

FAITH (DUNCAN)

SITE #42

MINFILE# 105M 002

1. LOCATION AND ACCESS

The site is located on the southeast side of Keno Hill approximately 1km southeast of Caribou Hill summit. The site occurs between 4650ft (1420m) and 4800ft (1460m) above sea level within the Faith Gulch headwaters. There are no roads that lead to the site, however the Beauvette Hill Trail following Lightning Creek to passes below the site roughly 400m to the east. A partially overgrown cat trail extends through the site along the ridgeline between the Beauvette Hill Trail and the Hope Gulch Trail roughly 1.7km to the west. The approximate UTM co-ordinates are 7 089 900m N and 493 700m E.

2. SITE PHYSIOGRAPHY

Faith is located along a ridge paralleling Faith Gulch near the southeastern toe of Keno Hill. The site occurs at a break in slope that varies from roughly 10° above to over 20° below and faces north into Faith Gulch. The mine site is situated at treeline and is vegetated with stunted lodge pole pine, fir and black spruce trees, willows, grass lichen and moss. Surface runoff from the mine site drains to the north, into Faith Gulch, a tributary of the Keno Ladue River. No surface water was observed draining the site.

3. GEOLOGY AND MINERALIZATION

The trenches and road cuts expose Keno Hill carbonaceous phyllite and Triassic. A 0.5m quartz vein cuts the greenstone. A bulldozer road cut near the old collapsed shaft exposed a thin interbedded and banded quartzite and moderate to strong carbonaceous phyllite of the Keno Hill Quartzite.

Mineralization at the Faith site is recorded as including shear hosted quartz-siderite veins with sporadic galena, tetrahedrite and pyrite.

4. SITE HISTORY

Initially staked in 1919, the site had limited underground development totaling 25.6m, including an 80° inclined shaft. In 1923, 11.8 tonnes of hand cobbled ore was shipped from the site. A total of 3 bulldozer trenches and various road cuts were completed on the site in 1989.

Public Works and Government Services Canada (PWGSC) conducted a phase II assessment of the Faith site in 1996.

5. MINE DEVELOPMENT

There is one shaft, three trenches and associated waste rock piles. No ore was processed at the site and no tailings were encountered. There is no waste water treatment facility at this site. Site details are located on Figure 1; site photos are in Attachment 1 and laboratory results for sampling are in Attachment 2.

5.1 Mine Openings and Excavations

Faith Shaft (Figure 1; Photo 42-1)

The shaft is located at the eastern end of the site, roughly 100m south of Faith Gulch. The shaft is inclined at 80° to the south.

Dimensions: 2m x 2m, extending 1m above ground.

Supports: The collar is supported by timber cribbing and clad with vertical wooden poles.

Condition: The ground around the shaft appears stable.

Accessibility: The shaft is blocked 3m below the collar by collapsed rock and cannot be accessed beyond that point.

Trench #1 (Photo 42-2)

The trench is located roughly 160m southeast of the shaft, running azimuth 055° along the crest of the ridge. A small bull white quartz vein with minor limonite crosscuts the trench near the southwestern end.

Dimensions: 25m x 3m x 0.5m

Condition: There are no stability problems as the trench walls are shallow.

Accessibility: The trench can be easily accessed.

Trench #2 and Trench #3

Trenches #2 and #3 parallel each other 15m apart, roughly 60m west of Trench #1. The trenches are shallow cuts into the overburden.

Dimensions: (20m long) x (1.5m wide) x (<0.5m deep)

Condition: There are no stability problems as the trench walls are shallow.

Accessibility: The trench can be easily accessed.

5.2 Waste Rock Disposal Areas (Figure 1)

A small waste rock pile was found associated with the shaft.

Description: Roughly 5000 tonnes of coarse (to 20cm), angular carbonaceous phyllite and chlorite schist waste rock from development of the shaft is present on the site. Minor quartz-siderite vein material was observed. The waste rock is rusty orange in colour, indicating weak to moderate

oxidation. The waste rock pile has been reworked by a bulldozer. Limited natural revegetation includes scattered pine seedlings, willows, moss, lichen, and grasses.

Location: Located immediately down slope from the shaft.

Dimensions: (45m long) x (25m wide) x (<3m high)

Sampling: No samples were collected in 1999.

A single sample was collected for acid base accounting (ABA) and metals analysis from the front edge of the pile (PWGSC, 1996).

Sample: DU/WR/P301

6. MINE SITE INFRASTRUCTURE (Figure 1)

There is one tent frame building and at the site. No mine site infrastructure such as electrical equipment, fuel storage or rail and trestle was encountered.

6.1 Building 42A

A wooden tent frame structure is located to the west of the trench.

Dimensions: (3m long) x (3m wide) x (2m high)

Paint: No paint was observed.

Asbestos: No asbestos was observed.

Foundation: Rocks prop up the wooden platform.

Contents: There is wood debris inside the building and scattered glass, wood and metal debris and an empty 45-gallon drum outside of the building. No hazardous materials were observed at the site.

7. SOLID WASTE DUMPS

There were no solid waste dumps observed at this site. An empty 45 gallon drum was found in Trench #1.

8. POTENTIAL CONTAMINANTS OF CONCERN

No hazardous products were encountered.

9. WATER QUALITY (Figure 1)

Two water samples were collected from Faith Gulch for analysis. The first sample (Faith upstream-09/18/99) was collected 100m upstream of the site as a background sample. The second sample (Faith downstream-09/18/99) was collected 100m downstream of the site.

These samples were collected to repeat previous sampling (DU/WQ/Str-301 and -302 respectively; PWGSC, 1996).

10. RECLAMATION

Natural revegetation is occurring at the site. Pine seedlings, willows, mosses, lichen and grasses were noted in disturbed areas.

11. REFERENCES AND PERSONAL COMMUNICATIONS

Minfile # 105M 002

Public Works and Government Services Canada. 1996. *Faith (Duncan) Mine Site – Site II Assessment*.

**ATTACHMENT 2: 1999 FAITH WATER SAMPLES
LABORATORY RESULTS**

Sample Number	Detection Limit	Units	Faith Upstream - 09/18/99	Faith Downstream - 09/18/99
Site Description			From Faith Gulch, 100m upstream of mine site	From Faith Gulch, 100m downstream of mine site
pH (field)	N/A	pH	6.2	6.1
Conductivity (field)	N/A	µS/cm	40	80
pH (Lab)	0.01	pH	7.11	6.94
Conductivity (Lab)	0.01	µS/cm	49	49
Total Alkalinity	5	mg CaCO3/L	16	12
Chloride	0.25	mg/L	<0.25	<0.25
Hardness (CaCO3 equiv)	5	mg/L	19.4	21.2
Nitrate-N	0.05	mg/L	0.1	0.1
Nitrite-N	0.003	mg/L	0.006	0.003
Sulphate	1	mg/L	10.1	9.5
Total Dissolved Solids	5	mg/L	32	41
Analysis by ICP-USN				
Aluminum	0.0008	mg/L	0.0015	0.002
Antimony	0.005	mg/L	<0.005	<0.005
Arsenic	0.01	mg/L	<0.01	<0.01
Barium	0.00004	mg/L	0.0725	0.0725
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	0.00009	0.0001
Calcium	0.002	mg/L	5.1	5.15
Chromium	0.00006	mg/L	<0.00006	0.00011
Cobalt	0.00003	mg/L	<0.00003	<0.00003
Copper	0.00003	mg/L	0.0023	<0.00003
Iron	0.00001	mg/L	0.003	0.058
Lead	0.0003	mg/L	0.0011	0.0021
Lithium	0.001	mg/L	<0.001	0.001
Magnesium	0.0005	mg/L	1.56	1.59
Manganese	0.00002	mg/L	0.00084	0.0037
Mercury	0.0001	mg/L	<0.0001	<0.0001
Molybdenum	0.00007	mg/L	<0.00007	<0.00007
Nickel	0.00001	mg/L	0.0003	0.0004
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	2.07	2.08
Silver	0.00005	mg/L	<0.00005	<0.00005
Sodium	0.004	mg/L	<0.4	<0.4
Strontium	0.00002	mg/L	0.0342	0.0325
Sulphur	0.008	mg/L	3.36	3.41
Thallium	0.001	mg/L	<0.001	<0.001
Titanium	0.00002	mg/L	<0.00002	<0.00002
Vanadium	0.00003	mg/L	<0.00003	<0.00003
Zinc	0.0002	mg/L	0.0065	0.0045
Analysis by Hydride AA				
Arsenic	0.0002	mg/L	0.0012	0.0011
Selenium	0.0001	mg/L	0.0009	0.0007



Faith (Duncan) Water Quality Results (ug/L)

Parameter	DU/WQ/STR/301	DU/WQ/STR/302	Guidelines for Freshwater Aquatic Life
Field Conductivity	40.8	60.2	---
Hardness	16.6	25.8	---
pH	7.27	7.26	6.5-9
Acidity	3100	3800	---
Alkalinity - Total	7900	11700	---
Sulphate	10700	15500	---
Aluminum	10	10	5-100
Arsenic	1.4	1.2	50
Barium	70	70	---
Beryllium	< 5	< 5	---
Boron	< 100	< 100	---
Cadmium	< 0.2	< 0.2	0.2-1.8
Calcium	4450	7530	---
Chromium	< 1	< 1	2-20
Cobalt	< 20	< 20	---
Copper	< 1	< 1	2-4
Iron	< 30	< 30	300
Lead	< 1	< 1	1-7
Lithium	< 20	< 20	---
Magnesium	1330	1700	---
Manganese	< 5	< 5	---
Mercury	< 0.05	< 0.05	0.1
Molybdenum	< 30	< 30	---
Nickel	< 20	< 20	25-150
Selenium	0.5	0.7	1
Silver	< 0.1	< 0.1	0.1
Sodium	< 2000	< 2000	---
Vanadium	< 30	< 30	---
Zinc	6	< 5	30

--- = Value not established; < = Less than the detection limit indicated

Faith (Duncan) Waste Rock Sample ABA and ICP Results

Parameter	Units	Sample No. DU/WRP301
Field Conductivity	uS/cm	40
Field Paste pH		6.02
Lab Paste pH		7.2
Total Sulfur	%	0.07
Sulfate	%	n/a
AP	*	2.19
NP	**	-1.50
Net NP	***	-3.69
NP/AP		< 0.1
Ag	ppm	5.2
Al	%	0.34
As	ppm	141
Ba	ppm	93
Be	ppm	< 0.1
Bi	ppm	< 1
Ca	%	0.09
Cd	ppm	< 0.1
Co	ppm	6
Cr	ppm	114
-	ppm	34
Fe	%	2.05
Ga	ppm	< 1
K	%	0.06
Li	ppm	5
Mg	%	0.10
Mn	ppm	1042
Mo	ppm	7
Na	%	< 0.01
Ni	ppm	27
P	ppm	610
Pb	ppm	503
Sb	ppm	12
Sn	ppm	< 1
Sr	ppm	14
Th	ppm	< 1
Ti	%	< 0.01
U	ppm	< 1
V	ppm	7.0
W	ppm	6
Zn	ppm	230

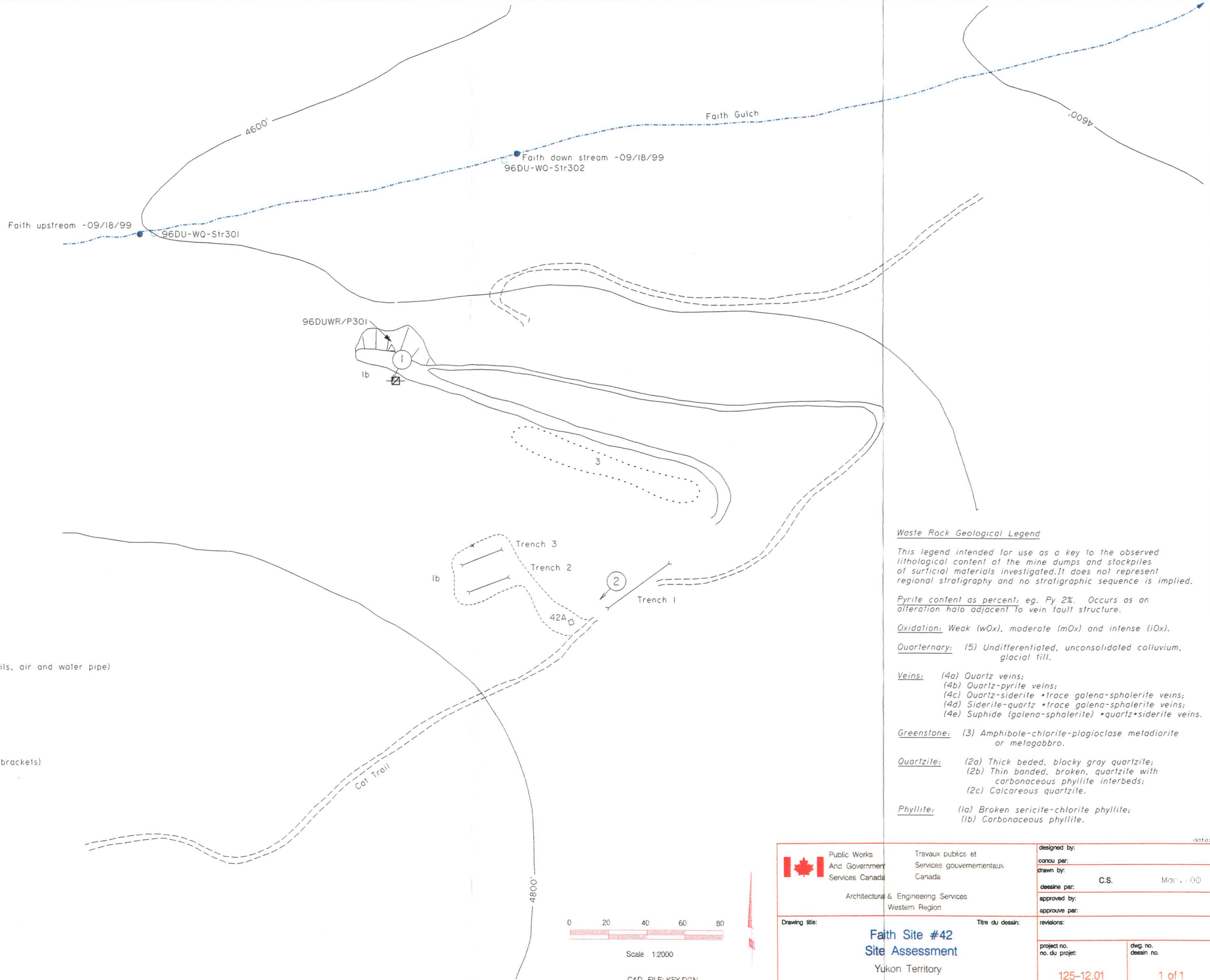
*AP = Acid Potential in tonnes CaCO₃ equivalent per 100 tonnes of material

**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

n/a = no assay / analysis; < = lower detection limit; > = upper detection limit

- 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
- ⊢ 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).

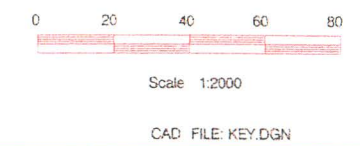
Quaternary: (5) Undifferentiated, unconsolidated colluvium, glacial till.

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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		dwg. no. dessin no.: 1 of 1	



Photo 42-1 : Faith. Faith timber shaft cover building (Building 42-B). (Azimuth 200^o)



Photo 42-2 : Faith. View along trench (Trench #3) at tent brame (Building 42-A). (Azimuth 230^o)