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ENVIRONMENTAL SITE ASSESSMENT

LA FORMA GOLD MINE

FOR
DIAND WASTE MANAGEMENT

BY
LABERGE ENVIRONMENTAL SERVICES
MARCH, 2000

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIMITATIONS

The information and data contained in this report have been prepared for specific application to this project. Findings and conclusions have been developed within the scope and in the manner specified by a contract with Indian and Northern Affairs Canada. The scope of services performed in this investigation may not be suitable or appropriate to satisfy he needs of other users, and any re-use of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of the said user.

Research and site confirmatory sampling was at a level consistent with the directions given by Indian and Northern Affairs Canada. There is always a potential that unknown, unidentified, or unforeseen surface and underground contamination may be present. Although every effort has been made to confirm that all information is factual, complete, and accurate, LES makes no guarantees whatsoever, whether expressed or implied, with respect to such information or data.

At the express direction of Indian and Northern Affairs Canada, this report does not contain the conclusions and recommendations normally found in an environmental site assessment report. Rather, the report is a summary of existing environmental conditions intended to serve as a baseline for future reference.

EXECUTIVE SUMMARY

The study area consists of about 7,500 acres on Mount Freegold made up of four contiguous properties, Antoniuk, Ant, Goldstar, and the most developed, the La Forma Property. The reader is advised that the word "La Forma" is also spelled "Laforma" in some documents, and that the five mine openings referred to in this document are called either "Levels One to Five", or "No.'s One to Five" in descending order with No. One being the highest elevation and Five the lowest.

Access to the study area is at Km 66 of the Freegold Road, 48 Km west north-west of Carmacks. Over the course of 70 years since the original claims were staked, the overall area of the property has varied. Although the study area included the entire La Forma claim group, the focus of investigations was the footprint of the old La Forma gold mining site.

The environmental site assessment described in this report is one of several assessments undertaken in the 1999 season by DIAND Waste Management with the objective of establishing baseline environmental conditions at abandoned mines throughout the Yukon. The objective of this assessment was to thoroughly describe current ecological and site conditions by examining and compiling site information, and by carrying out a field site assessment of geological, physical, biological, and chemical components of the site.

The literature review yielded fairly detailed information about the exploration and mine development history of the site. These are the site history milestones in brief:

- The Augusta claim is the first recorded claims on Freegold Mountain and was staked by F. Guder in 1930 (Bostock 1957). By early 1931 well over one hundred claims had been recorded. The No.1 adit on the G-3 vein was collared in 1931 at 1188.7 m. In 1934 N. A. Timmins Corporation acquired the chief claims in the group and considerable other activity took place in the mid 1930's.

- In 1935-1936 Mt Freegold Yukon ML optioned the property and in 1938 T. C. Richards and E. Koebke moved the 9 tonne mill to the G-3 vein. At the end of 1936 a total of approximately 1500 feet of underground workings had been developed on the La Forma vein.

- Production began in 1939 on the La Forma Claims (892 Tons produced 1146 ounces gold and 75 ounces silver) but was discontinued in early 1940 after producing 292 ounces of gold that year.

- Between 1946 to 1958 additional exploration and development included further underground development of 2525 ft on the No 4 adit and raises totalling 1935 feet.

- Selective high grade mining in the 1960's supplied a 100 ton/day mill for a brief period. Between June 1965 and February 1966 Discovery Mines Limited produced 1,610 ounces of gold and 570 ounces of silver from 8653 tonnes.

- In 1982-83 Teck Exploration Limited and in 1987 Tally-Ho Exploration Limited carried out additional underground diamond drilling and the No. 5 Adit was collared at 3000 ft and driven for a total of 2001 feet

- The property was acquired by Redell Mining Corp in 1993. They completed a diamond drilling program consisting of 23 holes totalling 6600 feet, and were responsible for most of the buildings and infrastructure that were seen in this assessment. Redell tried to set up and test a gravity gold recovery system, and later intended to use the BYG mill at Mount Nansen. Operations were ceased in June, 1996. In April, 1998, the company name was changed to FM Resources Corp.

Environmental information was somewhat limited. Some water quality data was found, as well as records of previous environmental investigations and inspections. Using the above information, a plan was made to survey the site to gather confirmatory samples of soil, sediment, water, rock units, vegetation, and special wastes if any.

On October 13 and 14, a field survey was carried out with the help of Aurum Geological Consultants, and Johnny Sam of the Little Salmon Carmacks First Nation (LSCFN). The results of that survey combined within a review of previous activity and historical information, has allowed a detailed description of current ecological conditions at the La Forma site.

The site is characteristically dry, having no year round surface streams except for Seymour Creek at the extreme boundary of the study area. The site has undergone significant surface disturbance over the years. Please refer to Figure Three - Vegetation and Disturbed Areas for a depiction of surface disturbance by major activity such as open pits, major trench work, exploration and mine development clearings. That area also includes a significant amount of placer work at the south-east corner of the property not related to past or current quartz claim holders. Most disturbed areas are revegetating naturally except for hard packed roads and waste rock dumps. Access roads, dumps, and site grading have resulted in a few areas of active soil erosion and instability. Grading the area at the 1996 mill site has resulted in an unstable slope.

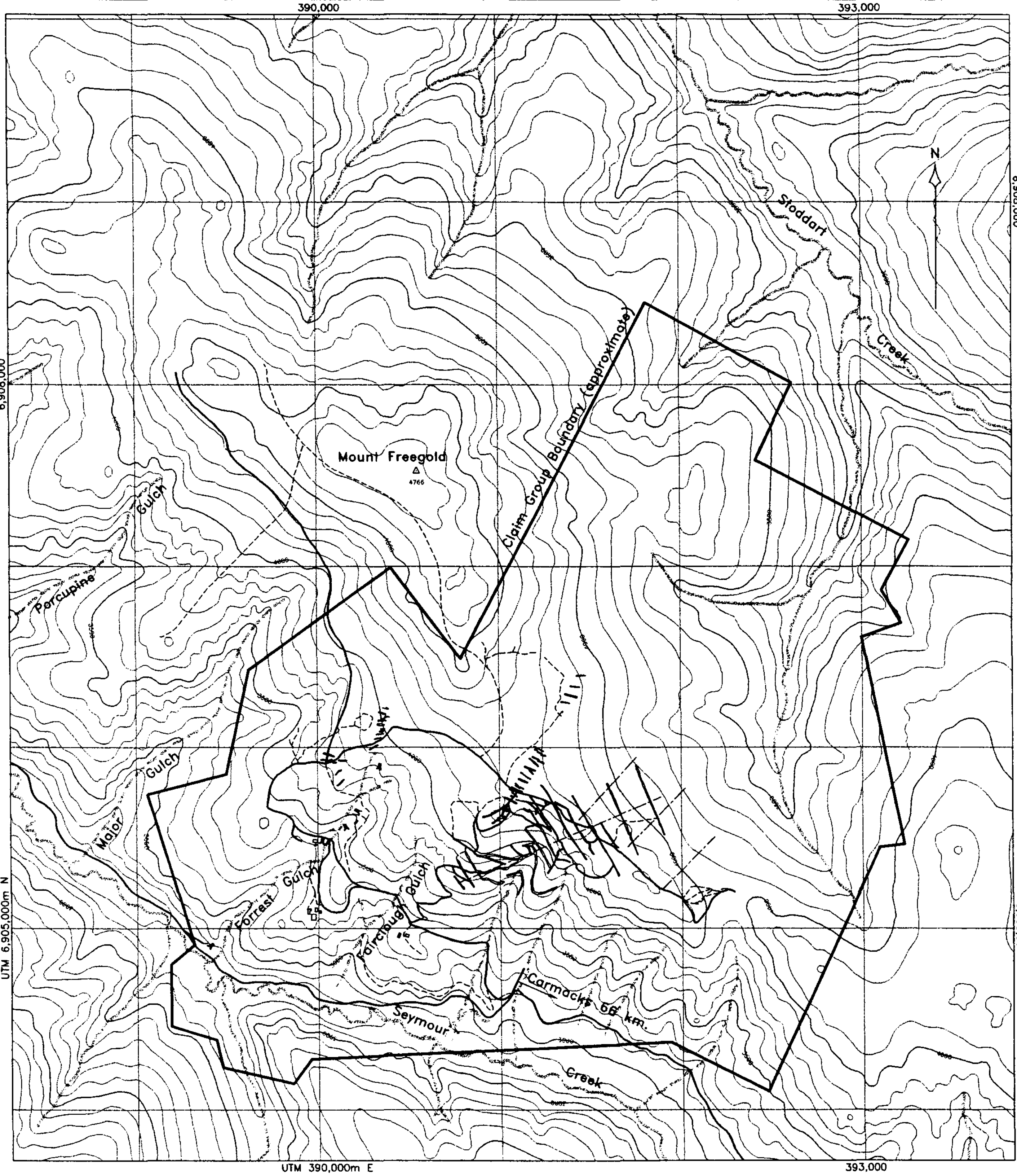
Physical hazards are present at several locations and are composed of unstable buildings, steep unstable soil slopes and piles, sharp edged solid waste, and mine openings. The last represents the highest potential human health and safety issue at the site. We identified and inspected a total of four open adits with virtually unrestricted entry.

The environmental assessment identified few contaminants of concern, and exposure pathways for these are limited. The only mine water discharge at the site containing compounds in excess of criteria is the Level Four Adit drainage. This flow reports to ground a few hundred metres from the opening, and does not resurface along the entire length of Forrest Gulch, the main surface drainage feature on which all mine development has taken place.

There appears to be a modest acid rock drainage potential. The rock and ore materials that might generate acid are not currently exposed to weathering except for a small pile of ore stored near the mill building. There is presently no metals leaching or any indications of current acid rock drainage from exposed materials on site.

We concluded that there are minimal environmental risks attached to this site. At the time of writing there was not any metals leaching or acid rock drainage. Potential human health and safety risks consist of the risk of accident and mischief, or of injury sustained by collapse of mine openings or slope failure.

Alteration of the land surface by roads, exploration, and underground development and eyesores created by left over waste, deteriorating buildings, and waste rock dumps represent aesthetic effects that may be felt most strongly by long time residents and elders of the LSCFN who used the land for different purposes.



LEGEND

Contour interval 100 feet

Claim group boundary (approximate)

LAFORMA GOLD MINE		
ENVIRONMENTAL SITE ASSESSMENT LOCATION OF STUDY AREA		
Laberge Environmental Services		
SCALE: 1 : 30,000	PROJ: UTM NAD 27	DATE: 2000.03.21
NTS: 115 I/6	DRAWN:	FIGURE 1

1.0 INTRODUCTION AND BACKGROUND

Laberge Environmental Services (LES) signed a Call Up Against a Standing Offer Agreement on September 29, 1999, based on a proposal submitted on September 15. The proposal was for an Environmental Site Assessment which would thoroughly investigate and document current environmental conditions, and as such serve as a baseline survey for future reference. Physical stability and degree of access were observed as these relate to human health and safety. The site under consideration is known locally as the La Forma Gold mine, and can be accessed from Km 66 (from Carmacks) of the Freegold Road.

1.1 PURPOSE AND SCOPE OF WORK

The scope of this assessment was limited to a thorough investigation and documentation of current environmental conditions. We have not done extensive risk assessment, or offered conclusions and recommendation on clean up. The purpose of the assessment was to examine records and conduct a site survey to document any contaminants on site, and to determine what physical, geochemical, and other risks were present. Current ecological conditions in the study area were to be described in detail.

The tasks for this assessment can be summarised as follows:

- Literature review
- Heritage and traditional/local knowledge survey
- Field testing of various media including soils, water, vegetation, sediments
- Inventory of physical hazards
- Inventory of buildings, infrastructure, access roads, mine openings, waste rock piles, slopes, and special and hazardous wastes.
- Qualitative assessment of environmental and human health risks
- Overall documentation of existing environmental conditions

2.0 HISTORY OF LA FORMA GOLD MINE

The Augusta claim is the first recorded claims on Freegold Mountain and was staked by F. Guder in June 1930 (Bostock 1957). By early 1931 well over one hundred claims had been recorded.

Trenching on the Augusta Claim exposed magnetite bodies over a large area (Johnston, 1937). Work in 1930-31 indicated over 200 feet of strike on the vein but that a float train of vein boulders could be traced for 4000 feet across the Augusta claim and onto adjoining claims.

Work on the vein quartz deposits began on the Spruce, Goose, and Theodore claims, which comprise the currently defined La Forma property, by trenching and drifting on the G-3 vein. The No.1 Adit on the G-3 vein, also known as the La Forma vein, was collared in 1931 at 1188.7 m.

In 1934 N. A. Timmins Corporation acquired the chief claims in the group and began operations and considerable other activity took place in the mid 1930's (Johnston 1937, Bostock 1936, 1941).

In 1935-1936 Mt Freegold Yukon ML optioned the property and in 1938 T. C. Richards and E. Koebke moved the 9 tonne mill to the G-3 vein.

By 1936 three adits had been collared, the No 1 Adit at 3940', No 2 Adit at 3800 feet and No. 3 Adit at 3650 feet. At the end of 1936 a total of approximately 1500 feet of underground workings had been developed on the La Forma vein.

Between 1946 to 1958 additional exploration and development included further underground development of 2525 ft on the No. 4 adit and raises totalling 1935 feet.

Selective high grade mining in the 1960's supplied a 100 ton/day mill for a brief period. In 1982-83 Teck Exploration Limited and in 1987 Tally-Ho Exploration

Limited carried out additional underground diamond drilling and the No. 5 Adit was collared at 3000 ft and driven for a total of 2001 feet

The property was acquired by Redell Mining Corp in 1993. Over the next few years, Redell completed a diamond drilling program consisting of 23 holes totalling 6600 feet. The company established an extensive camp, constructed a new mill on top of the 1960s mill site, and was planning full production.

PRODUCTION AT LA FORMA

Limited production began in 1939 on the La Forma Claims (892 tons produced 1146 ounces gold and 75 ounces silver) but was discontinued in early 1940 after producing 292 ounces of gold, (Bostock 1941, Cooke, 1960).

Between June 1965 and February 1966 Discovery Mines Limited produced 1,610 ounces of gold and 570 ounces of silver from 8,653 tonnes before terminating production because of increased operating costs, poor gold recovery and lower grades than expected (Findlay, 1967).

In total, over the past 70 years, some 10,000 tonnes of ore has been milled from the La Forma vein producing some 2750 ounces of gold.

3.0 SITE ASSESSMENT METHODOLOGY

3.1 ASSESSMENT CRITERIA

Although not specifically required, the normal assessment criteria have been cited for ease of reference. Canadian Council of Ministers of the Environment (CCME, 1999) guidelines were used for numerical comparisons in the assessments of water and soil samples. The Metal Mine Liquid Effluent Regulations (MMLER) were also considered relevant, as these were the basis for a Yukon Waters Act Licence discharge from the mine issued in 1996. The observations of safety risks were done by relying on past experience with closed mining developments, and comparing current conditions to standard industry safety practises. Yukon Workers Compensation Health and Safety Board Occupational Health and Safety Handbook with mine safety regulations was used as a reference. Standard methods for the examination of acid drainage potential were used to evaluate the presence of potential acid drainage problems at the site.

3.2 METHODS

3.2.1 Local Knowledge, Heritage and Traditional Knowledge

The Little Salmon Carmacks First Nation (LSCFN) looked into the traditional and locally available knowledge of the La Forma site as well as its traditional land uses. An LSCFN elder, Johnny Sam, interviewed several other elders in the community, and accompanied the project team on the field survey to tell us the history and traditional uses of the project area surroundings. Mr. Sam was interviewed a second time in January, to present his findings.

3.2.2 Literature Review

Extensive files at the Yukon Archives and federal departments of Fisheries and Oceans and Indian Affairs and Northern Development were reviewed. Copies of significant documents were made. References are provided as appropriate throughout the report. The Yukon Heritage Branch was consulted as to archaeological and historical information relevant to the study area.

It was decided that there was a lack of recent field data concerning water quality, sediment, soil, and rock characteristics. These data gaps were filled in during the reconnaissance survey.

3.2.3 Field Program Methods

The La Forma site survey took place on October 10 and 11, 1999. Aurum Geological Consultants Inc. toured the site collecting soil and rock samples and assessing physical stability while the rest of the team collected other data and made site observations over two days, accompanied by Johnny Sam of the LSCFN. Appropriate protocols for the collection of water, soil, sediment and other data were followed. Field screening instruments for hydrocarbon contamination and presence of Poly Chlorinated Biphenyl (PCBs) were taken on the trip as a precaution, but were not required.

3.2.4 Physical and Geochemical Stability Assessment

To assess physical stability, various methods were used, mainly slope stability observations, and qualitative observations of safety hazards. Geochemical stability, namely the potential for acid or neutral mine drainage affecting water quality, was assessed by analysing selected rock and soil samples and by reviewing documentation.

Rock and Soil Sampling

Because of limited time on site, rock samples were collected with a bias toward identifying rock types that could potentially produce ML/ARD. Samples were collected, numbered and located using both GPS and topography. Samples were split and analysed at Chemex Labs Ltd for gold plus 34 trace elements. A subset of these samples was submitted for Acid/Base accounting. Analytical procedures and results are found in Appendix C - Geochemical Analysis Report Results and Analytical Procedures. Sample site locations are plotted on Figure Four - Detailed Site Plan.

3.2.5 Sampling and Analytical Program

A total of five water samples, one triplicate sediment sample, eight rock/soil samples, and one waste petroleum product sample were analysed. Sample locations and media were selected judgementally while on site. Standard quality control procedures were followed for the various media. A sample summary table follows:

Table One: Sample Summary

Sample identification number	**Location**	**Sample type**	**Analysis**
L - 1	No.2 Adit seepage	Water	Water chemistry, metals
L - 3	No.3 Adit seepage	Water	Water chemistry, metals
L - 4	No.4 Adit discharge	Water	Water chemistry, metals
Well	Drilled well near No.4 Adit	Water	Water chemistry, metals
L - 5	Seymour Creek downstream of Forrest Gulch	Water	Water chemistry, metals
Oil, level 2	Drum sample near No. 2 Adit	Oil	GC scan
L5A, L5B, L5C	Triplicate sediment samples from Seymour Creek	Sediment	ICP scan
128876	Alpine trenches, Goldstar	Core	ICP scan
128877	Trench beside road	Soil	ICP scan
128878	Alpine trench	Sulfide vein	ICP scan
128879	No.3 Adit soil sample at portal	Soil	ICP scan
128880	No.3 Adit small ore stockpile	Grey quartz vein	ICP scan
128881	No.4 Adit ore stockpile at mill	Ore	ICP scan
128882	No.4 Adit ore stockpile at mill	Ore	ICP scan
128883	No.4 Adit ore stockpile at mill	Ore	ICP scan
128884	Subsample of 128878		ML/ARD
128885	Subsample of 128877		ML/ARD
128886	Subsample of 128883		ML/ARD
128887	Subsample of 128880		ML/ARD

Notes: water chemistry includes major ions and physical tests.

ICP scan is 32 element ICP - AES metals scan

ML/ARD included Paste pH, total Sulphur %, sulfate sulphur %, sulfide sulphur %, % inorganic CO_2.

From these analyses the following were derived: measures of Maximum Potential Acid (MPA), Neutralisation Potential (NP), Net Neutralisation Potential and the ratio NP/MPA.

4.0 ENVIRONMENTAL SETTING

The La Forma mine site lies at the south-eastern limit of Klondike Plateau Ecoregion. Characteristic features of this Ecoregion include rolling, unglaciated topography with moderate to deeply incised valleys and large structural basins composed of level to undulating terrain (Ecological Stratification Working Group 1995).

The study area is situated on the southern slopes of Mount Freegold in the Dawson Range. The site is on a south-westerly aspect and ranges in elevation from about 830 m ASL at Seymour Creek to 1453 m ASL at the summit of Mount Freegold. The La Forma adits and mill site are located on Forrest Gulch, which drains an area of about 1.5 km^2.

4.1 GEOLOGY

General Geology

The La Forma Gold Mine is one of a number of epithermal vein occurrences and copper-gold porphyries localized near the Big Creek fault, a north-west trending fault that follows the east side of the Dawson Range. Others deposits/occurrences within this belt include the Rambler, Antoniuk, Revenue, Cash, Casino and others. The Dawson range is underlain by mostly Cretaceous granites and syenites and younger Tertiary porphyries and felsic and intermediate volcanics. The oldest rocks in the area are a package of metasedimentary and metavolcanic rocks comprising schists, gneisses, and quartzite, now considered to be part of the Yukon Tanana Terraine.

Mineralization

Gold is found in 1. magnetite bodies within gneisses and quartzites and 2. in gold-quartz veins containing variable amounts of pyrite in numerous locations on Mt. Freegold. The quartz veins are commonly hosted in shear zones in granodiorite, granite, and syenite porphyry. Granodiorite wall rock is strongly altered and consists of prominent quartz grains in a groundmass of kaolinized feldspar and chlorite.

Magnetite hosted gold occurrences are found mostly on the north-west end and on the east side of Freegold Mountain. The magnetite occurs as lenses and pods within gneisses and quartzites. Other minerals present in the ore are magnetite, quartz, specularite, limonite, free gold, actinolite, garnet, and epidote (Bostock 1957 p630).

The gold-quartz-veins are composed of grey vitreous and fractured quartz with coatings and fracture fillings of mainly pyrite but also containing arsenopyrite, galena, sphalerite , tourmaline and tennantite. Cracks, fractures and vugs are infilled with limonite. An alteration assemblage of chlorite, epidote, clay, serecite, and pyrite envelopes the vein and shear zone.

Individual veins have been traced for up to 500 m in strike length. The veins are variable in width from a few inches to 1.5 m and more in places.

4.2 SURFACE HYDROLOGY

The La Forma property is situated on a south flank of Mount Freegold within the upper drainage basin of Seymour Creek (259 km2), a small tributary of the Big Creek watershed (1,750 km2). Big Creek is a small drainage of the upper Yukon River basin and flows into the Yukon River near Minto, Yukon. The focus of mine development, and of this assessment, was the La Forma G3 vein which is located in a fault that transects Forrest Gulch (1.45 km2), an intermittent stream draining into Seymour Creek.

The adjacent Antoniuk, Ant, and Goldstar properties are also part of the current La Forma land package. A portion of the land area covered by these mineral properties drains north east to Stoddart Creek, also a tributary of Big Creek. There has been no mine development activity on lands draining to Stoddart Creek.

The basin yield of the study area streams is very low, a function of the local dry climate.

4.3 CLIMATE

The Mount Freegold area is included within the Central Yukon Basin climatic regime (Wahl *et al.* 1987). The cold, semiarid climate of the region has a mean annual temperature of approximately -5.5^{0}C, with a summer mean of 10.5^{0}C and a winter mean of -23^{0}C. The lowest precipitation in Carmacks, for the period 1963 to 1997, occurs in April, with a monthly mean of 6.7 mm, and the highest occurs in July, with a monthly mean of 54.8 mm.

Snow survey data, collected from Mount Nansen (62^0 02' N 137^0 03' W, elev. 1021 m ASL) shows a mean snow water equivalent of 66 mm on March 1st, 76 mm on April 1st and 12 mm on May 1st for the period 1976 to 1999 (Indian and Northern Affairs Canada 1999). Data from Casino Creek to the north (62^0 44' N 138^0 48' W, elev. 1065 m ASL) shows a significantly higher mean snow water equivalent (102 mm on March 1st, 124 mm on April 1st and 121 mm on May 1st) for the same period.

The region has a net water deficit. Annual evaporation significantly exceeds precipitation from May through August.

4.4 TERRESTRIAL ENVIRONMENT

The terrestrial biota of the Mount Freegold area is characteristic of the region's boreal, montane forests. There has been limited impact on this environment from mineral exploration activity during the past 70 years.

4.4.1 Vegetation

Four major vegetation types are found on the La Forma Gold Mine property. The characteristic plant species for each of these vegetation communities are shown in Appendix D - Characteristic Plant Species for Property Vegetation Types and Colonizing Plant Species Observed on Disturbed Areas.

Upland White Spruce Forest

The most common vegetation type on the La Forma property, upland white spruce forest is found on most of the lower slopes in the area. White spruce (*Picea glauca*) along with trembling aspen (*Populus tremuloides*) and Alaskan birch (*Betula neoalaskana*) are the dominant tree species.

South - Facing Grassland

Grassland, dominated by trembling aspen (*Populus tremuloides*), purple reed grass (*Calamagrostis purpurascens* ssp. *purpurascens*) and prairie sagewort (*Artemisia frigida*), occurs on steeper southerly-facing slopes. On the La Forma property, it is most common on the south-easterly-facing slopes along the tributary streams draining Mount Freegold.

Subalpine Transition

This vegetation type is found on the upper colluvial slopes of Mount Freegold. It forms the transition between the upland white spruce forest and the alpine tundra. It is characterized by intermittent stands of alpine fir (*Abies lasiocarpa*) and a dense shrub layer of dwarf birch (*Betula glandulosa*) and willows (*Salix* spp.). The Subalpine zone occurs on the south side of Mount Freegold at elevations above about 1200 m ASL.

Alpine Tundra

Alpine tundra vegetation is dominated by dwarf ericaceous shrubs, forbs and lichens. It is found on Mount Freegold at elevations above about 1370 m ASL (Oswald and Senyk 1977).

4.4.2 Natural Revegetation of Disturbed Sites

Most of the disturbed areas on the La Forma property appear to be revegetating naturally. Revegetation remains sparse, however, on steeper cutbanks, wasterock disposal dumps and the more compacted road surfaces.

The disturbed areas on the property have been invaded by some 25 colonizing plant species (see Appendix D). These include shrubs such as balsam poplar (*Populus balsamifera*), trembling aspen (*Populus tremuloides*), mountain alder (*Alnus crispa*), Alaskan birch (*Betula alaskana*), willow (*Salix* spp.) and white spruce (*Picea glauca*). Native graminoids colonizing these disturbed sites include northern rough fescue (*Festuca altaica*), spike trisetum (*Trisetum spicatum*), blue-joint (*Calamagrostis canadensis*), purple reed grass (*Calamagrostis purpurascens*), ticklegrass (*Agrostis scabra*) and slender wheatgrass (*Elymus trachycaulus*).

4.4.3 Wildlife

Caribou

Historically, the Dawson Range was occupied by portions of the Fortymile Caribou Herd, a large barrenground herd (>500,000 animals) that was decimated by uncontrolled hunting in early 1900s. The herd made extensive use of this area during winter, but was last recorded in the vicinity in 1942 (Farnell *et al.* 1991).

The Mount Freegold area is part of the home range of the Klaza Caribou Herd. This small woodland herd, last censused in 1995 at about 450 animals, is believed to be stable (Farnell 1996). The core winter range of this herd is in the Hayes Creek area north of Prospector Mountain. Harvest of this herd is through permit hunting only.

Moose

Moose densities in the Mount Freegold area are among the lowest in the Yukon. Last surveyed in 1987, the Casino Trail census area is estimated to have about 45 moose per 1000 km^2 (Ward 1997). Predation is believed to be a major factor in suppressing moose numbers in this area (Markel and Larsen 1987).

Thinhorn Sheep

A small population of Dall sheep (60-70 animals) occupy the alpine habitat of the Dawson Range (Hoefs and Lortie 1975), but there are no records of their occurrence on Mount Freegold.

Mule Deer

Mule deer have been observed in the Big Creek area. The number of deer resident to the area is not known, but is believed to be low.

Predators

Wolf densities in the Mount Freegold area are unknown, but are likely to be low based on an estimated density of 32 wolves / 1000 km^2 documented from the Nisling River area to the south (Baer and Hayes 1987). Grizzly bear densities are also unknown, but probably range from 10 bears / 1000 km^2 to 16 bears / 1000 km^2 (B. Smith pers. comm.). The relative abundance of black bears in the area is expected to be moderate (MacHutchon and Smith 1990). Other mammalian predators expected to be in the Mount Freegold area include coyote, fox, wolverine, marten and lynx.

Wildlife Utilization

The Mount Freegold area is included in game management subzone 5-24. The annual big game harvest from this subzone is shown in the table below. As the table shows, big game harvest has been low. The largest moose harvest was in 1987 when 6 animals were taken from the area.

Yukon Hunting and Guiding Ltd. owned by Rod Hardie of Whitehorse, currently holds the outfitting concession (registered guiding area 13) affected by mine development in the study area.

The La Forma site is in registered trapping concession 147, currently held by Kathleen Sam of Carmacks.

The following table includes big game harvested by resident (native and non-native), non-resident hunters, and nuisance kills.

Table Two: Big Game Harvest 1980 - 1998

Year	Moose	Caribou	Sheep	Goat	grizzly	Black bear
1980	2	0	0	0	0	1
1981	2	0	0	0	0	1
1982	8	0	0	0	0	0
1983	5	0	1	0	0	1
1984	0	0	0	0	2	1
1985	2	0	0	0	0	1
1986	2	0	0	0	0	0
1987	6	0	0	0	1	2
1988	1	0	0	0	0	0
1989	0	0	0	0	0	0
1990	0	0	0	0	1	0
1991	0	0	0	0	0	0
1992	0	1	0	0	1	2
1993	1	0	0	0	0	0
1994	1	0	0	0	0	0
1995	0	0	0	0	0	0
1996	0	0	0	0	0	2
1997	0	0	0	0	1	0
1998	1	0	0	0	0	0
Total	**31**	**1**	**1**	**0**	**6**	**11**

4.5 AQUATIC ENVIRONMENT

The only significant water body in the study area is Seymour Creek, located west of the Freegold road and at the extreme south-west edge of the La Forma property. The Seymour creek valley is relatively narrow (< 500 meters), unglaciated and is characterized with steep valley walls. Seymour creek in the vicinity of the mine meanders slowly across the valley floor, occasionally abutting against the valley walls. The smaller drainages that dominate the valley walls, originating from higher elevations, tend to be intermittent and generally inaccessible to fish.

Fisheries surveys have confirmed the presence of juvenile Chinook salmon, arctic grayling, round whitefish and slimy sculpin throughout various reaches and tributaries of the Big Creek watershed (DIAND et al, 1985). More specifically, arctic grayling and juvenile Chinook salmon were found to inhabit the lower reach of Seymour Creek, downstream of the Bow Creek confluence. Fish utilization of the habitat on the upper reaches of Seymour Creek near the La Forma Mine remains unknown. However, the excellent water quality and presence of benthic invertebrate fauna in this region suggest the upper reaches as fish rearing habitat. Barriers may prevent fish access.

The dominant issue with respect to fish habitat management of Seymour Creek at the time of the assessment was placer mining. The upper reach of Seymour Creek closest to the La Forma site (above the confluence with Bow Creek) is currently classified as Type III fisheries habitat under the Yukon Placer Authorization. Type III fisheries habitat are defined as streams that contain fish having significant use by First Nations, commercial, sport or domestic fisheries or contributing to biological diversity. The lower reach of Seymour Creek (below confluence with Bow Creek) is classified as a Type II or salmon rearing stream. Type II streams are defined as streams and/or stream reaches used for rearing by salmon, trout and char for all or part of the year. Water quality within Seymour Creek has been deferred of fish values to facilitate placer mining. The maximum allowable sediment discharge into the Seymour Creek drainage through placer mine effluent is to not exceed 1100 mg/l of suspended solids.

Apart from Seymour Creek, there is no fisheries habitat located on the La Forma site. All surface drainages associated with the site are seasonal, flowing perhaps only during heavy precipitation events or snowmelt. The Freegold road forms a boundary between the mine site and Seymour Creek. There is a small culvert that formerly directed seasonal flow from Forrest Gulch to Seymour Creek. The area is now filled with road material and soil from the No. Five adit waste dump. The channel of Forrest Gulch was examined for most of its length, and was dry except for a two hundred meter section directly downstream of No. Four adit discharge.

Seymour Creek was sampled and surveyed within a reach parallel to the Freegold Road and downstream of its confluence with Forest Gulch. The reach description follows:

Parameter	Value or Description
Stream Width (m)	6.0
Wetted Width (m)	3.5
Bed Material	50% large cobble, 20% small cobble, 15% large gravel and 15% small gravel
Substrate Compaction	Moderate
Cover	5 – 10%, stable L.O.D., cutbank
% Pool, Riffle, Run	10% pool 45% riffle 45% glide
Average Maximum Pool Depth (cm)	30

REGIONAL STREAM SEDIMENT GEOCHEMISTRY (Ref GSC OF 1220)

Six stream silt samples were collected from creeks draining Freegold Mountain into Stoddard and Seymour creeks. The samples were collected for the GSC's Regional Geochemical Sampling program (OF 1220). The pH readings of water from these sample sites ranged between 6.3 and 7.5. One sample from a creek draining the north-east side of Mount Freegold was anomalous in antimony (Sb 2.2 ppm) and lead (Pb 23 ppm), two other samples were anomalous in antimony (Sb 3,4 and 3.6 ppm). Apart from this, the stream silt samples draining Mt Freegold are low in most elements associated with epithermal or contact metamorphic mineralization.

SEYMOUR CREEK SEDIMENT ANALYSIS

A triplicate sediment sample was collected from the surveyed reach of Seymour Creek downstream of Forrest Gulch and analysed for metals content. The results are attached in Appendix B. No anomalies were apparent in this sample. All bioaccumulative and toxic metals were low or below the limit of detection.

5.0 RESULTS OF THE SITE ASSESSMENT

5.1 TRADITIONAL/LOCAL KNOWLEDGE AND ARCHAEOLOGICAL RECORD

The study area is within the traditional territory of the Little Salmon Carmacks First Nation (LSCFN), a Northern Tuchone speaking people. The LSCFN people used an extensive area from the Nisling River in the east and as far north as Dawson City. Their subsistence patterns and seasonal rounds varied to take advantage of local availability of particular species.

No systematic archaeological surveys or detailed excavations of large sites have been carried out in the La Forma study area. The Freegold Road corridor was studied in general, but there were no specific surveys done near this mine site.

Mr. Johnny Sam of the LSCFN advises that the Freegold Road (or Casino Trail) follows a traditional Northern Tutchone trade route into the mountains (Dawson Range). There were no specific archaeological studies of this route in the Mount Freegold section that he was aware of, but he recalled extensive documentation of archaeological sites elsewhere in the corridor and in the nearby Mount Nansen and Big Creek areas. He also recalled an effort to document medicinal uses of plants and their Northern Tuchone names some time ago, and believed there was a report produced on that. Most of the elders with direct knowledge of the traditional use of the La Forma site are now deceased. He suggested that the La Forma site was subject to typical nomadic pursuits of the Northern Tuchone.

He recalls that the Mount Freegold area was previously rich in wildlife. The area to the north-east of Mount Freegold in particular was an excellent area for game until the proliferation of access roads during the past few decades resulted in overhunting and habitat disruption. The decline in the moose population has been especially notable. Mr. Sam has no recollections of sheep on Mount Freegold. He says some First Nation elders remember the great herd of caribou (Fortymile herd) that used to migrate through the area. Caribou sightings are now rare.

Mr. Sam says that although the Mount Freegold area is a still good area for trapping, particularly for wolverine, trails have been destroyed by mineral exploration activity and by fire. He adds that less effort is put into trapping these days because of the current low fur prices. Johnny and Kathleen Sam (holder of trapping concession 147) have no cabins in the area. They use wall tents during the trapping season. The only LSCFN buildings Mr. Sam is aware of in the La Forma area is the Fairclough cabin on Seymour Creek.

5.2 BUILDINGS AND INFRASTRUCTURE

At the time of writing, the claim group, buildings, and infrastructure were owned by FM Resources Corporation, Corporate Office Box 23, 9th floor, 609 Hastings Street Vancouver B.C. V6B 4W4. The President/CEO of FM Resources is Mike Bourdeau. There are fifteen buildings on the site. The majority of these are mobile trailer units and wood frame structures at the camp. One is a complete mill shelter and partial plant, and the rest of the site buildings are various storage and utility buildings and old log structures dating to the 1940s. The remains of the 1939 mill and log buildings can still be seen, although the mill is almost covered in waste rock. The 1966 mill at the No. Four adit was blasted, burned, and covered by fill to make way for the new mill buildings constructed on the site in 1996. The camp was powered by a diesel generator which has been removed. Garbage was incinerated and hauled out.

There was no litter or casual garbage dumps on site. The camp was served by an on site sewage disposal system which remains in place. There is very little in the way of equipment at this site, apart from some crushing circuit equipment in the 1996 mill buildings.

5.2.1 Camp Area

The main camp area was shut down in 1996, having been constructed to house a significant work force. An on site sewage disposal system was installed in 1995. See photos 1 through 5, Appendix A. Access to the buildings in the camp area is not restricted. Few doors were locked, and the access road was passable by conventional vehicle. There was no restriction to pedestrian traffic. The camp generator has been removed. Housekeeping issues appear to have been dealt with satisfactorily: there was no domestic garbage left on site and litter was minimal. There was approximately 100 litres of used oil left behind in plastic pails.

5.2.2 Level Four Adit and Mill Buildings

At the Level Four Adit there is a concentrator building with some crushing equipment and a conveyor belt system newly built in 1996. The area on which these buildings are located is the footprint of an earlier mill, constructed in 1964/5, which had produced 1,600 ounces of gold from 8,653 tonnes of ore. The original building was burned, blasted, and covered with fill to make room for the new mill. An assessment made in 1993 Shows the mill building and waste piles intact, while the recent assessment found these features to be totally buried.

5.2.3 Level Three Adit

This adit was collared in 1936. Development work occurred in recent years. The adit has small seeps but the flow is negligible. There is a broken beam near the opening, and access is not restricted. There is some metal waste and wood debris in the area.

5.2.4 Level Two Adit

The level two adit was also collared in the 1930s, and was the site of the most recent development. There is an open pit a few hundred meters above the adit where the G3 vein surfaced. Seepage of about 2 litres per minute resulted in a pond of water about 80 meters in. The opening is not restricted. There are some utility buildings at the opening, and a drum of waste diesel oil, apparently used as cleaning fluid, near the buildings. Metal waste is also located here in the form of steel pipe, scrap metal, and empty drums. See photos 6 and 7, Appendix A.

5.2.5 Core Storage

The modern day core storage is located at the former Archer Cathro camp one kilometre from the Freegold road. The storage is in a recently built metal roofed structure in a clearing on stable ground. There are several old tent frames, an old water tank, some metal waste is located here in the form of rail buckets, empty drums and discarded parts.

5.3 HAZARDOUS / SPECIAL WASTE INVENTORY

Developed areas of the site were checked for storage or spills of petroleum products and other chemicals. One sample of oil was taken which was identified as a drum of waste diesel fuel. There was about 100 litres of used oil stored in small containers at the camp site. No evidence of spills or leaks were found except for the generator building at the main camp site where a 2 m by 3 m surface soil stain was noticed. The stain did not penetrate more than 10 cm indicative of a small volume release. There are about 50 tonnes of shotcrete cement mix in plastic sacks located between the camp and mill building, apparently in good condition. There were no compressed gases in cylinders and no remaining petroleum products or chemicals stored on site.

5.4 WATER QUALITY

Mine water seepage, flow from Level four adit, a water well near the Level four adit, and Seymour Creek were sampled for a suite of water quality parameters during the field investigation. Historic water quality records were examined. The results, and comparison to criteria, are summarized in the following table:

Table Three: La Forma Water Quality

Parameter	La Forma Mine Site					Guidelines		
	Level 2 (No.2) Adit	Level 3 (No.3) Adit	Level 4 (No.4) Adit	Well	Seymour Creek	Drinking Water	MMLER Grab Sample	Protection of Aquatic Life
Discharge	Seep. Negligible	Seep. Negligible	1.45 L/sec	0.22 L/sec	69 L/sec			
Hardness (mg/l)	262	593	256	242	166			
In-situ pH	7.68	7.67	8.03	7.76	8.15	6.5 to 8.5	5.0 (MAP)	6.5 to 9.0
Arsenic (mg/l)	0.449	0.126	0.331	0.010	0.0 01	.025 (IMAC)	1.0	0.005
Cadmium (mg/l)	.00007	.0004	.00065	.00188	<.00005	.005 (MAC)		.0002 to .0018*
Copper (mg/l)	.0027	.0133	.018	.0018	.0011	<1.0	.6	.002 to .004*
Iron (mg/l)	<0.03	.41	.05	.22	<.03	<.3 (AO)		0.3
Lead (mg/l)	.0001	.0020	.0002	.00019	<.00005	.01 (MAC)	.4	0.001 to 0.007*
Zinc (mg/l)	.009	.082	.106	.097	<.005	<5.0 (AO)	1.0	0.03

Notes:

- **Complete water quality data is included in Appendix B.**
- **Comparison of current water quality to *Canadian Drinking Water Guidelines* (Health Canada, 1996), *Metal Mining Liquid Effluent Regulations* (MMLER, 1995, and *Water Quality Guidelines for the Protection of Aquatic Life* (CCME,1999). Water quality samples were obtained on October 14, 1999.**

AO – aesthetic objective

MAC – maximum acceptable concentration

IMAC – interim maximum acceptable concentration

MAP – minimum authorized pH in a Grab Sample

*objective value dependant on water hardness

During the latest period of activity at the La Forma mine, the Redell Mining Corporation was granted Water License QZ95-006 (Yukon Territory Water Board, October, 1995). Under the licence, water quality monitoring and discharge standards were set for the Level four adit discharge. Analytical results of water license parameters of samples collected by the company, by DIAND Water Resources Division, and by LES are summarized in the following table:

Level Four Adit Water Quality - Water License Parameters

Parameter	Summer 1995 (Redell)	August 17, 1995 (DIAND)	May 01, 1996 (DIAND)	October 13, 1999 (LES)	Water Licence Standards
PH	7.45	7.9	7.9	7.76	6 - 9
NFR	5 mg/l	<5 mg/L	**1970** mg/l	<5 mg/l	50 mg/l
Zinc	0.301	0.12	**0.530**	0.106	0.5
Copper	0.193	0.049	0.236	0.018	0.3
Arsenic	0.482	0.62	**1.51**	0.331	0.5
Lead	-	<0.01	**0.357**	0.0002	0.2
Nickel	-	0.003	<0.01	<0.001	0.5

Notes: Values in bold exceeded standards at the time of sampling in 1996. Water quality at the Level four adit appears to have deteriorated while the mill was being built in May, 1996, which can be attributed to crossing the flow with equipment. Since that time, the Level 4 flow has been directed to a culvert and is no longer exposed to traffic.

Current water quality analyses show seepage and discharge from adit workings, and a drilled well meet both drinking water and metal mining liquid effluent guidelines for all regulated parameters except arsenic. Arsenic levels in the Level Four Adit flow are above those levels recommended for drinking water, but are within metal mining liquid effluent regulations for a grab sample. Water quality guidelines for the protection of aquatic life were met in Seymour Creek for all parameters.

The long history of exploration in both quartz and placer deposits have caused many disturbances to the vegetative cover in the valley. The cumulative effects of these disturbances on fish habitat in the Seymour Creek drainage is largely unknown.

5.5 INVENTORY OF ACCESS AND EXPLORATION ROADS

The exploration activity by surface trenching was focussed on the G3 or La Forma vein and the Rambler vein. The trenches range from 70 years old to very recent. The oldest trenches were observed on the hill side near Mount Freegold on what is now called the Goldstar property. These were generally about 2 meters wide and ranged in length from 10 to 60 meters with varying depths. All of the old trenches were well vegetated by numerous species of shrubs and grasses.

Access to this property from Km 66 of the Freegold road was partly obstructed by earthen berms pushed across the road. These were easily negotiable with a 4x4 vehicle. The entire site was accessible to pedestrian and off road vehicle traffic at the time of the site visit.

There was a network of access roads throughout the property. A crude estimate would be in the order of 10 kilometres. Roads were built mainly by sidecasting material downslope. Most of the roads were in fairly stable condition but one area above the Level Two Adit showed signs of serious erosion.

5.6 WASTE ROCK AND ORE STORAGE PILES

There are waste rock piles at the Level two, Level three, Level four and Level five adits (No.s 2 through 4). The 1939 mill processed about 1,300 tonnes of ore, and must have deposited tailings between the Level two and Level three adits. All processed material, and even the mill itself, is now almost buried by waste rock from development of the No. 2 adit over the years.

The Level Four Adit area contains the most significant waste dump. The 1965 mill certainly would have generated tailings here when it processed 8,653 tonnes of ore. The site is now covered completely by waste rock and spoil from cutting the slope and levelling the site for the 1996 mill buildings. There is a pile of stockpiled ore located in the clearing next to the mill. None of the above materials appear to be currently affecting the environment through metals leaching or acid rock drainage. Erosion slope failures were observed on the dump, but transport of soils seems limited to the toe of the dump.

5.7 MINE OPENINGS

A total of four mine openings were investigated. The results are summarized below:
The No.5, or Level Five Adit was collared in 1987. A total of 610 m of underground development took place here, with significant underground drilling. A waste rock dump is located below and to the west of the adit which contains about 6,000 cubic meters of material. The slopes of the dump are at the angle of repose. The dump extends to the edge of the Freegold road. There was no indication that the adit ever produced any mine water discharge, and was completely dry when inspected. There was a protective wire screen across the opening which had been cut open, allowing easy pedestrian access to the opening. No samples were collected.

The No.4 adit was collared in the 1940s, and further developed in the 1960s, and as recently as 1995. A 100 ton/day mill was built here in 1965, and was replaced by a new mill in 1996. This adit opening is not restricted. There is a significant flow of mine water exiting the opening (1.4 L/sec).

The No.3 adit was collared in 1936. Recent development was not known. The opening is not restricted and there are broken timbers in the ceiling near the opening. There was about 2 litres per minute of seepage present, which reported to a pond inside the adit, and did not produce a surface flow beyond the mine opening. .

The No.2 adit was also collared in 1936. This adit was extensively developed in recent years. The opening is not restricted. Some ponded seepage was present.

6.0 DISCUSSION

6.1 GEOCHEMICAL STABILITY ASSESSMENT

A total of eight samples were submitted for Gold plus 31 element ICP analyses and four of these samples were also analysed for an Acid/Base accounting. Analytical results are found in Appendix C.

The 31 element ICP package shows that the ore materials at the La Forma site contain gold (0.84 to 36.96 g/t Au), silver (3.4- 709 g/t Ag) and have elevated arsenic (82->10000 ppm As). One sample (128878) returned high values for antimony (2990 ppm Sb), copper (571 ppm Cu), lead (2030 ppm Pb), zinc (1040 ppm Zn), bismuth (222 ppm Bi) and cadmium (8 ppm Cd). This sample was collected from an abandoned trench on the Augusta claim north-west of Freegold mountain and is representative of the gold bearing magnetite bodies within the Yukon Tanana terrane metamorphic rocks. The sample collected from this mineralization type contains bismuth and cadmium, indicative of a metamorphic origin and they also contain higher arsenic, copper, lead, zinc and antimony than do samples collected from the La Forma vein proper.

Samples 12881-12883 were collected from ore dumps at the No 4 adit located beside the partially installed new mill. There are approximately 400 tonnes of ore stockpiled beside the No 4 Adit and mill. Samples were collected from the material that showed the greatest degree of weathered sulfides on surface. Of the three samples analysed, sample 12882 contained the highest gold value at 36.96 g/t Au and 3610 ppm As. The two other samples (12881 & 12883) contained 0.84 g/t and 2.03 g/t Au and 746 and 2430 ppm As.

For all samples analysed, copper ranged between 5 and 184 ppm, lead between 38 and 2030 ppm, zinc between 18 and 1040 ppm and total iron between 1.32 and 13.95 %. The highest total iron was from sample 12878 and is mostly accounted for by the oxide phase magnetite.

6.2 METALS LEACHING/ACID ROCK DRAINAGE ANALYSIS

In Redell Mining Corp's 1995 report on the La Forma Mine Bulk Test Project Description, a brief report on ML/ARD characteristics of three drill core samples from Hole 94-4 and 94-5 were reported. The samples were submitted by Norecol, Dames & Moore Inc. to Chemex Labs Ltd. The following was reported (Redell, 1995)

"The pH of the ore sample was 7.2 indicating that acid generation had not taken place prior to sampling. The sample had a total sulphur content 0f 0.48%, sulphide sulphur content of 0.18%. The acid generating potential of the sulphide sulphur portion of the rock is 5.6 kg $CaCo_3$/t. The net acid neutralizing potential was negligible (2 kg $CaCo_3$/t). With the exception of arsenic, which was present in an average concentration of 5000 μg/g over the interval, concentrations of heavy metals were low. Leachate from the leach extraction test had 0.430 mg/L of dissolved arsenic.

The waste rock sample had a paste pH of 8.4. Total sulphur was very low (0.092%) with much of it (0.08%) present as sulphide sulphur. The net acid generating potential was very low (3 kg $CaCo_3$/t) and the neutralizing potential was 19 kg $CaCo_3$/t. The ratio of neutralizing potential to acid generating potential is greater than 4, suggesting that the sample is not acid generating. Leachate from the waste sample had 0.174 mg/L dissolved arsenic."

As part of the current assessment, a subset of four of the original eight samples were submitted to Chemex Labs Ltd., for acid/base accounting. Samples were tested for

Paste pH, total Sulphur %, sulfate sulphur %, sulfide sulphur %, % inorganic CO_2. From these analyses the following were derived: measures of Maximum Potential Acid (MPA), Neutralisation Potential (NP), Net Neutralisation Potential and the ratio NP/MPA.

The maximum sulfide sulphur was 1.08% from sample 128880 from one of the ore dump samples. The other three samples from ore dumps contained < 0.03% sulfide sulphur. The highest calculated Maximum Potential Acid (S% x 31.25) was 33 kg $CaCo_3$ /tonne for sample #128880 from the Level Four Adit dump.

Based on limited sampling biased toward sulfide bearing materials, the ore material from the La Forma vein may have weak to moderate acid generating potential

The gold-quart veins on the G-3 vein on the La Forma property are localized along 018° and 80°W dipping reidel shears. The vein system is exposed partially on surface over a about 500 metres. The vein ranges between a few cm to a maximum of 2.5 m.

The area escaped the last glaciation so that overburden on the property is thin and composed mostly of B and C horizon soils and colluvium. As is evident elsewhere in the Dawson Range, the bedrock is commonly oxidized and weathered to depths of >60 m. The Antoniuk Deposit is located approximately 1 km east of the La Forma vein and was evaluated for its heap leach potential by Archer Cathro and Associates. This involves outlining oxidized ore that is amenable to heap leach extraction. Work on the Antoniuk deposit during 1985 indicated a geological reserve of 2.2 million tonnes grading 2.06 g/t au. Additional testing indicated that the ore could be leached with recoveries of 95.6 % in 15 days with cyanide consumption of 0.23 kg/tonne and an unusually low lime consumption of 0.23 kg/tonne (Eaton ands Main, 1985)

Although standard static tests to predict acid generating potential are moderately positive for one sample from the ore dump, other factors suggest that the potential for acid generation at the La Forma site are presently not significant; the study area appears to lack sufficient moisture to sustain a process of ARD, and the potentially acid generating material is not currently exposed to oxidation and weathering.

There is only water flow from the Level four adit - all others were negligible. All seepage water in the adits, and subsurface flow near Level four have neutral to slightly alkaline pH. There is a low total iron content to the veins, generally less than 2%, and is commonly in the pyrite form. Additionally, there is a small total volume of exposed sulfide bearing ore or waste rock at the site. The dry nature of the site has been noted. In 1995 Redell drilled two water wells looking for a source of water for the mill.

The sulfides at the site are associated with the vein and alteration envelope, most of which is not currently exposed. The magnetite-gold ore bodies located on the north side of Freegold mountain are composed of oxide iron minerals and are not likely to be of concern for ML/ARD.

Core samples from the La Forma property are stored at the H. S. Bostock core library and can be used for additional studies and analyses if needed.

Yukon Minfile reports a 25 tonne sulfide waste pile from the early days but no reference to confirm this was located during a literature review, and no sign of it could be found on site.

6.3 HEALTH AND SAFETY OBSERVATIONS

The potential physical hazards and safety issues at this site are related to access. Access to mine openings, buildings, and unstable slopes was not restricted to pedestrians and only partly restricted to vehicles. All mine openings had unrestricted access. The Level # 2, #.3, # 4, and # 5 adits were not against unauthorised entry and no warning signs were posted to alert people of the potential hazard. The mill buildings at Level Four Adit, and buildings remaining at No. 2 adit and camp areas do not pose a significant public safety hazard. Unrestricted access to the property and its many roads could lead to accident or mischief. The access roads adjoining the Freegold was not made impassable so that the curious and casual visitor might be encouraged to wander around the property.

6.4 ENVIRONMENTAL LIABILITY

Potential impacts on aquatic habitat within Seymour Creek as a receiving stream from the La Forma property would be limited to physical disturbances and transport of pollutants under unusual precipitation events. The potential for physical disturbances to the stream resulting from erosion and sediment transport from disturbed areas is a function of soil stability, vegetative cover, and precipitation. Potential transport of contaminants such as metals along surface drainage and groundwater pathways is a function of source concentration, discharge volume, and flow patterns.

Disturbed areas subject to erosion and sediment transport are made up of numerous roads, extensive trenching, an open pit, and clearings that total just under one square kilometre in area. Vegetative cover is especially disturbed below the adits where waste rock has been dumped. Severe erosion was only noted at two areas - one on the access road leading from the mill area towards the Goldstar property, and the other on the waste rock dump below No. Four adit.

During high rainfall events, Forrest Gulch may transport sediment and contaminants towards Seymour creek. There was no evidence of storms having caused torrents in this channel in the past. An inspection of the Forrest Gulch channel did not show signs of any sediment transport more than a few meters downstream of the disturbed areas. Also, the study area climate is extremely dry, and the drainage area of the gulch is only 1.45 km^2.

Erosion generally increases the suspended and settable particulate mater in surface runoff, to levels that reflect soil conditions and gradient. It is also recognised that streamside vegetation or buffers serves to decrease sediment loading to fish habitat from surface runoff. There is currently a substantial vegetation buffer between the mine site and Seymour Creek.

The second source of potential aquatic impacts within Seymour Creek is the migration of contaminants, specifically the metals dissolved zinc and arsenic, from mine water or acid rock drainage transported by ground water or surface runoff. The No. Four adit discharge is currently within metal mine liquid effluent regulated values, which were assigned to this site while it had a water licence. Drinking water guidelines are exceeded in the mine water for arsenic. The mine water reports to ground about 200 meters downstream of the adit. The ambient water quality in Seymour Creek downstream of the mine is currently excellent.

There is only one mine water discharge - the drainage from the No. Four adit. This water seems to flow at a fairly constant rate year round. The discharge contains traces of arsenic and zinc that exceed drinking water standards but do not exceed metal mine liquid effluent standards. Exposure to this water is limited to a 200 meter channel before the water reports to ground. The receptors would include humans as casual visitors, and wildlife drinking the water.

Literature review and sampling indicates that some ore materials and waste rock have a deficit in neutralization potential that could lead to acid generation. However, there is not currently any metals leaching or acid rock drainage associated with waste rock piles or stored ore on the site. There was mention of 25 tonnes of sulfide waste on the property, but it is assumed to have been buried by recent development, because no sign of it could be found.

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APPENDIX A

SITE PHOTOGRAPHS

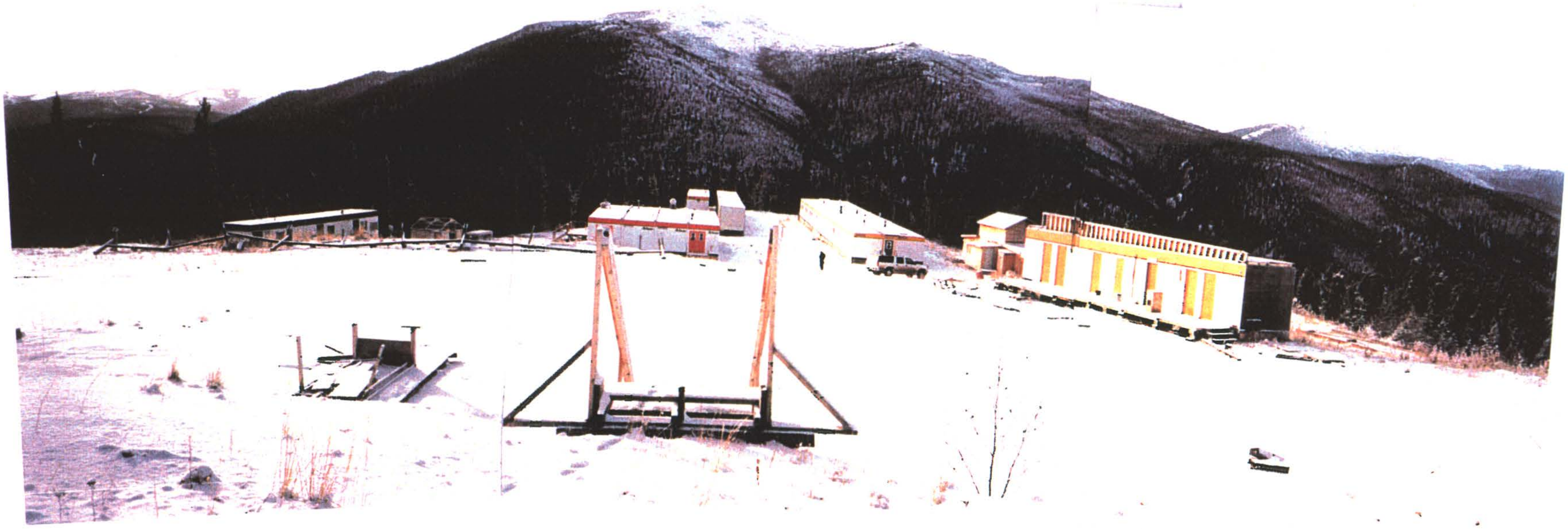
LA FORMA GOLD MINE

Top - Father Tanguay, Bill Langham and visitor Napolean Garand at La Forma Mines, 1956.

Bottom - Bill Langham and Napoleon Garand with mop showing width of vein at La Forma Mines, 1956.

#1 - Looking north across La Forma.

#2 - Looking north west at Mount Freegold. La Forma property centre left, Antoniuk right, Seymour Creek bottom right to left.



#3 - Looking south west at La Forma camp, October 14, 1999.

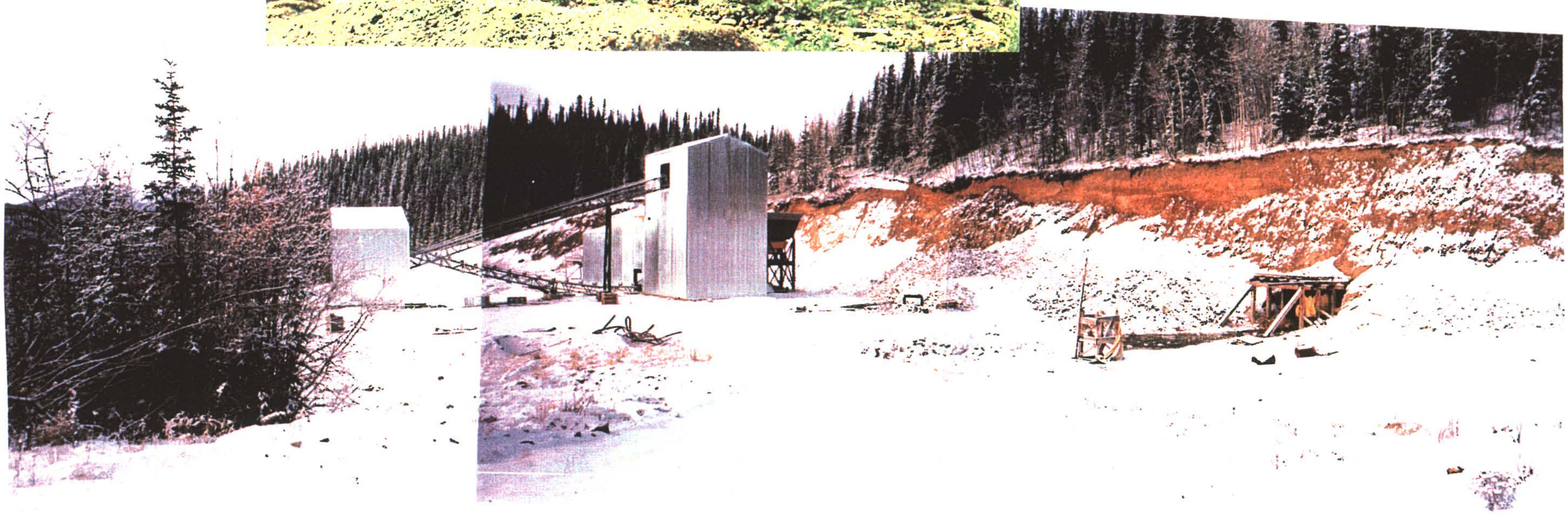
#4 - Camp viewed from Level Two Adit area, looking south.

#5 - Generator building at camp. October 14, 1999

#6 - Buildings at Level Two Adit.

#7 - Level Two Adit opening.

 # 8 - Mill built in 1964/5 at Level Four. This structure was demolished to make way for the existing mill buildings, below. (Photo taken 1993)



#9- Mill buildings in 1999, Level four adit flows from right to left through buried 24 inch pipe.

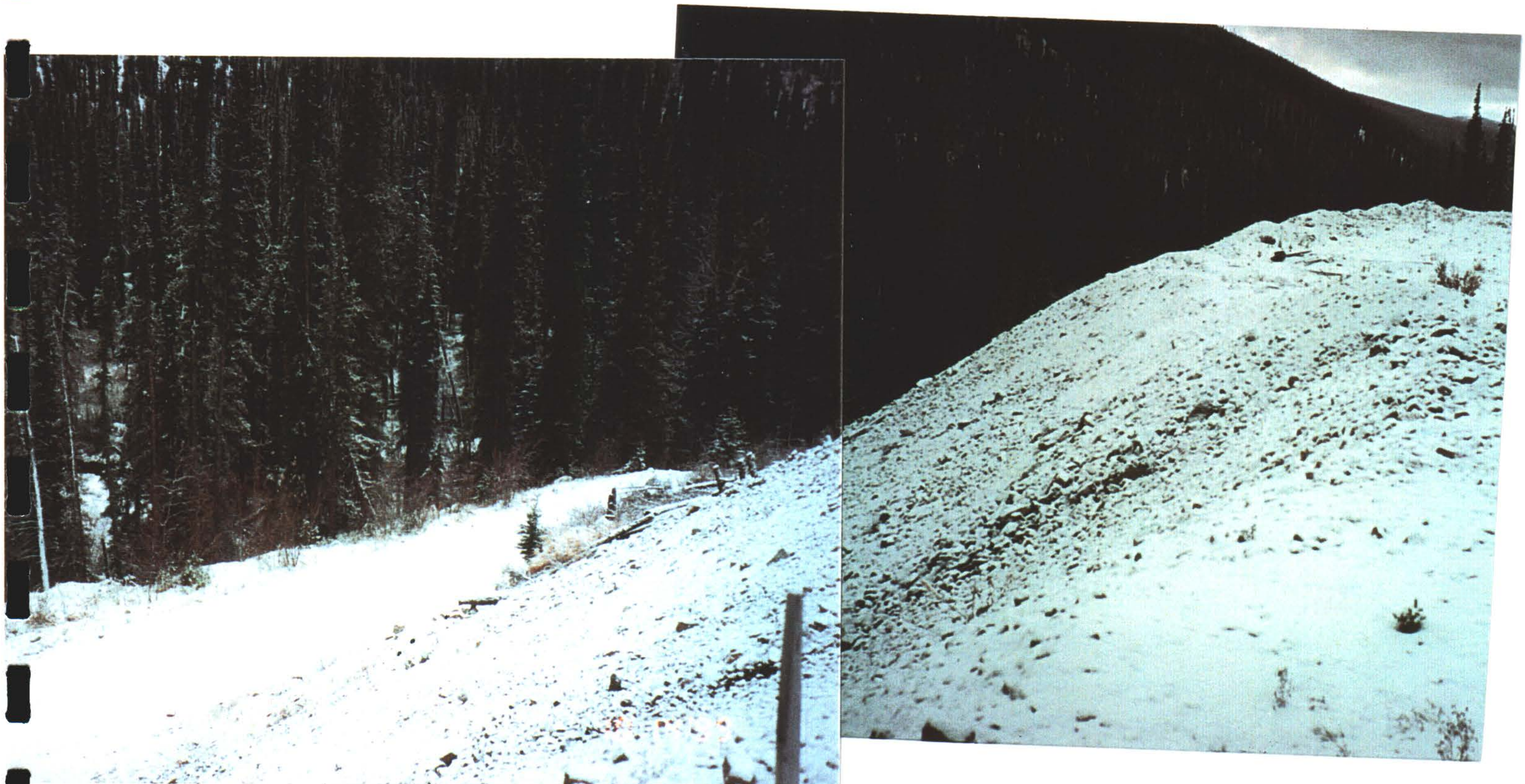
#11 - Level Four adit discharge October 13, 1999.

#12 - Inspecting and sampling core on the Goldstar property

#13 - 1939 mill between Level two and Level three adits, in 1993.

#15 - The same mill in 1999, filled in with waste rock from Level two underground development.

#16 - Level five adit. Forrest Gulch on the right.



#17 - Waste rock dump at Level five, overlooking Freegold road, Seymour creek in background.

#18 - Seymour Creek near the La Forma Mine, October 1999.

#19 Slope failure from seasonal run-off in waste rock dump at the La Forma Mine, October 1999.

#20 - Typical vegetative disturbances, Level four waste rock dump.

APPENDIX B

CHEMICAL ANALYSIS REPORT

RESULTS, METHODOLOGY, QUALITY ASSURANCE, AND CHAIN OF CUSTODY

LAFORMA GOLD MINE

WATER, SEDIMENT, AND OIL SAMPLES

COLLECTED OCTOBER 13 AND 14, 1999

38 Triumph Street, Vancouver, BC Canada V5L 1K5

analytical service laboratories ltd.

FAX: (604) 253-6700 TEL: (604) 253-4188

CHEMICAL ANALYSIS REPORT

Date: November 10, 1999

ASL File No. L1752

Report On: La Forma Gold Mine
Soil, Water, and Oil Analysis

Report To: **Laberge Environmental Services**
PO Box 5111
Whitehorse, YT
T1A 4S3

Attention: **Mr. Ken Nordin**

Received: October 20, 1999

ASL ANALYTICAL SERVICE LABORATORIES LTD.
per:

Joanne Patrick, B.Sc. - Project Chemist
Can Dang, B.Sc. - Project Chemist

REMARKS File No. L1752

The detection limits for the total metals were increased for some of the soil samples reported due to interferences encountered during analysis.

A liquid sample identified as "Oil Level 2" was submitted for characterisation by gas chromatography with flame ionisation detection (GC/FID). The Hydrocarbon Distribution Report for this sample and reference standards have been appended to this report to assist you in your investigation. The scale at the top of the chromatographic traces represents the hydrocarbon range of common petroleum products. The scale at the bottom represents retention time in minutes.

This sample has a hydrocarbon distribution similar to a furnace oil or diesel.

RESULTS OF ANALYSIS - Water[1] File No. L1752

Sample ID		L-1 Adit Level 2	L-3 Adit Level 3	L-4 Adit Level 4	L-5 Seymour Creek	L-6 Well
Sample Date		99 10 13	99 10 13	99 10 13	99 10 14	99 10 14
Sample Time		14:00	15:00	16:00	13:00	15:00
Physical Tests						
Conductivity	(umhos/cm)	537	1070	487	340	487
Hardness	CaCO3	262	593	256	166	242
pH		7.68	7.67	8.03	8.15	7.76
Total Suspended Solids		5	72	<3	<3	<3
Turbidity	(NTU)	4.0	20.3	0.6	0.2	1.5
Dissolved Anions						
Acidity (to pH 8.3)	CaCO3	5	4	2	1	5
Alkalinity-Total	CaCO3	102	63	129	177	130
Sulphate	SO4	153	495	123	11	119

Remarks regarding the analyses appear at the beginning of this report.
< = Less than the detection limit indicated.
[1]Results are expressed as milligrams per litre except where noted.

RESULTS OF ANALYSIS - Water[1]

File No. L1752

Sample ID			ASL Travel Blank
Sample Date			99 04 05
Sample Time			
Physical Tests			
Conductivity	(umhos/cm)		<2
Hardness	$CaCO_3$		<0.01
pH			6.07
Total Suspended Solids			<3
Turbidity	(NTU)		<0.1
Dissolved Anions			
Acidity (to pH 8.3)		$CaCO_3$	<1
Alkalinity-Total		$CaCO_3$	<1
Sulphate	SO_4		<1

Remarks regarding the analyses appear at the beginning of this report.
< = Less than the detection limit indicated.
[1]Results are expressed as milligrams per litre except where noted.

RESULTS OF ANALYSIS - Water[1]

File No. L1752

Sample ID		L-1 Adit Level 2	L-3 Adit Level 3	L-4 Adit Level 4	L-4(2) Adit Level 4	L-5 Seymour Creek
Sample Date		99 10 13	99 10 13	99 10 13	99 10 13	99 10 14
Sample Time		14:00	15:00	16:00	16:00	13:00
Total Metals						
Aluminum	T-Al	0.028	0.30	0.134	0.043	0.006
Antimony	T-Sb	0.0096	0.0025	0.0047	0.0048	0.0002
Arsenic	T-As	0.449	0.126	0.331	0.330	0.0013
Barium	T-Ba	0.03	0.06	0.01	0.01	0.15
Beryllium	T-Be	<0.001	<0.002	<0.001	<0.001	<0.001
Boron	T-B	<0.1	<0.1	<0.1	<0.1	<0.1
Cadmium	T-Cd	0.00007	0.0004	0.00065	0.00059	<0.00005
Calcium	T-Ca	98.0	211	82.5	81.2	34.2
Chromium	T-Cr	<0.0005	<0.001	<0.0005	<0.0005	<0.0005
Cobalt	T-Co	<0.0001	0.0009	0.0024	0.0019	<0.0001
Copper	T-Cu	0.0027	0.0133	0.0180	0.0147	0.0011
Iron	T-Fe	<0.03	0.41	0.05	0.04	<0.03
Lead	T-Pb	0.00010	0.0020	0.00018	0.00015	<0.00005
Magnesium	T-Mg	4.1	16.2	12.1	12.0	19.7
Manganese	T-Mn	0.032	0.130	0.101	0.081	<0.005
Mercury	T-Hg	<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
Molybdenum	T-Mo	<0.03	<0.03	0.06	0.06	<0.03
Nickel	T-Ni	<0.001	<0.002	<0.001	<0.001	<0.001
Potassium	T-K	4	5	<2	<2	<2
Selenium	T-Se	<0.001	0.0018	<0.001	<0.001	<0.001
Silver	T-Ag	<0.00001	0.00005	<0.00001	<0.00001	<0.00001
Sodium	T-Na	7	7	6	6	10
Thallium	T-Tl	0.00005	<0.0001	<0.00005	<0.00005	<0.00005
Titanium	T-Ti	<0.01	<0.01	<0.01	<0.01	<0.01
Uranium	T-U	0.0367	0.0288	0.0435	0.0439	0.0048
Vanadium	T-V	<0.03	<0.03	<0.03	<0.03	<0.03
Zinc	T-Zn	0.009	0.082	0.106	0.092	<0.005

Remarks regarding the analyses appear at the beginning of this report.
< = Less than the detection limit indicated.
[1]Results are expressed as milligrams per litre except where noted.

RESULTS OF ANALYSIS - Water[1]

File No. L1752

Sample ID		L-6 Well	ASL Travel Blank
Sample Date		99 10 14	99 04 05
Sample Time		15:00	
Total Metals			
Aluminum	T-Al	0.027	<0.005
Antimony	T-Sb	0.0018	<0.0001
Arsenic	T-As	0.0104	<0.0001
Barium	T-Ba	0.01	<0.01
Beryllium	T-Be	<0.001	<0.001
Boron	T-B	<0.1	<0.1
Cadmium	T-Cd	0.00188	<0.00005
Calcium	T-Ca	87.7	<0.05
Chromium	T-Cr	<0.0005	<0.0005
Cobalt	T-Co	0.0003	<0.0001
Copper	T-Cu	0.0017	<0.0001
Iron	T-Fe	0.22	<0.03
Lead	T-Pb	0.00019	<0.00005
Magnesium	T-Mg	5.5	<0.1
Manganese	T-Mn	0.672	<0.005
Mercury	T-Hg	<0.00002	<0.00002
Molybdenum	T-Mo	0.04	<0.03
Nickel	T-Ni	<0.001	<0.001
Potassium	T-K	<2	<2
Selenium	T-Se	<0.001	<0.001
Silver	T-Ag	<0.00001	<0.00001
Sodium	T-Na	6	<2
Thallium	T-Tl	<0.00005	<0.00005
Titanium	T-Ti	<0.01	<0.01
Uranium	T-U	0.0172	<0.0001
Vanadium	T-V	<0.03	<0.03
Zinc	T-Zn	0.097	<0.005

Remarks regarding the analyses appear at the beginning of this report.
< = Less than the detection limit indicated.
[1]Results are expressed as milligrams per litre except where noted.

RESULTS OF ANALYSIS - Sediment/Soil[1,2]

File No. L1752

Sample ID	L5A	L5B	L5C
Sample Date	99 10 14	99 10 14	99 10 14
Sample Time	13:00	13:00	13:00
Physical Tests			
Moisture %	7.9	8.9	8.5

Remarks regarding the analyses appear at the beginning of this report.
< = Less than the detection limit indicated.
[1]Results are expressed as milligrams per dry kilogram except where noted.
[2]Samples were sieved using 100 Mesh prior to subsampling for metals analysis.

ASL

RESULTS OF ANALYSIS - Sediment/Soil[1,2] File No. L1752

Sample ID		L5A	L5B	L5C
Sample Date		99 10 14	99 10 14	99 10 14
Sample Time		13:00	13:00	13:00
Total Metals				
Aluminum	T-Al	25700	24200	27000
Antimony	T-Sb	<80	<40	<100
Arsenic	T-As	<400	<200	<500
Barium	T-Ba	590	622	664
Beryllium	T-Be	<2	<1	<3
Bismuth	T-Bi	<40	<20	<50
Cadmium	T-Cd	<8	<4	<10
Calcium	T-Ca	12400	13200	13500
Chromium	T-Cr	121	64	79
Cobalt	T-Co	15	12	14
Copper	T-Cu	38	32	32
Iron	T-Fe	40600	33800	38200
Lead	T-Pb	<200	<100	<300
Lithium	T-Li	18	16	19
Magnesium	T-Mg	8240	7680	8320
Manganese	T-Mn	1040	1050	1110
Molybdenum	T-Mo	<20	<8	<20
Nickel	T-Ni	76	40	50
Phosphorus	T-P	1360	1160	1260
Potassium	T-K	4410	3430	4530
Selenium	T-Se	<200	<100	<300
Silver	T-Ag	<8	<4	<10
Strontium	T-Sr	159	186	188
Thallium	T-Tl	<200	<100	<300
Tin	T-Sn	52	<20	54
Titanium	T-Ti	1430	1100	1380
Vanadium	T-V	109	91	102
Zinc	T-Zn	140	84	102

Remarks regarding the analyses appear at the beginning of this report.
< = Less than the detection limit indicated.
[1]Results are expressed as milligrams per dry kilogram except where noted.
[2]Samples were sieved using 100 Mesh prior to subsampling for metals analysis.

Sample ID	Oil Level 2
Sample Date	99 10 13
Sample Time	14:00

Extractables

GC Scan	see below

Remarks regarding the analyses appear at the beginning of this report.
< = Less than the detection limit indicated.

Appendix 1 - QUALITY CONTROL - Replicates

File No. L1752

Water[1]		L-5 Seymour Creek 99 10 14 13:00	L-5 Seymour Creek QC # 177123
Physical Tests			
Conductivity	(umhos/cm)	340	342
Hardness	$CaCO_3$	166	167
pH		8.15	8.05
Total Suspended Solids		<3	<3
Turbidity	(NTU)	0.2	0.2
Dissolved Anions			
Acidity (to pH 8.3)	$CaCO_3$	1	1
Alkalinity-Total	$CaCO_3$	177	176
Sulphate	SO_4	11	12

Remarks regarding the analyses appear at the beginning of this report.
< = Less than the detection limit indicated.
[1]Results are expressed as milligrams per litre except where noted.

Appendix 1 - QUALITY CONTROL - Replicates

File No. L1752

Water[1]		L-5 Seymour Creek 99 10 14 13:00	L-5 Seymour Creek QC # 177123
Total Metals			
Aluminum	T-Al	0.006	0.006
Antimony	T-Sb	0.0002	0.0002
Arsenic	T-As	0.0013	0.0013
Barium	T-Ba	0.15	0.15
Beryllium	T-Be	<0.001	<0.001
Boron	T-B	<0.1	<0.1
Cadmium	T-Cd	<0.00005	<0.00005
Calcium	T-Ca	34.2	34.4
Chromium	T-Cr	<0.0005	<0.0005
Cobalt	T-Co	<0.0001	<0.0001
Copper	T-Cu	0.0011	0.0010
Iron	T-Fe	<0.03	<0.03
Lead	T-Pb	<0.00005	<0.00005
Magnesium	T-Mg	19.7	19.8
Manganese	T-Mn	<0.005	<0.005
Mercury	T-Hg	<0.00002	<0.00002
Molybdenum	T-Mo	<0.03	<0.03
Nickel	T-Ni	<0.001	<0.001
Potassium	T-K	<2	<2
Selenium	T-Se	<0.001	<0.001
Silver	T-Ag	<0.00001	<0.00001
Sodium	T-Na	10	10
Thallium	T-Tl	<0.00005	<0.00005
Titanium	T-Ti	<0.01	<0.01
Uranium	T-U	0.0048	0.0047
Vanadium	T-V	<0.03	<0.03
Zinc	T-Zn	<0.005	<0.005

Remarks regarding the analyses appear at the beginning of this report.
< = Less than the detection limit indicated.
[1]Results are expressed as milligrams per litre except where noted.

Outlines of the methodologies utilized for the analysis of the samples submitted are as follows:

Conventional Parameters in Water

These analyses are carried out in accordance with procedures described in "Methods for Chemical Analysis of Water and Wastes" (USEPA), "Manual for the Chemical Analysis of Water, Wastewaters, Sediments and Biological Tissues" (BCMOE), and/or "Standard Methods for the Examination of Water and Wastewater" (APHA). Further details are available on request.

Metals in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotplate or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by atomic absorption/emission spectrophotometry (EPA Method 7000 series), inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B), and/or inductively coupled plasma - mass spectrometry (EPA Method 6020).

Recommended Holding Time:

Sample:	6 months
Reference:	EPA
For more detail see:	ASL "Collection & Sampling Guide"

Mercury in Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" 20th Edition 1998 published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic absorption spectrophotometry (EPA Method 7470A/7471A).

Recommended Holding Time:

Sample: 28 days
Reference: EPA
For more detail see: ASL "Collection & Sampling Guide"

Moisture in Sediment/Soil

This analysis is carried out gravimetrically by drying the sample at 103 C for a minimum of six hours.

Recommended Holding Time:
Sample: 14 days
Reference: Puget
For more detail see: ASL "Collection & Sampling Guide"

Metals in Sediment/Soil

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 Method 3050B or Method 3051, published by the United States Environmental Protection Agency (EPA). The sample is manually homogenized and a representative subsample of the wet material is weighed. The sample is then digested by either hotplate or microwave oven using a 1:1 ratio of nitric acid and hydrochloric acid. Instrumental analysis is by atomic absorption spectrophotometry (EPA Method 7000 series) and/or inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method is not a total digestion technique for most samples. It is a very strong acid digestion that will dissolve almost all elements that could become "environmentally available." By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

Recommended Holding Time:
Sample/Extract: 6 months (Mercury = 28 days)
Reference: EPA
For more detail see: ASL "Collection & Sampling Guide"

Product Characterization by Gas Chromatography

This analysis is carried out using a procedure adapted from U.S. EPA Method 8015 (Publ. #SW-846 3rd ed., Washington, DC 20460). A portion of the product is diluted with an appropriate solvent. This solution is then analysed using capillary column gas chromatography with flame ionization detection. The chromatogram can then be compared to known petroleum blends for identification.

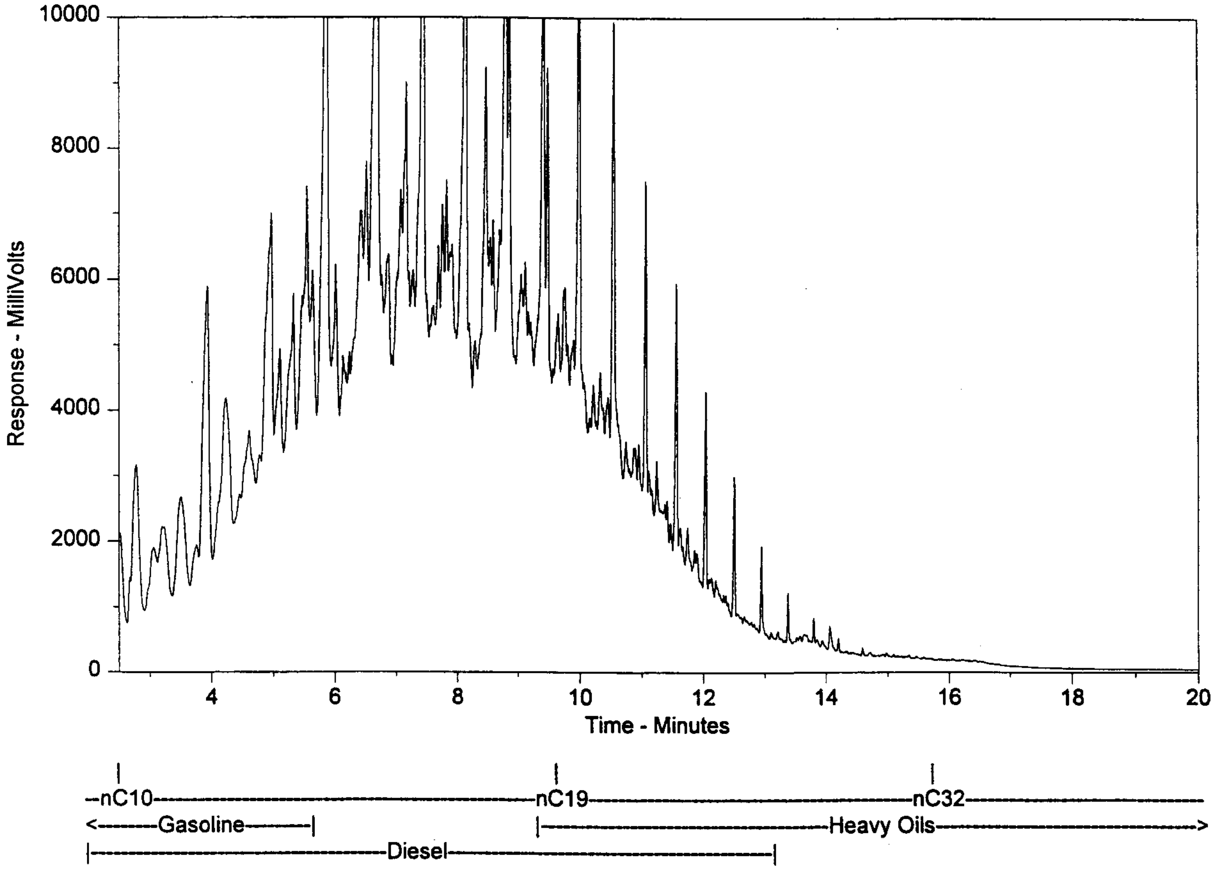
End of Report

APPENDIX

HYDROCARBON DISTRIBUTION REPORTS

ASL Hydrocarbon Distribution Report

Client Sample ID: Oil Level 2
ASL Sample ID: **L1752-T--10**
File Name: c:\chrom\gc12\data\gc12_25octA.0040.RAW
Run Information: Acquired on GC12, 10/26/99 9:46:55 AM



Sample Amount = 0.0 (g or mL) Dilution Factor = 5.0

The Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and of three n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

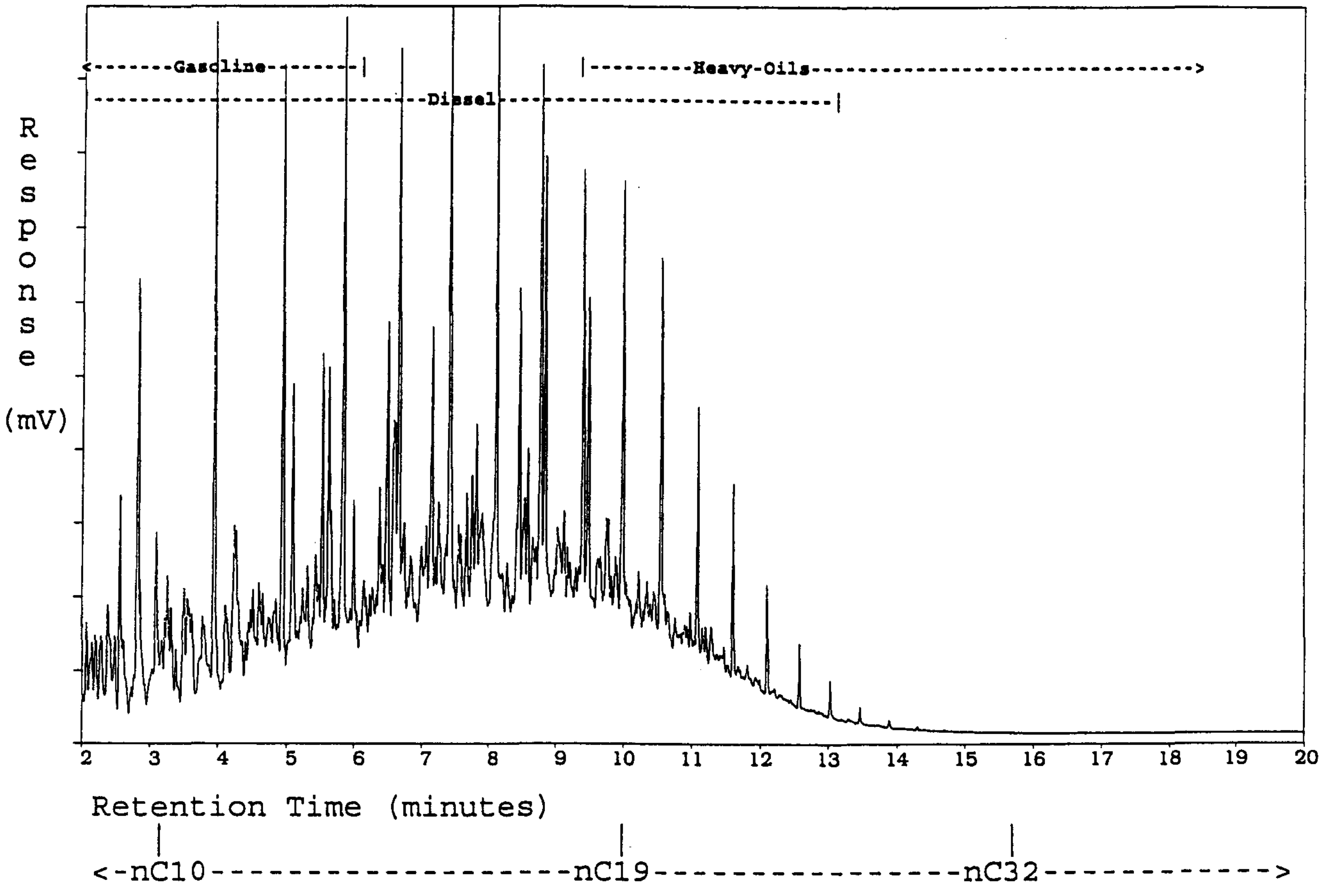
Note: This report was produced using a temperature profile that was implemented on June 21st,1999. Under these new conditions, hydrocarbon compounds elute sooner than before, although characteristic patterns will appear similar. Please exercise caution when comparing this report to other reports produced prior to June 21st, 1999. A current library of reference products is available upon request.

HYDROCARBON DISTRIBUTION REPORT

SAMPLE NAME: FURNACE OIL

File Name: C:\MTH\HDRLIB\EH1JN18.07R ASL Sample ID: FURNACE OIL Sample acquired: JUN 18, 1999 12:58:58

Chromatogram Scale: 100.0 millivolts



Sample Amt. (g or mL): 1.0 Dilution: 1.0

This reference standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the top of the report represents the approximate hydrocarbon range of common petroleum products. The scale at the bottom of the report shows retention times with the approximate positions of key marker compounds indicated. Comparison of this report with those of your sample may assist in characterizing the hydrocarbons present.

Note: This Hydrocarbon Distribution Report was produced using a temperature profile which was implemented on June 21st, 1999. Under these new conditions hydrocarbon compounds elute sooner than before, although characteristic patterns will appear similar. Please exercise caution when comparing this report with reports produced prior to June 21st, 1999. A complete current library of Hydrocarbon Distribution Reports for reference is available on request.

CHAIN OF CUSTODY / ANALYTICAL REQUEST FORM

CLIENT: Laberge Environmental Services
ADDRESS: Box 5111 Whitehorse Y.T.
CONTACT: Ken Nordin
TELEPHONE: 867 668 6838 FAX: 867 667 6956
PROJECT NAME/NO.: La Forma Gold Mine
QUOTE / P.O. NO.: Pending discussron
DATE SUBMITTED: 10.19.99 ASL CONTACT: CAN DANG

1988 Triumph Street
Vancouver, BC
Canada V5L 1K5
TEL: (604) 253-4188
TOLL FREE: (800) 665-0243
FAX: (604) 253-6700
Specialists in Environmental Chemistry
analytical service laboratories ltd.

ANALYSIS REQUESTED

LAB USE ONLY: L1752

SAMPLE IDENTIFICATION	Y	M	D	TIME	MATRIX	BETX ___ VPH ___	VOC ___ VPH ___	EPH	PAH	~~LEPH/HEPH~~ G/C scan	MO&G ___ SWO&G ___	Metals - ~~PLANT/SOIL~~ ICP 100 mesh (S)	Metals - ~~AW~~ TOTAL ~~DIS~~ BCAW (W)	Alk/Acidity	Sulphate	pH, TSS, Hardness	Conductivity, Turbidity		NOTES
L-1 Adit level 2	99	10	13	14:00 PM	H2O								✓	✓	✓	✓	✓		
L-3 Adit level 3	99	10	13	15:00 PM	H2O								✓	✓	✓	✓	✓		
L-4 Adit level 4	99	10	13	16:00 PM	H2O								✓	✓	✓	✓	✓		
L-42 Adit level 4 D/S	99	10	13	16:00 PM	H2O								✓						
L-5 Seymour Creek	99	10	14	13:00 PM	H2O								✓	✓	✓	✓	✓		
L-6 Well	99	10	14	15:00 PM	H2O								✓	✓	✓	✓	✓		
L5A, L5B, L5C	99	10	14	13:00 PM	SED							✓							
OIL, Level 2	99	10	13	14:00 PM	OIL					✓									

TURN AROUND REQUIRED:
☑ ROUTINE (7 - 10 WORKING DAYS)
☐ RUSH (SPECIFY DATE):

SPECIAL INSTRUCTIONS: Call to discuss quote and travel blank analysis (KN)

SAMPLE CONDITION UPON RECEIPT:
☐ FROZEN
☐ COLD
☐ AMBIENT

RELINQUISHED BY:	DATE	RECEIVED BY:	DATE
Ken Nordin	10.19.99 / TIME 14:00		TIME
RELINQUISHED BY:	DATE / TIME	RECEIVED BY: AB	DATE 99/10/20 / TIME 10:02

7°C on arrival

CUSTOMIZED - BRITISH COLUMBIA, CSR

APPENDIX C

GEOCHEMICAL ANALYSIS REPORT

RESULTS AND ANALYTICAL PROCEDURES

LAFORMA GOLD MINE

SAMPLES COLLECTED OCTOBER 13, 1999

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: AURUM GEOLOGICAL CONSULTANTS INC.

P.O. BOX 4367
WHITEHORSE, YT
Y1A 3T5

A9932092

Comments: ATTN: A. DOHERTY

CERTIFICATE A9932092

(LIS) - AURUM GEOLOGICAL CONSULTANTS INC.

Project:
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 04-NOV-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
208	7	Assay ring to approx 150 mesh
226	7	0-3 Kg crush and split
3202	7	Rock - save entire reject
229	7	ICP - AQ Digestion charge

* NOTE 1:

The 32 element ICP package is suitable for trace metals in soil and rock samples. Elements for which the nitric-aqua regia digestion is possibly incomplete are: Al, Ba, Be, Ca, Cr, Ga, K, La, Mg, Na, Sr, Ti, Tl, W.

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
399	7	Au g/t: 1/2 assay ton, AA finish	FA-AAS	0.07	150.00
2118	7	Ag ppm: 32 element, soil & rock	ICP-AES	0.2	100.0
2119	7	Al %: 32 element, soil & rock	ICP-AES	0.01	15.00
2120	7	As ppm: 32 element, soil & rock	ICP-AES	2	10000
557	7	B ppm: 32 element, rock & soil	ICP-AES	10	10000
2121	7	Ba ppm: 32 element, soil & rock	ICP-AES	10	10000
2122	7	Be ppm: 32 element, soil & rock	ICP-AES	0.5	100.0
2123	7	Bi ppm: 32 element, soil & rock	ICP-AES	2	10000
2124	7	Ca %: 32 element, soil & rock	ICP-AES	0.01	15.00
2125	7	Cd ppm: 32 element, soil & rock	ICP-AES	0.5	500
2126	7	Co ppm: 32 element, soil & rock	ICP-AES	1	10000
2127	7	Cr ppm: 32 element, soil & rock	ICP-AES	1	10000
2128	7	Cu ppm: 32 element, soil & rock	ICP-AES	1	10000
2150	7	Fe %: 32 element, soil & rock	ICP-AES	0.01	15.00
2130	7	Ga ppm: 32 element, soil & rock	ICP-AES	10	10000
2131	7	Hg ppm: 32 element, soil & rock	ICP-AES	1	10000
2132	7	K %: 32 element, soil & rock	ICP-AES	0.01	10.00
2151	7	La ppm: 32 element, soil & rock	ICP-AES	10	10000
2134	7	Mg %: 32 element, soil & rock	ICP-AES	0.01	15.00
2135	7	Mn ppm: 32 element, soil & rock	ICP-AES	5	10000
2136	7	Mo ppm: 32 element, soil & rock	ICP-AES	1	10000
2137	7	Na %: 32 element, soil & rock	ICP-AES	0.01	10.00
2138	7	Ni ppm: 32 element, soil & rock	ICP-AES	1	10000
2139	7	P ppm: 32 element, soil & rock	ICP-AES	10	10000
2140	7	Pb ppm: 32 element, soil & rock	ICP-AES	2	10000
551	7	S %: 32 element, rock & soil	ICP-AES	0.01	5.00
2141	7	Sb ppm: 32 element, soil & rock	ICP-AES	2	10000
2142	7	Sc ppm: 32 elements, soil & rock	ICP-AES	1	10000
2143	7	Sr ppm: 32 element, soil & rock	ICP-AES	1	10000
2144	7	Ti %: 32 element, soil & rock	ICP-AES	0.01	10.00
2145	7	Tl ppm: 32 element, soil & rock	ICP-AES	10	10000
2146	7	U ppm: 32 element, soil & rock	ICP-AES	10	10000
2147	7	V ppm: 32 element, soil & rock	ICP-AES	1	10000
2148	7	W ppm: 32 element, soil & rock	ICP-AES	10	10000
2149	7	Zn ppm: 32 element, soil & rock	ICP-AES	2	10000

Chemex Labs Ltd.
Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: AURUM GEOLOGICAL CONSULTANTS INC.

P.O. BOX 4367
WHITEHORSE, YT
Y1A 3T5

Comments: ATTN: A. DOHERTY

CERTIFICATE A9932093

(LIS) - AURUM GEOLOGICAL CONSULTANTS INC.

Project:
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 08-NOV-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
208	4	Assay ring to approx 150 mesh
226	4	0-3 Kg crush and split
3202	4	Rock - save entire reject

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
1119	4	Paste pH	POTENTIOMETER	0.1	14.0
379	4	S %: HNO3-bromide digestion	GRAVIMETRIC	0.01	100.00
1379	4	Sulfate S %: Dilute HCl leach	GRAVIMETRIC	0.01	100.00
1066	4	Sulfide S %: Total S - Sulfate S	CALCULATION	0.01	100.00
1380	4	S %: Leco furnace	LECO-IR DETECTOR	0.01	100.0
368	4	CO2 %: Inorganic	LECO-GASOMETRIC	0.2	100.0
1117	4	Maximum potential acidity	CALCULATION	1	4000
1118	4	Neutralization potential	TITRATION	-1000	1000
1970	4	Net neutralization potential	CALCULATION	-2000	2000
1971	4	Neutraliz. pot. acidity ratio	CALCULATION	-10.0	1000.0
3731	4	Fizz test		1	10000

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

To: AURUM GEOLOGICAL CONSULTANTS INC.
P.O. BOX 4367
WHITEHORSE, YT
Y1A 3T5

Project :
Comments: ATTN: A. DOHERTY

Page Number : 1
Total Pages : 1
Certificate Date: 08-NOV-1999
Invoice No. : I9932093
P.O. Number :
Account : LIS

CERTIFICATE OF ANALYSIS A9932093

SAMPLE	PREP CODE		PASTE pH	S %	S % * Sulfate	S % *** Sulfide	S % Total	CO2 % inorg	Max Pot Acid **	Neutral Poten**	Net Neu Poten**	Ratio NP/MPA	Fizz Test			
128884	208	226	5.5	0.70	0.67	0.03	0.70	< 0.2	22	0	-22	0.00	1			
128885	208	226	7.8	0.01	< 0.01	< 0.01	< 0.01	16.0	1	382	381	382.0	4			
128886	208	226	5.1	0.34	0.34	< 0.01	0.37	< 0.2	12	-1	-13	-0.08	1			
128887	208	226	7.6	1.09	< 0.01	1.08	1.07	< 0.2	33	1	-32	0.03	1			

NOTE: * HYDROCHLORIC ACID SOLUBLE SULFATE
NOTE: ** UNITS = KILOGRAMS $CaCO_3$ EQUIVALENT PER METRIC TONNE (Kg/MT)
NOTE: *** NITRIC ACID SOLUBLE SULFIDE

CERTIFICATION: [signature]

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Y1A 3T5

A9932728

Comments: ATTN: A. DOHERTY

CERTIFICATE A9932728

(LIS) - AURUM GEOLOGICAL CONSULTANTS INC.

Project:
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 05-NOV-1999.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
212	1	Overlimit pulp, to be found

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
384	1	Ag g/t: Gravimetric	FA-GRAVIMETRIC	3	3500

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Y1A 3T5

Project :
Comments: ATTN: A. DOHERTY

Page Number : 1
Total Pages : 1
Certificate Date: 05-NOV-1999
Invoice No. : I9932728
P.O. Number :
Account : LIS

CERTIFICATE OF ANALYSIS A9932728

SAMPLE	PREP CODE		Ag FA g/t									
128878	212	--	709									

CERTIFICATION: [signature]

OVERLIMITS from A9932092

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P.O. BOX 4367
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Y1A 3T5

Project :
Comments: ATTN: A. DOHERTY

Certificate Date: 04-NOV-1999
Invoice No. : I9932092
P.O. Number :
Account : LIS

CERTIFICATE OF ANALYSIS A9932092

SAMPLE	PREP CODE		Au g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %
128876	--	--	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
128877	208	226	< 0.07	0.6	1.24	82	< 10	60	1.5	< 2	13.70	1.0	7	28	5	6.91	< 10	< 1	0.04	< 10	0.98
128878	208	226	11.48	>100.0	0.15	>10000	< 10	10	< 0.5	222	0.15	8.0	1	111	571	13.95	< 10	< 1	0.14	< 10	0.01
128879	208	226	0.35	1.6	0.97	614	< 10	270	0.5	< 2	0.47	< 0.5	8	91	52	1.52	< 10	< 1	0.28	20	0.21
128880	208	226	0.84	6.6	0.01	730	< 10	< 10	< 0.5	8	< 0.01	< 0.5	83	184	19	2.79	< 10	< 1	< 0.01	< 10	< 0.01
128881	208	226	0.84	3.4	0.78	746	< 10	540	0.5	2	0.15	< 0.5	22	92	62	1.60	< 10	< 1	0.25	10	0.15
128882	208	226	36.96	12.8	0.45	3610	< 10	550	< 0.5	22	0.11	< 0.5	1	97	89	1.88	< 10	< 1	0.34	< 10	0.06
128883	208	226	2.03	13.8	0.85	2430	< 10	680	0.5	20	0.10	< 0.5	< 1	69	68	1.32	< 10	< 1	0.53	< 10	0.04

CERTIFICATION: *

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CERTIFICATE OF ANALYSIS A9932092

SAMPLE	PREP CODE		Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
128876	--	--	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd	NotRcd
128877	208	226	6290	< 1	< 0.01	6	260	60	0.02	12	3	165	0.01	< 10	< 10	19	< 10	370
128878	208	226	440	10	< 0.01	6	140	2030	0.28	2990	1	18	< 0.01	< 10	20	10	< 10	1040
128879	208	226	295	6	0.03	4	340	38	0.16	6	1	40	< 0.01	< 10	< 10	13	< 10	70
128880	208	226	25	7	< 0.01	4	10	60	2.43	20	< 1	3	< 0.01	< 10	< 10	< 1	< 10	18
128881	208	226	115	7	0.01	5	300	70	0.10	2	1	50	< 0.01	< 10	< 10	8	< 10	74
128882	208	226	100	11	< 0.01	2	210	490	0.33	40	< 1	51	< 0.01	< 10	< 10	3	< 10	60
128883	208	226	15	1	< 0.01	1	230	608	0.33	2	< 1	47	< 0.01	< 10	< 10	3	< 10	66

CERTIFICATION:

Chemex Labs

Geochemical Procedure - G32 Package

Sample Decomposition: Nitric Aqua Regia Digestion
Analytical Method: Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP - AES)

A prepared sample (1.00 gram) is digested with concentrated nitric acid for at least one hour. After cooling, hydrochloric acid is added to produce aqua regia and the mixture is then digested for an additional hour and a half. The resulting solution is diluted to 25ml with demineralized water, mixed and analyzed by inductively coupled plasma-atomic emission spectrometry. The analytical results are corrected for inter-element spectral interferences.

Chemex Code		Element	Symbol	Detection Limit	Upper Limit
229		ICP-AQ Digestion	n/a	n/a	n/a
2119	*	Aluminum	Al	0.01%	15 %
2141		Antimony	Sb	2 ppm	1 %
2120		Arsenic	As	2 ppm	1 %
2121	*	Barium	Ba	10 ppm	1 %
2122	*	Beryllium	Be	0.5 ppm	0.01 %
2123		Bismuth	Bi	2 ppm	1 %
557		Boron	B	10 ppm	10,000 ppm
2125		Cadmium	Cd	0.5 ppm	0.05 %
2124	*	Calcium	Ca	0.01%	15 %
2127	*	Chromium	Cr	1 ppm	1 %
2126		Cobalt	Co	1 ppm	1 %
2128		Copper	Cu	1 ppm	1 %
2130	*	Gallium	Ga	10 ppm	1 %
2150		Iron	Fe	0.01%	15 %
2151	*	Lanthanum	La	10 ppm	1 %
2140		Lead	Pb	2 ppm	1 %
2134	*	Magnesium	Mg	0.01%	15 %
2135		Manganese	Mn	5 ppm	1 %
2131		Mercury	Hg	1 ppm	1 %
2136		Molybdenum	Mo	1 ppm	1 %
2138		Nickel	Ni	1 ppm	1 %
2139		Phosphorus	P	10 ppm	1 %
2132	*	Potassium	K	0.01%	10 %

April 9, 1999

Chemex Labs

Geochemical Procedure - G32 Package *(con't)*

Chemex Code		Element	Symbol	Detection Limit	Upper Limit
2142	*	Scandium	Sc	1 ppm	1 %
2118		Silver	Ag	0.2 ppm	0.01 %
2137	*	Sodium	Na	0.01%	10 %
2143	*	Strontium	Sr	1 ppm	1 %
551		Sulfur	S	0.01 %	5 %
2145	*	Thallium	Tl	10 ppm	1 %
2144	*	Titanium	Ti	0.01%	10 %
2148	*	Tungsten	W	10 ppm	1 %
2146		Uranium	U	10 ppm	1 %
2147		Vanadium	V	1 ppm	1 %
2149		Zinc	Zn	2 ppm	1 %

*Elements for which the digestion is possibly incomplete.

Chemex Labs

Assay Procedure - Total Carbon and Sulfur

Sample Decomposition: Leco Furnace
Analytical Method: Infrared Spectroscopy

The sample is analyzed for total sulfur and/or carbon using a Leco analyzer. While a stream of oxygen passes through a prepared sample (0.05 to 0.6g), it is heated in a furnace to approximately 1350°C. Sulfur dioxide and carbon dioxide released from the sample are measured by an infrared detection system and the total sulfur and/or carbon result is provided.

Chemex Code	Element	Symbol	Detection Limit	Upper Limit
367	Carbon	C	0.01 %	100 %
1059	Sulfur	S	0.01 %	40 %
1380	Sulfur	S	0.01 %	100 %

Chemex Labs

Assay Procedure - Inorganic Carbon (Carbonate)

Sample Decomposition: Hydrochloric Acid Leach
Analytical Method: Leco-Gasometric

A prepared sample (0.05 - 0.3g) is leached with dilute hydrochloric acid. Carbon dioxide is released and carried into a measuring buret by a stream of oxygen. The volume of the two gases is measured. The gases are passed through a potassium hydroxide solution and the carbon dioxide is dissolved. The remaining gas is then returned to the buret and the volume is again measured. The difference in volume, corrected for temperature and atmospheric pressure, is proportional to the percentage of inorganic carbon in the sample.

Chemex Code	Element	Symbol	Detection Limit	Upper Limit
1381	Carbon	C	0.05 %	100 %
368	Carbon (as Carbon Dioxide)	CO_2	0.2 %	100 %

Chemex Labs

Assay Procedure - Neutralization Potential

Sample Decomposition: Hydrochloric Acid Leach
Analytical Method: Titration

A prepared sample (2.0g) is digested with dilute hydrochloric acid (amount and normality determined by Fizz Test) and gently heated until the reaction is complete. Carbon dioxide-free de-ionized water is added and the solution is boiled for one minute. The solution is covered tightly, cooled, and titrated with sodium hydroxide solution until the pH reading remains at 7.0 for at least 30 seconds. Neutralization potential is calculated using the formula given below and is expressed as "tonnes $CaCO_3$ equivalent per 1000 tonnes of material".

Calculation:

$$\textbf{Neutralization Potential (NP)} = \frac{50a[x-(b/a)y]}{s}$$

where, a = normality of hydrochloric acid
b = normality of sodium hydroxide
s = sample weight in grams
x = volume of hydrochloric acid (ml)
y = volume of sodium hydroxide (ml)

Chemex Code	Parameter	Range (tonnes $CaCO_3$ equivalent per 1000 tonnes of material)		
1118	Neutralization Potential	- 1000	to	1000

Chemex Labs

Assay Procedure - Net Neutralization Potential

Analytical Method: Calculation

The Net Neutralization Potential Acidity is calculated by subtracting the Maximum Potential Acidity from the Neutralization Potential and is expressed in units of tonnes $CaCO_3$ equivalent per 1000 tonnes of material.

Chemex Code	Parameter	Range (tonnes $CaCO_3$ equivalent per 1000 tonnes of material)		(tonnes $CaCO_3$ equivalent per 1000 tonnes of material)
1970	Net Neutralization Potential	-2000	to	2000

Chemex Labs

Assay Procedure - Maximum Potential Acidity

Analytical Method: Calculation

The Maximum Potential Acidity (MPA) is calculated by multiplying the Total Sulfur (determined by LECO induction furnace) by 31.25 and is expressed in units of tonnes $CaCO_3$ equivalent per 1000 tonnes of material.

Chemex Code	Parameter	Detection Limit (tonnes $CaCO_3$ equivalent per 1000 tonnes of material)	Upper Limit (tonnes $CaCO_3$ equivalent per 1000 tonnes of material)
1117	Maximum Potential Acidity	1	4,000

Chemex Labs

Assay Procedure - Neutralization Potential Acidity Ratio

Analytical Method: Calculation

The Neutralization Potential Acidity Ratio is calculated by dividing the Neutralization Potential by the Maximum Potential Acidity and is expressed in units of tonnes $CaCO_3$ equivalent per 1000 tonnes of material.

Chemex Code	Parameter	Range (tonnes $CaCO_3$ equivalent per 1000 tonnes of material)		(tonnes $CaCO_3$ equivalent per 1000 tonnes of material)
1971	Neutralization potential acidity ratio	-10	to	1000

Chemex Labs

Assay Procedure - Total Sulfur

Sample Decomposition: Acid Digestion with Bromine
Analytical Method: Gravimetric

A prepared sample (0.5g) is digested with nitric acid and bromine, followed by hydrochloric acid. The resulting solution is evaporated to dryness, and the salts are then dissolved in dilute hydrochloric acid. The solution is filtered and hydroxylamine hydrochloride is added to the filtrate to reduce iron. Barium chloride is added to precipitate the sulfate. The barium sulfate precipitate is filtered, ignited, weighed and calculated as percent sulfur in the original sample.

Chemex Code	Element	Symbol	Detection Limit	Upper Limit
379	Sulfur	S	0.01 %	100 %
424	Sulfur	S	0.01 %	100 %

August 10, 1998

Chemex Labs

Assay Procedure - Sulfide Sulfur

Analytical Method: Calculation

Sulfide Sulfur is calculated by subtracting the Sulfate (Hydrochloric Acid Soluble) from the Total Sulfur (either determined gravimetrically or by LECO induction furnace).

Chemex Code	Element	Symbol	Detection Limit	Upper Limit
1066	Sulfur	S	0.01 %	100 %

August 11, 1998

Chemex Labs

Assay Procedure - Sulfate Sulfur (Hydrochloric Acid-Soluble Sulfate)

Sample Decomposition: Hydrochloric Acid Leach
Analytical Method: Gravimetric

A prepared sample (1.0 g) is heated with dilute hydrochloric acid for a half hour. The solution is filtered and hydroxylamine hydrochloride is added to the filtrate to reduce iron. Barium chloride is added to precipitate the sulfate. The barium sulfate precipitate is filtered, ignited, weighed and calculated into percent sulfate or sulfate sulfur in the original sample.

Chemex Code	Parameter	Reported As	Detection Limit	Upper Limit
466	Sulfate	SO_4	0.01 %	100 %
1379	Sulfate	S	0.01 %	100 %

Chemex Labs

Assay Procedure - Fizz Test

Sample Decompostion: Hydrochloric Acid Reaction

Before performing the analysis for Neutralization Potential, the sample must be rated as to its carbonate content in order to determine the volume and normality of hydrochloric acid to be used in the analysis. This is done by conducting a "fizz test". Approximately 0.5 grams of sample is treated with one or two drops of 1:4 hydrochloric acid and the degree of fizzing is assessed. The following table outlines the volume and normality of hydrochloric acid to be used with each "fizz rating".

FIZZ RATING	VOLUME (ml) OF HCl TO BE USED	NORMALITY OF HCl TO BE USED
None (#1)	20	0.1 N
Slight (#2)	40	0.1 N
Moderate (#3)	40	0.5 N
Strong (#4)	80	0.5 N

Chemex Code	Parameter	Symbol	Detection Limit	Upper Limit
3731	Fizz Test	Fizz	1	4

APPENDIX D

- CHARACTERISTIC PLANT SPECIES FOR LA FORMA PROPERTY VEGETATION TYPES

- COLONIZING PLANT SPECIES ON LA FORMA PROPERTY OBSERVED OCTOBER 13 AND 14, 1999

APPENDIX D: CHARACTERISTIC PLANT SPECIES FOR LA FORMA PROPERTY VEGETATION TYPES

UPLAND WHITE SPRUCE FOREST

Betula neoalaskana	Alaska Birch
Calamagrostis purpurascens var. *purpurascens*	Purple Reed Grass
Cladina sp.	Reindeer Lichen
Deschampsia caespitosa	Tufted Hairgrass
Ledum groenlandicum	Labrador Tea
Picea glauca	White Spruce
Populus tremuloides	Trembling Aspen
Salix arbusculoides	Little-tree Willow
Salix bebbiana	Bebb's Willow
Salix glauca	Bluegreen Willow
Salix scouleriana	Scouler's Willow

SOUTH-FACING GRASSLAND

Arctostaphylos uva-ursi	Kinnikinick
Artemisia frigida	Pasture Sage
Calamagrostis purpurascens var. *purpurascens*	Purple Reed Grass
Festuca altaica	Northern Rough Fescue
Festuca brachyphylla	Sheep Fescue
Galium boreale	Northern Bedstraw
Picea glauca	White Spruce
Populus tremuloides	Trembling Aspen
Rosa acicularis	Prickly Rose

SUBALPINE TRANSITION

Abies lasiocarpa	Alpine Fir
Betula glandulosa	Shrub Birch
Ledum groenlandicum	Labrador Tea

Lycopodium clavatum	Common Clubmoss
Mertensia paniculata	Lungwort
Pedicularis labradorica	Labrador lousewort
Picea glauca	White Spruce
Pinus contorta	Lodgepole Pine
Orthilia secunda	One-sided Wintergreen
Salix glauca	Blue-green Willow
Vaccinium uliginosum	Bog Blueberry
Vaccinium vitis-idaea	Lingonberry

ALPINE TUNDRA

Abies lasiocarpa	Alpine Fir
Arctostaphylos rubra	Bearberry
Artemisia sp.	Sagewort
Betula glandulosa	Shrub Birch
Dryas octopetala	Mountain Aven
Empetrum nigrum	Crowberry
Masonhalea richardsonii	Tumble Lichen
Salix reticulata	Net-veined Willow
Saxifraga tricuspidata	Prickly Saxifrage
Vaccinium vitis-idaea	Lingonberry

APPENDIX D: COLONIZING PLANT SPECIES - LA FORMA PROPERTY

TRENCHES IN ALPINE ZONE

Epilobium angustifolium	Fireweed
Achillea millefolium ssp. *boreale*	Common Yarrow
Artemisia norvegica	Mountain Sagewort
Erigeron sp.	Fleabane
Festuca altaica	Northern Rough Fescue
Populus balsamifera	Balsam Poplar
Trisetum spicatum	Spike Trisetum

ROADS IN ALPINE AND SUBALPINE ZONE

Calamagrostis canadensis	Blue-joint Reed Grass
Epilobium angustifolium	Fireweed

DISTURBED AREA AROUND ADIT # 2

Achillea millefolium ssp. *boreale*	Common Yarrow
Agrostis scabra	Ticklegrass
Androsace septentrionalis	Fairy Candelabra
Artemisia sp.	Sagewort
Calamagrostis purpurascens var. *purpurascens*	Purple Reed Grass
Cardamine sp.	Bitter Cress
Eplilobium angustifolium	Fireweed
Erigeron sp.	Fleabane
Festuca altaica	Northern Rough Fescue

DISTURBED AREA AROUND ADIT # 3

Agrostis scabra	Ticklegrass
Alnus crispa	Mountain Alder
Betula neoalaskana	Alaska Birch
Calamagrostis canadensis	Blue-joint Reed Grass

Elymus trachycaulis spp. *trachycaulus*	Slender Wheatgrass
Trisetum spicatum	Spike Trisetum

DISTURBED AREA AROUND ADIT # 4 AND MILL

Achillea millefolium ssp. *boreale*	Common Yarrow
Agrostis scabra	Ticklegrass
Arabis sp.	Rock Cress
Artemisia sp.	Sagewort
Calamagrostis canadensis	Blue-joint
Agropyron pauciflorum	Slender Wheatgrass
Epilobium angustifolium	Fireweed
Erigeron sp.	Fleabane
Festuca altaica	Northern Rough Fescue
Juncus alpinoarticulatus ssp. *americanus*	Alpine Bog Rush
Populus tremuloides	Trembling Aspen
Potentilla norvegica	Rough Cinquefoil
Salix sp.	Willow
Taraxacum officinale	Common Dandelion

DISTURBED AREA AROUND ADIT # 5

Achillea millefolium ssp. *boreale*	Common Yarrow
Arabis sp.	Rock Cress
Artemisia sp.	Sagewort
Epilobium angustifolium	Fireweed
Hordeum jubatum	Foxtail Barley
Picea glauca	White Spruce
Populus tremuloides	Trembling Aspen
Salix sp.	Willow

DISTURBED AREA AROUND CAMP

Achillea millefolium ssp. *boreale*	Common Yarrow
Arabis sp.	Rock Cress
Artemisia sp.	Sagewort
Calamagrostis canadensis	Blue-joint Reed Grass
Epilobium angustifolium	Fireweed
Erigeron sp.	Fleabane
Oxytropis sp.	Locoweed
Populus balsamifera	Balsam Poplar
Populus tremuloides	Trembling Aspen