DRAGON (UN) & MILLER

Site No. 10

MINFILE: 105M 001j

1. LOCATION AND ACCESS

The Dragon (UN) and Miller sites are located on the north slope of Galena Hill (Site 10 Figure 1). The Dragon (UN) adit is on the Calumet Back Road at an elevation of 3900 feet (1189m). The Miller Pit is located south of the Dragon (UN) adit, at an elevation of approximately 4100 feet (1250m). The approximate UTM co-ordinates for this site are 7 088 800m N and 481 500m E.

Access to the UN adit is along the Calumet Back Road 5.0 km from the Duncan Creek Road. The portal is 10 m south of the road. The turn-off to the Miller Pit is located further along the road, 1 km past the UN adit. The turn-off cuts east-southeast to the pit, then continues on up the slope to the "C" structure of the Hector-Calumet mine.

2. SITE PHYSIOGRAPHY

The slope on which the Dragon (UN) adit and the Miller Pit lie is moderate (~20 degrees). The area is covered with a thick (~10 cm) blanket of moss, as well as bushes and evergreen trees. The site is in the Christal Creek catchment. Christal Creek is located approximately 1.5 km to the north, at an elevation 1100 (335m) feet lower than the pit.

3. GEOLOGY AND MINERALIZATION

According to the Minfile report, mineralization at the site is hosted in medium to thick-bedded Keno Hill Quartzite, with some interbedded carbonaceous phyllite and schist. The main mineralized vein is up to 2.5m wide and contains galena, freibergite, boulangerite, sphalerite, manganese oxide, cerrusite, and anglesite in a siderite-quartz gangue. There is reportedly strong oxidation but no pyrite.

The walls of the Miller Pit are composed of thick beds of resistant quartzite (Photo 10-1). The walls show no mineralization but manganese oxide staining is common. The western wall of the pit has a strong manganese oxide stain, some clay alteration and a small amount of siderite, indicating the end of the mineralized vein. There is no outcrop outside the adit; the adit was not entered.

4. SITE HISTORY

Activity on the site began before 1926, when three shafts were excavated in the Miller area to depths of 6.1 m, 7.3 m and 12.8 m (mintile report). A few small open cuts were excavated at this time. In the 1950's the UN adit was excavated to 122m with another 152 m of underground development off of the adit. This development produced 2,900 tonnes of waste. In 1981 and 1985 the Miller open pit was excavated and 57,150 tonnes of waste produced.

Total production for the site is recorded at 8,519 tonnes grading 468 g/t silver, 2.2% lead, and 0.7% zinc, all having been produced from the Miller area. Apparently, the UN adit never produced ore.

5. MINE DEVELOPMENT

Total mine development includes three shafts, one adit and one pit. The shafts appear to have been destroyed during the excavation of the pit. Details of the pit and adit are shown on Figure 2.

5.1 Mine Openings and Excavations

Dragon (UN) Adit

The UN portal is 2 m high and constructed with wood beams (Photo 10-2). The adit has a wooden door to the adit was open at the time of the site visit. The adit is blocked by ice that extends to the sides of the adit, and comes to within 20 cm of the roof. The ice block is reportedly present year round, but has never fully blocked the water flow (B.Dunn, pers. comm).

Miller Pit

The Miller Pit is approximately 90 m long, 10 m wide and 15 m deep (Photo 10-1). The walls are composed of quartzite, and the north and east walls are both steep and thick-bedded quartzite beds can be seen. In contrast, the west wall of the pit, which is more altered, has more erosion.

There is a moderate amount of manganese alteration on the pit wall rocks and on the waste rock. There was no water in the pit at the time of the site visit.

5.2 Waste Rock Disposal Areas

There are waste disposal areas associated with both the Dragon (UN) adit and the Miller open pit. The adit dump contains approximately 8,000 m^3 of waste, and consists mainly of schists and quartzite with little staining or alteration. The surrounding vegetation has not been impacted by the dump, and has begun to encroach on the dump material (Photo 10-3).

The estimated volume of material in the dump at the Miller pit is 80,000 m^3 (Photo 10-4). The waste rock consists primarily of quartzite with some schist. There is little vein material and some manganese staining.

Waste rock samples were collected by UKHM (1996). Results of analyses of these samples are listed in Table 1. No additional waste samples were collected.

5.3 Tailings Impoundments

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

Table 1. Waste Rock Sample Data

Parameter	Units	Miller Dump 95UKHMD01	UN Adit Dump 95UKHUD01
Paste pH		6.43	7.69
Sulphate (tot)	%	0.03	0.08
Sulphate (SO4)	%	0.02	0.06
AP	$kgCaCO_3$/tonne	0.31	0.63
NP	$kgCaCO_3$/tonne	0.38	1.65
Net NP	$kgCaCO_3$/tonne	0.1	0.9
NP/AP		1.2	2.5
Arsenic	ppm	1	1
Calcium	%	0.06	0.14
Cadmium	ppm	11.3	0.1
Cobalt	ppm	3	4
Chromium	ppm	41	35
Copper	ppm	13	48
Iron	ppm	1.55	1.94
Maganese	ppm	5094	55
Nickel	ppm	17	16
Lead	ppm	462	660
Antimony	ppm	5	11
Zinc	ppm	902	220

5.4 Minesite Water Treatment

There is no water treatment facility at the site.

6. MINE SITE INFRASTRUCTURE

There is no mine infrastructure at the site.

7. SOLID WASTE DUMPS

No solid waste dumps were encountered at the site.

8. POTENTIAL CONTAMINANTS OF CONCERN

Potential contaminants of concern include any metals found in the adit water, and metals washing from the waste rock piles.

9. WATER QUALITY

Water flows from the UN adit at <0.5 L/s, and is clear with no precipitates or sediment on the streambed. The pH of the adit seepage is 6.7 and the conductivity is 80 µS. The analytical results for this sample are listed in Table 2.

The water quality of the UN adit was measured in 1985, and the adit has been water quality monitoring point since 1990. This data was collected in UKHM (1996).

10. RECLAMATION

The waste rock pile at the UN adit and the disturbed areas surrounding the Miller Pit are beginning to revegetate (Photo 10-5). This will likely take a long time as there is mostly barren rock in these areas, and little water. Some revegetation of the waste rock dump is also beginning (Photo 10-4).

11. REFERENCES

Hawthorn, 1996. Investigation into the reprocessing of Elsa Tailings, for United Keno Hill Mines Limited. DIAND Open File 1996-3(T).

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

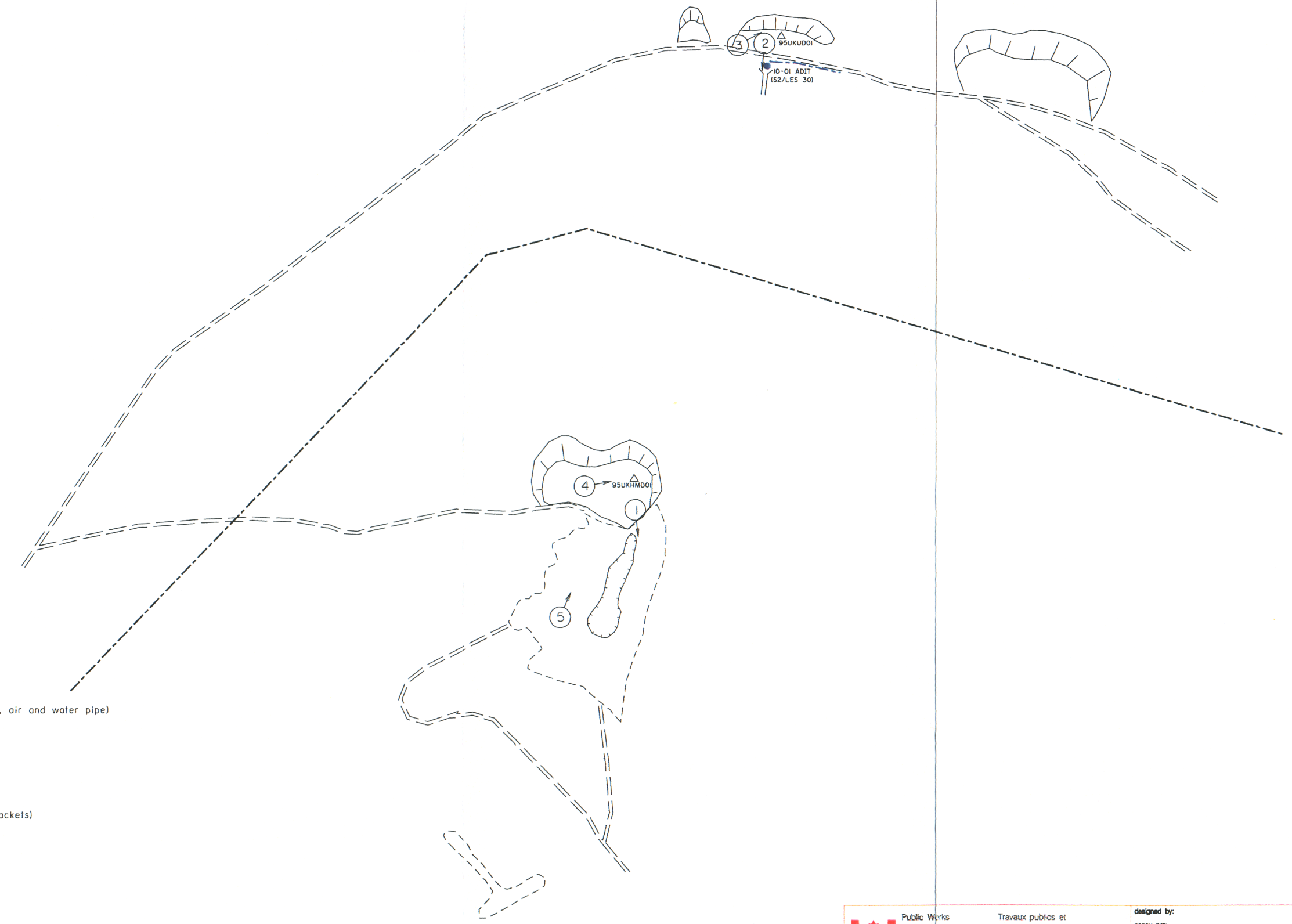
United Keno Hill Mines Limited. 1996. United Keno Hill Mines Limited – Site Characterization, Technical Appendices I-VI. Report No. UKH/96/01, prepared by Access Mining Consultants Limited.

Table 2. Water quality samples

Parameter	Detection Limit	Units	10-1-adit - Dragon & Miller (47710-10)
Aluminum	0.0008	mg/L	0.0104
Antimony	0.005	mg/L	<0.005
Arsenic	0.01	mg/L	<0.01
Barium	0.00004	mg/L	0.0149
Beryllium	0.00001	mg/L	<0.00001
Bismuth	0.0004	mg/L	<0.0004
Boron	0.002	mg/L	<0.002
Cadmium	0.00006	mg/L	0.0003
Calcium	0.002	mg/L	98.4
Chromium	0.00006	mg/L	0.00032
Cobalt	0.00003	mg/L	0.00048
Copper	0.00003	mg/L	0.00131
Iron	0.00001	mg/L	0.225
Lead	0.0003	mg/L	0.0006
Lithium	0.001	mg/L	0.01
Magnesium	0.0005	mg/L	7.75
Manganese	0.00002	mg/L	0.388
Molybdenum	0.00007	mg/L	0.00646
Nickel	0.00001	mg/L	0.002
Phosphorus	0.03	mg/L	<0.03
Potassium	0.4	mg/L	<0.4
Selenium	0.004	mg/L	<0.004
Silicon	0.004	mg/L	2.8
Silver	0.00005	mg/L	<0.00005
Sodium	0.004	mg/L	0.8
Strontium	0.00002	mg/L	0.191
Sulphur	0.008	mg/L	33.1
Thallium	0.001	mg/L	<0.001
Titanium	0.00002	mg/L	0.00014
Vanadium	0.00003	mg/L	<0.00003
Zinc	0.0002	mg/L	0.0643
Zirconium	0.00004	mg/L	
Mercury	0.0001	mg/L	<0.0001
Arsenic (hydride AA)	0.0002	mg/L	0.0053
Selenium (hydride AA)	0.0001	mg/L	<0.0001

	Detection Limit	Units	47712-28 10-1-adit - 13/09/99
Total Alkalinity	5	mg CaCO3/L	184
Chloride	0.1	mg/L	
Chloride	1	mg/L	
Chloride	2.5	mg/L	
Chloride	0.5	mg/L	
Chloride	0.25	mg/L	<0.25
Chloride	0.01	mg/L	
Chloride	5	mg/L	
Electrical Conductivity	0.01	µS/cm	540
Hardness (CaCO3 equiv)	5	mg/L	278
Nitrate-N	0.05	mg/L	<0.05
Nitrate-N	0.2	mg/L	
Nitrate-N	0.5	mg/L	
Nitrate-N	0.1	mg/L	
Nitrite-N	0.003	mg/L	<0.003
Nitrite-N	0.02	mg/L	
Nitrite-N	0.1	mg/L	
Nitrite-N	1	mg/L	
pH	0.01	pH	7.85
Sulphate	1	mg/L	94.7
Sulphate	0.5	mg/L	
Total Dissolved Solids	5	mg/L	343

- 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)
- 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 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)



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Scale 1:5000

CAD FILE: SITE10.DGN

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

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Western Region

Drawing title: / Titre du dessin:

Dragon (UN) and Miller Site #10
Site Assessment
Yukon Territory

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revisions:	
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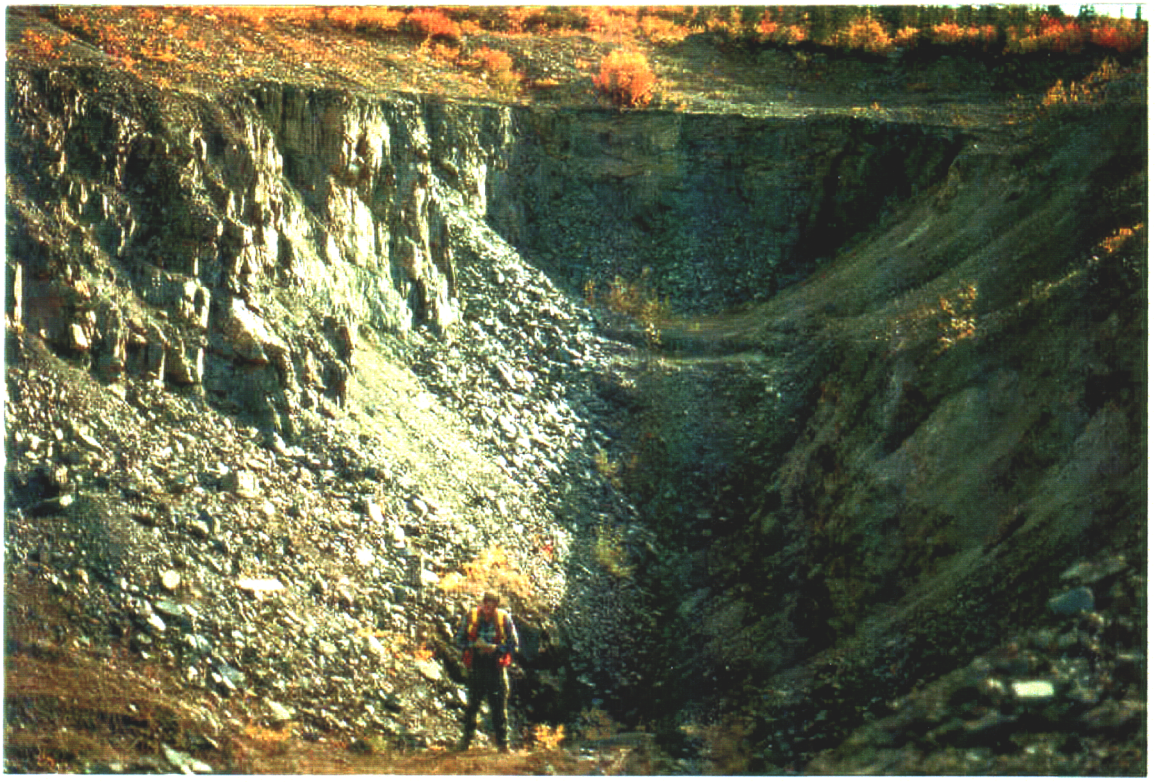

Photo 10-1. Miller Pit looking south.

Photo 10-2. UN portal showing wooden debris and open door.

Photo 10-3. Waste rock pile outside the UN adit, showing natural revegetation.

Photo 10-4. Miller waste rock pile.

Photo 10-5. Natural revegetation of area adjacent to the Miller Pit that was cleared during mining.