26WQ-TR1-02, were collected from Trench #1. The field pH was 6.7 and the conductivity was 30uS/cm.

10. RECLAMATION

No reclamation effort was evident on the Lucky Queen site. No natural reclamation of the site was observed.

11. OTHER INFORMATION AND DATA

Two other reports written on this site. The 1996 United Keno Hill Mines report prepared by Access Consulting Group includes water sampling data for the Lucky Queen adit (pH, sulphate concentration, conductivity and flow) from the years 1990 to 1995. Norecol, Dames and Moore published a report in 1997 for Public Works and Government Services. The site name used in the PWGSC report is "Past Wernecke". The scope of the report includes inspection, surveying and sampling of the site and identification of potential safety hazards and contamination. 25 soil and water samples were collected during the last week in August, 1996 and the laboratory results are included in their report (see Attachments).

12. REFERENCES

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.

Public Works and Government Services. 1997. *Site Assessment Report, Past Wernecke, Keno Hill, Yukon*. Job No. 20749-013-310, prepared by Norecol, Dames and Moore.

**ATTACHMENT 2: 1999 LUCKY QUEEN WATER SAMPLES
LABORATORY RESULTS**

Sample Number	Detection Limit	Units	26-WQ-TR4-02 Lucky	26-WQ-TR1-02 Lucky
			Queen 9/15/99	Queen 9/15/99
Site Description			Ponded water in the bottom of the north end of Trench #4	Ponded water in the bottom of Trench #1
pH (field)	N/A	pH	6.6	6.7
Conductivity (field)	N/A	µS/cm	40	30
pH (Lab)	0.01	pH	6.6	6.13
Conductivity (Lab)	0.01	µS/cm	22	18
Total Alkalinity	5	mg CaCO3/L	8	<5
Chloride	0.01	mg/L	0.05	0.09
Hardness (CaCO3 equiv)	5	mg/L	6.8	4.9
Nitrate-N	0.05	mg/L	0.42	0.54
Nitrite-N	0.003	mg/L	<0.003	0.003
Sulphate	1	mg/L	4.4	3.3
Total Dissolved Solids	5	mg/L	20	20
Analysis by ICP-USN				
Aluminum	0.0008	mg/L	0.0309	0.0213
Antimony	0.005	mg/L	<0.005	<0.005
Arsenic	0.01	mg/L	<0.01	<0.01
Barium	0.00004	mg/L	0.0197	0.01
Beryllium	0.00001	mg/L	<0.00001	<0.00001
Bismuth	0.0004	mg/L	<0.0004	<0.0004
Boron	0.002	mg/L	<0.002	<0.002
Cadmium	0.00006	mg/L	0.00183	0.0002
Calcium	0.002	mg/L	1.8	1.33
Chromium	0.00006	mg/L	0.00014	0.00024
Cobalt	0.00003	mg/L	0.00029	0.00023
Copper	0.00003	mg/L	0.0017	0.00112
Iron	0.00001	mg/L	0.056	0.017
Lead	0.0003	mg/L	0.182	0.0184
Lithium	0.001	mg/L	<0.001	<0.001
Magnesium	0.0005	mg/L	0.568	0.345
Manganese	0.00002	mg/L	0.0637	0.0329
Mercury	0.0001	mg/L	<0.0001	<0.0001
Molybdenum	0.00007	mg/L	<0.00007	<0.00007
Nickel	0.00001	mg/L	0.0007	<0.00001
Phosphorus	0.03	mg/L	<0.03	<0.03
Potassium	0.4	mg/L	<0.4	<0.4
Selenium	0.004	mg/L	<0.004	<0.004
Silicon	0.004	mg/L	2.14	1.69
Silver	0.00005	mg/L	0.00229	0.00022
Sodium	0.004	mg/L	0.6	0.7
Strontium	0.00002	mg/L	0.00876	0.00654
Sulphur	0.008	mg/L	1.47	1.07
Thallium	0.001	mg/L	<0.001	<0.001
Titanium	0.00002	mg/L	0.00108	0.00032
Vanadium	0.00003	mg/L	<0.00003	<0.00003
Zinc	0.0002	mg/L	0.0997	0.0121
Analysis by Hydride AA				
Arsenic	0.0002	mg/L	0.0002	<0.0002
Selenium	0.0001	mg/L	<0.0001	<0.0001

TABLE 1
PAST WERNECKE SITE
SAMPLE PARAMETERS SUMMARY CHART
PUBLIC WORKS AND GOVERNMENT SERVICES
YUKON ABANDONED MINE SITES - PAST WERNECKE
20749-013-310

Sample Identification	Sample Type	Parameters Analysed					
		PCB	Total Metals	ABA	BTEX/ VPH	LEPH/ HEPH	Conventional Parameters
PWWR1	waste rock			X			
PWWR2	waste rock			X			
PWWR3	waste rock			X			
PWWR4	waste rock			X			
PWWR5	waste rock			X			
PWWR6	waste rock			X			
PWS1	soil		X		X	X	
PWW1	surface water		X				X
PWW2	surface water		X				X
PWW3	surface water		X				X
PWW4	surface water		X				X
PWW5	surface water		X				X

PCB - polychlorinated biphenyls

ABA - acid-base accounting

BTEX/VPH - benzene, toluene, ethylbenzene, xylenes, volatile petroleum hydrocarbons

LEPH/HEPH - light extractable petroleum hydrocarbons / heavy extractable petroleum hydrocarbons

Conventional Parameters - pH, sulphate, total suspended solids

PAH - polycyclic aromatic hydrocarbons

TABLE 2
MODIFIED SOBEK METHOD ACID-BASE ACCOUNTING
PUBLIC WORKS AND GOVERNMENT SERVICES
YUKON ABANDONED MINE SITES - PAST WERNECKE
20749-013-310

Sample No.	Rock Type	Paste pH	S(T) %	S(SO4) %	AP	NP	NET NP	NP/AP
PWWR1	Argillite with abundant quartz veining, iron staining, 1% carbonate, <1% finely disseminated pyrite, blocky cleavage	7.37	0.02	0.02	0.0	2.5	2.5	NA
PWWR2	Argillite with abundant quartz veining, iron staining, 1% carbonate, <1% finely disseminated pyrite, blocky cleavage	6.82	0.11	0.08	0.9	31.1	30.2	33.2
PWWR3	Argillite with abundant quartz veining, iron staining, 1% carbonate, <1% finely disseminated pyrite, blocky cleavage	6.77	0.18	0.04	4.4	4.9	0.5	1.1
PWWR4	Quartzite, with abundant quartz veining, buff to grey, gneissoid appearance, <1% finely disseminated pyrite	7.15	0.02	<0.01	0.5*	1.9	1.5	4.1
PWWR5	Quartzite, with abundant quartz veining, buff to grey, gneissoid appearance, <1% finely disseminated pyrite	6.91	0.11	0.05	1.9	7.6	5.7	4.0
PWWR6	Quartzite, with abundant quartz veining, buff to grey, gneissoid appearance, <1% finely disseminated pyrite	7.24	0.02	<0.01	0.5*	2.1	1.7	4.5

* - A S(SO4) value of 0.005% was used for the AP calculation.

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.

TABLE 3
CONCENTRATION OF BTEX AND VOLATILE PETROLEUM HYDROCARBONS IN SOIL SAMPLES
PUBLIC WORKS AND GOVERNMENT SERVICES
YUKON ABANDONED MINE SITES - PAST WERNECKE
20749-013-310
ug/g (ppm)

			Benzene	Ethylbenzene	Toluene	Xylenes	Volatile Petroleum Hydrocarbons
CCME	Commercial/Industrial		5.	50.	30.	50 (a)	200 (b)
Sample No.	Location	Depth (m)					
PWS1	Near shaft area	0 - 0.15	<0.5	<0.5	<0.5	<0.5	10.
Method Detection Limit			0.5	0.5	0.5	0.5	10.

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CCME - Canadian Council of Ministers of the Environment Interim Canadian Environmental Quality Criteria for Contaminated Sites

< - less than the detection limit indicated

NC - no criteria established

(a) - Criteria for total of m, p and o xylenes.

(b) - British Columbia Criteria for Managing Contaminated Sites, July 1995, New Petroleum Hydrocarbon Criteria, August, 1995

☐ - Greater than CCME commercial/industrial criteria

TABLE 4
CONCENTRATIONS OF LEPH & HEPH IN SOIL SAMPLES
PUBLIC WORKS AND GOVERNMENT SERVICES
YUKON ABANDONED MINE SITES - PAST WERNECKE
 20749-013-310
 ug/g (ppm)

			LEPH	HEPH
CMCS PHC	Commercial/Industrial		2000.	5000.
Sample No.	Location	Depth (m)		
PWS1	Near shaft building	0 - 0.15	<250.	19000.
Method Detection Limit			250.	250.

Page 1 of 1

CMCS PHC - British Columbia Criteria for Managing Contaminated Sites, July 1995,
 New Petroleum Hydrocarbon Criteria, August 1995

< - less than the detection limit indicated

NC - no criterion established

- Greater than CMCS PHC criteria for commercial/industrial land use

TABLE 5
 CONCENTRATION OF METALS IN SOIL SAMPLES
 PUBLIC WORKS AND GOVERNMENT SERVICES
 YUKON ABANDONED MINE SITES - PAST WERNECKE
 20749-013-310
 ug/g (ppm)

CCME	Commercial/Industrial		Silver	Arsenic	Boron	Barium	Beryllium	Cadmium	Cobalt	Chromium*	Copper	Mercury	Manganese	Molybdenum	Nickel	Lead	Antimony	Selenium	Tin	Vanadium	Zinc
Sample No.	Location	Depth (m)	40.	50.	NC	2000.	8.	20.	300.	800.	500.	10.	NC	40.	500.	1000.	40.	10.	300.	NC	1500.
PWS1	Near shaft building	0 - 0.15	<2.	0.47	12.	46.	<1.	18.2	4.	8.	110.	0.19	2290.	<4.	14.	1720.	<10.	<0.5	<5.	11.	1480.
Method Detection Limit			2.	0.05	0.5	0.1	1.	0.25	1.	2.	1.	0.001	0.2	4.	2.	1.	10.	0.5	5.	0.5	1.

CCME - Canadian Council of Ministers of the Environment Interim Canadian Environmental Quality Criteria for Contaminated Sites

< - less than the detection limit indicated

NC - no criteria established

☐ - Greater than CCME criteria for commercial/industrial land use

* - Total Chromium

TABLE 6
CONCENTRATION OF CONVENTIONAL PARAMETERS AND TOTAL METALS IN SURFACE WATER
PUBLIC WORKS AND GOVERNMENT SERVICES
YUKON ABANDONED MINE SITES - PAST WERNECKE
20749-013-310
ug/L (ppb)

CCME	Freshwater Aquatic Life	pH	Total Suspended Solids (mg/L)	Sulphate SO4 (mg/L)	Silver	Aluminum*	Arsenic	Boron	Barium	Beryllium	Cadmium	Cobalt	Chromium	Copper	Iron	Mercury	Manganese	Molybdenum	Nickel	Lead	Selenium	Tin	Vanadium	Zinc
		6.5-9.0	NC	NC	0.1	5-100	50	NC	NC	NC	0.2-1.8	NC	2-20	2-4	300	0.1	100	NC	25-150	1-7	1	NC	NC	30
Sample	Location																							
PWW1	Midsection of flow through northernmost trench	6.08	<1.	4.6	2.9	<200.	<1.	10.	17.	<3.	1.2	<1.	<1.	2.	<30.	<0.05	55.	<1.	2.	320.	<1.	<1.	<10.	65.
PWW2	Downgradient of PWW1	7.18	10.	4.8	1.8	<200.	<1.	<10.	19.	<3.	1.4	<1.	<1.	<1.	<30.	<0.05	42.	<1.	2.	190.	1.	<1.	<10.	75.
PWW3	Upgradient of PWW1 at source	7.83	<5.	3.5	3.7	<200.	<1.	<10.	18.	<3.	0.8	<1.	<1.	<1.	<30.	<0.05	10.	<1.	<1.	110.	<1.	<1.	<10.	35.
PWW4	At source of water flow at southernmost trench	7.11	<1.	5.	0.2	<200.	<1.	<10.	11.	<3.	0.4	<1.	<1.	<1.	<30.	<0.05	85.	<1.	2.	27.	<1.	<1.	<10.	18.
PWW5	Downgradient of PWW4	7.81	<5.	5.3	<0.1	<200.	<1.	<10.	9.	<3.	0.2	<1.	<1.	<1.	<30.	<0.05	75.	<1.	1.	16.	<1.	<1.	<10.	12.
Method Detection Limit					0.1	200.	1.	10.	1.	3.	0.2	1.	1.	1.	30.	50.	3.	1.	1.	1.	1.	1.	10.	5.

CCME - Canadian Council of Ministers of the Environment Interim Canadian Environmental Quality Criteria for Contaminated Sites

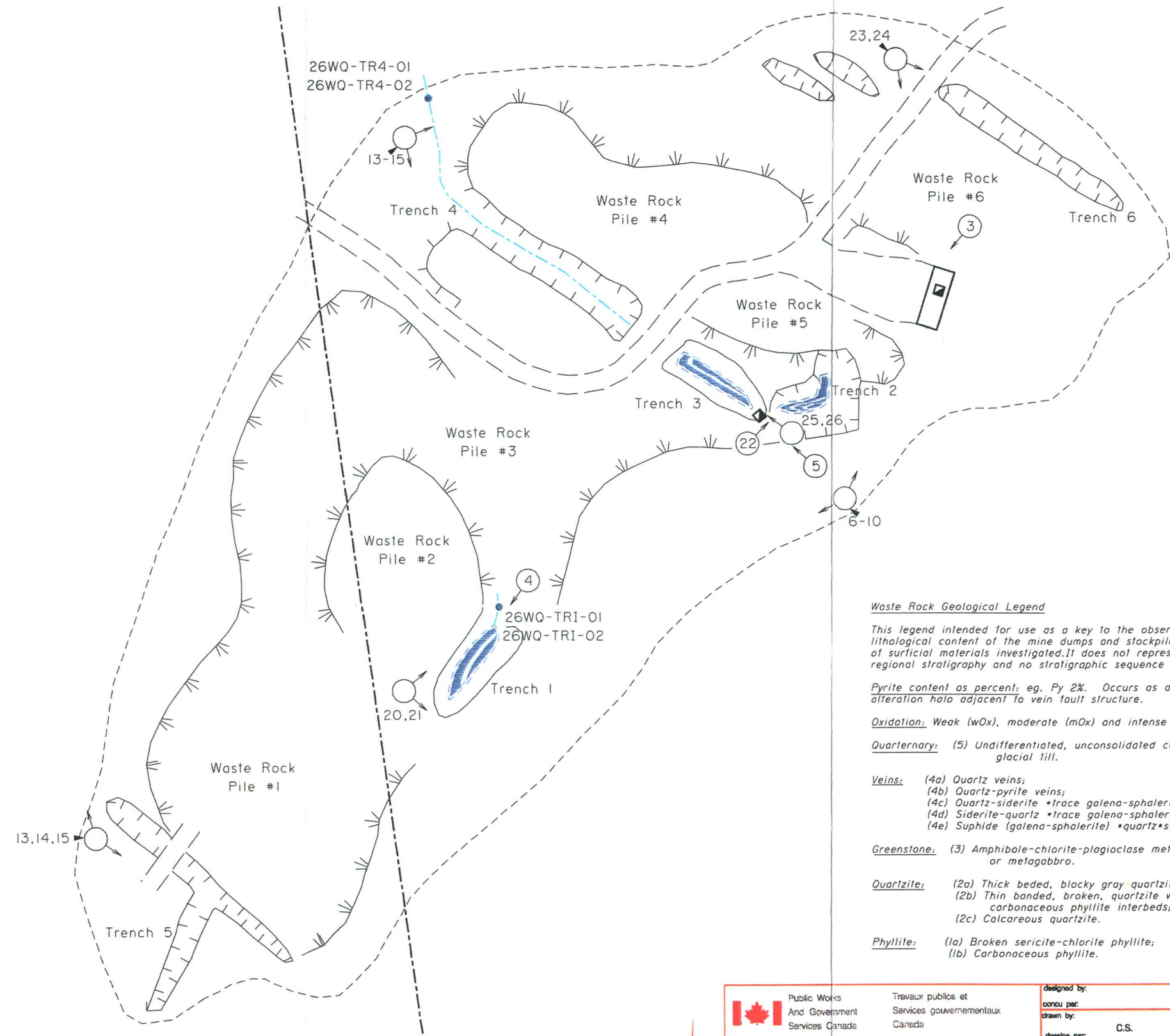
< - less than the detection limit indicated

NC - no criteria established

☐ - Greater than CCME criteria for freshwater aquatic life

* - Criteria depend on pH or hardness of sample

- 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
- 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)
- W0-12-06 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 Location (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)



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).

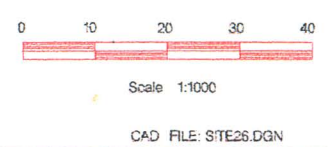
Quaternary: (5) Undifferentiated, unconsolidated colluvium, glacial till.

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

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

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

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



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



Photo 26-1: Panorama of site showing trenches, shaft building and overburden and waste rock dumps. Note old shaft just left of Trench 3 in foreground and powerline and haulage tram towers in background.



Photo 26-2: Panorama of Lucky Queen site. Note trench 4 drainage to left of centre and downed power pole to far right.



Photo 26-3: Trench 1 sample site (26-WQ-TR01-01/02).
Photo Direction (Azimuth 230°)

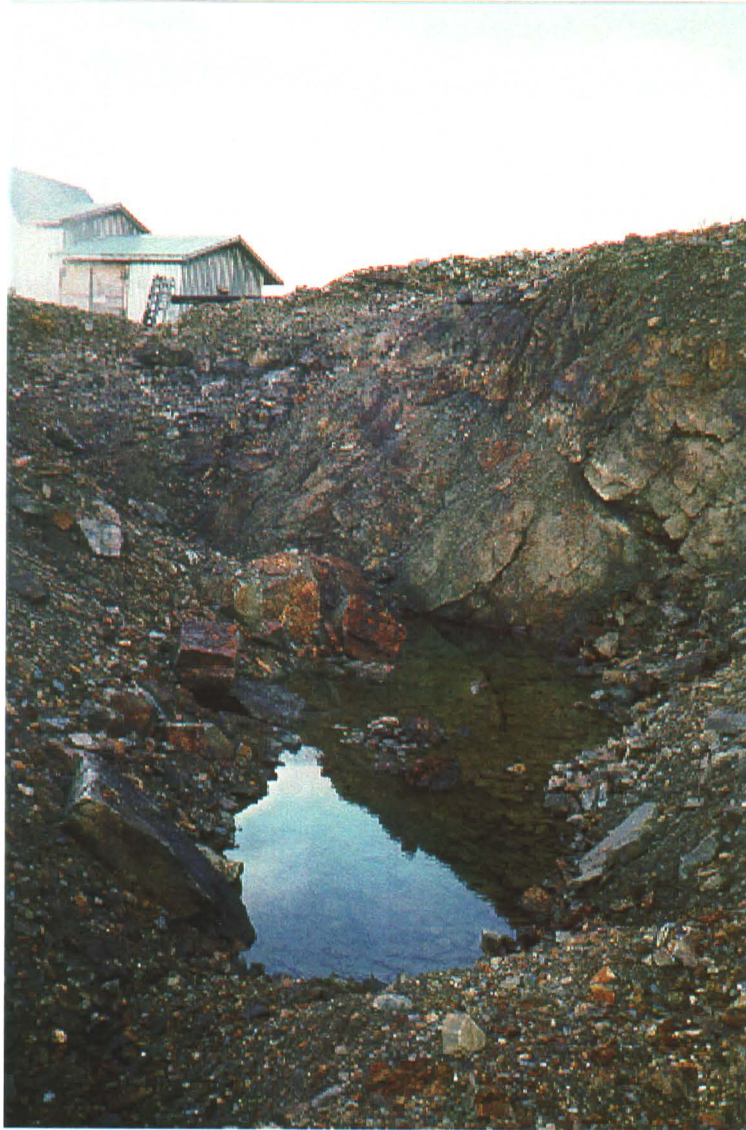


Photo 26-4: Trench 2 with shaft building behind.
(Azimuth 065°)



Photo 26-5: Trench 4 sample site (26-WQ-TR04-01/02).
Note haulage tram tower. (Azimuth 090°)



Photo 26-6: Trench east of shaft building. Note waste rock dump from underground development forming slope at right of photo. Photo Direction (Azimuth 130°)



Photo 26-7: Interior of Lucky Queen headframe building (Bldg. 26-A) showing open manway and boarded shaft opening.