



**Anvil Range Mine Complex
2004 Phase 2 Environmental Site
Assessment**

prepared for:

Deloitte & Touche Inc.

**(in its capacity as interim receiver of Anvil
Range Mining Corporation)**

prepared by:

Gartner Lee Limited

reference:

GLL 40436

date:

December 2004

distribution:

Electronic, Deloitte & Touche Inc.

Gartner Lee Limited



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1. Introduction

1.1 Project Background and Purpose

The Anvil Range Mine was a base metal (zinc-lead-silver) open pit mine located near the Town of Faro, Yukon, that operated from 1969 to 1998, with several interruptions for changes of ownership and other events. The mine complex is a Yukon Type II Contaminated Site per the Devolution Transfer Agreement (“DTA”). In 1998, the mine complex and its facilities was placed under the management of a court-appointed interim receiver, and it has remained under the direct management of Deloitte & Touche Inc. (in its capacity as interim receiver of Anvil Range Mining Corporation) (“Deloitte & Touche”) since that time.

The mine complex consists of two mine sites (Faro and Vangorda Plateau) and a heavy haul road that connects the two. The ultimate ore processing rate was 13,500 tonnes per day and the total material mined rate in the latter years of operations was in the order of 90,000 tonnes per day. The site is expansive and incorporates three large open pits, three water treatment facilities, numerous large rock piles, tailings impoundments, ore processing facilities and all related buildings and facilities. The land area occupied by the mine facilities is in the order of 1,460 ha.

In addition to managing extensive care and maintenance activities at the mine complex, Deloitte & Touche assists the Type II Mines Projects Office with management of closure planning studies leading to the scheduled submission of a Final Closure and Reclamation Plan (“FCRP”) to the Yukon Water Board by December 31, 2006. To this end, an Environmental Site Assessment (“ESA”) program for the entire site was initiated in 2004. The first stage of what we understand may be a longer-term ESA program was undertaken in fall 2004 by Gartner Lee Limited (“Gartner Lee”). The 2004 ESA investigations focused on hydrocarbon contamination in soils and provide a preliminary delineation of the quantities and types of hydrocarbon contamination in soils and provide a reconnaissance level investigation of metal contamination in soils.

Gartner Lee conducted the ESA field investigations in September 2004 and has prepared this draft report to present the data and preliminary interpretations of the results. This report should be considered a preliminary draft report that distributes the basic information to enable discussions of implications for the FCRP and the development of next steps for the ESA program. For the purposes of this report, the generic “Tier 1” federal guidelines for soil quality (including the 2001 Canada Wide Standards for Petroleum Hydrocarbons in Soil) have been used as the remediation standards. We understand that site-specific soil quality remediation objectives (SQRO’s) are being developed as part of the closure planning process that may provide different objectives.

1.2 Background to the Environmental Site Assessment

ESAs are generally performed according to a Phase I, II or III hierarchical system. A Phase I ESA is a preliminary study that is intended to identify areas and contaminants of potential environmental concern but does not provide the level of investigation necessary for the development of a remedial plan. A Phase II or III ESA focuses on surface and subsurface sampling through intrusive investigations such as test pit investigations and drilling and delineates contaminated areas such that soil remediation plans may be developed.

Gartner Lee's experience demonstrates that conducting timely Phase II/III ESAs facilitates effective closure planning by providing an understanding of the nature and distribution of contaminants in soil. This provides the information necessary for developing appropriate reclamation measures and accurate cost estimates. Gartner Lee's most recent experience is at the Polaris and Nanisivik base metals mines in Nunavut, the Ketza River gold mine in the Yukon and the Discovery gold mine in the Northwest Territories. These projects all incorporated Phase II/III ESA programs as key components of the overall remediation plan and we suggest that this approach will be of benefit for the Anvil Range site.

A Phase I ESA of the Anvil Range site was conducted in 1999 by GLL in partnership with the Ross River Dena Council (RRDC) for DIAND, Contaminants Program. That report, and the large body of information available for the Anvil Range site provided the basis for moving directly to a Phase II investigation in 2004. In addition to the 1999 Phase 1 ESA Report prepared by Gartner Lee, another important reference document for the ESA program is the Gartner Lee report "*Anvil Range Mine Complex, 2002 Baseline Environmental Information*", Volume 2 of 2 of the Project Description for Renewal of the Water Licence dated May 2002 (the "Baseline Report"). The Baseline Report provides a compiled summary of the available environmental information and details of the Anvil Range Mine complex history, development and operation.

1.3 Scope of Work

The scope of work included in this project consisted of:

1. Review of background information and interviews with personnel familiar with site history (information used to develop the detailed work plan);
2. Design of field investigations (represented by the work presented herein);
3. Completion of field investigations, including excavation of test pits using an rubber-tired backhoe and collection of soil samples from Areas of Potential Environmental Concern;
4. Analytical testing of selected soil samples; and
5. Data analysis and preparation of a project report.

Specific project methodologies are presented in Appendix A of this report.

1.4 Areas of Potential Environmental Concern

A series of APECs were identified from the review of background information and interviews with Deloitte & Touche and other personnel. The identified APECs are summarized in the following paragraphs. Of the APECs listed:

- some (hydrocarbon areas) were targeted in the 2004 ESA investigations;
- some remain to be investigated in future ESA investigations; and
- some are being investigated and assessed through other projects and are not considered to be included in the ESA program.

1.4.1 Faro Mine Site

Faro mine site APECs with the generally anticipated associated potential contaminants of concern (PCOCs) include:

- a) Internal roads (ore metals);
- b) The Faro lube station and associated tank farm (hydrocarbons);
- c) Stationary gasoline and fuel storage and dispensing locations (hydrocarbons);
- d) The “plantsite”, which includes the areas in the vicinity of the mill, reagent storage building, crushers, emergency generator, (former) PCB storage location/substation, office, warehouse, heavy equipment maintenance shops, wash bay, scrap;laydown yards, concentrate loadout facility, guardhouse and parking lot (ore metals, hydrocarbons, degreasers, reagents and their breakdown products, glycols, polychlorinated biphenyls (“PCBs”), polycyclic aromatic hydrocarbons (“PAHs”);
- e) The fresh water pump house (hydrocarbons);
- f) Common setup locations for large, portable generators (hydrocarbons);
- g) The former geology camp and core shacks area (hydrocarbons);
- h) Locations of reported historic spills (ore metals, hydrocarbons);
- i) The Down Valley Water Treatment Plant area (hydrocarbons, reagents);
- j) The Rose Creek Tailings Area including the area of the 1970’s tailings spill (ore metals);
- k) The existing or former location of stockpiled ore near the mill complex (ore metals);
- l) The existing or former locations of stockpiles “A” and “C” (ore metals);
- m) The existing or former location of the “low grade stockpile” (ore metals);
- n) The former copper sulfate plant (copper);
- o) The former bulk explosives plant (hydrocarbons, explosives and their constituent and degradation products);
- p) Waste rock dumps including “oxidized fines” (ore metals);
- q) The quality of sediment in streams, ditches and diversions (ore metals).

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With respect to APECs associated with the Faro mine site:

- APECs “b” through “e” were targeted in the 2004 ESA investigations;
- APECs “a” and “f” through “i” remain to be included into future ESA investigations; and
- APECs “j” through “q” are being investigated through other ongoing or future programs.

1.4.2 Vangorda Plateau Mine Site

Vangorda Plateau mine site APECs with the generally anticipated associated potential contaminants of concern (PCOCs) include:

- a) Internal roads (ore metals);
- b) The Grum lube station and tank farm (hydrocarbons and glycols);
- c) Stationary gasoline and fuel storage and dispensing locations (hydrocarbons);
- d) The former Grum Ore Haul contractor yard (hydrocarbons);
- e) The former office/dry/equipment maintenance area (hydrocarbons, ore metals);
- f) The former geology camp and core storage area (hydrocarbons);
- g) The former “hotline” equipment parking and light maintenance area (ore metals and hydrocarbons);
- h) The exploration portal yard (hydrocarbons, ore metals);
- i) Common setup locations for large, portable generators (hydrocarbons);
- j) Locations of reported historic spills (ore metals, hydrocarbons);
- k) The explosives magazine (explosives and their constituents and degradation products);
- l) The water treatment plant (reagents);
- m) The Grum ore transfer pad (ore metals);
- n) Waste rock dumps including “oxidized fines” (ore metals);
- o) The quality of sediment in streams, ditches and diversions (ore metals).

With respect to APECs associated with the Vangorda Plateau mine site:

- APECs “b” through “e” and “g” were targeted in the 2004 ESA investigations;
- APECs “a”, “f” and “h” through “k” remain to be included into future ESA investigations; and
- APECs “l” through “n” are being investigated through other ongoing or future programs.

1.4.3 Other Areas

APECs for other areas with the generally anticipated associated potential contaminants of concern (PCOCs) include:

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- a) The Grizzly/DY adit development area (hydrocarbons);
- b) The haul road that joins the Faro Mine and the Vangorda Mine Complexes (ore metals).

With respect to APECs associated with other areas:

- APEC “a” remains to be included into future ESA investigations; and
- APEC “b” is being investigated through other ongoing or future programs.

1.5 Regulatory Framework

1.5.1 Approach to Using Federal and Territorial Remediation Guidelines

Considerable discussion was undertaken regarding the use of federal versus territorial guidelines for contaminants in soil. The discussions centered around the DTA and whether the land was more appropriately considered to be under federal or territorial control as regards the definition of “contaminated soil” and the relevant remediation criteria.

The discussions led to the use of the federal guidelines described below for assessment of metal and hydrocarbons in soil. This is consistent with the approach taken by Deloitte & Touche and Gartner Lee for assessment and cleanup of one small area of the mine complex, the (former) copper sulphate and bulk explosives plants.

The Yukon Government provides territorial remediation standards in the Yukon Contaminated Sites Regulation (“YCSR”). For metals and some hydrocarbon parameters, the standards quoted in the YCSR are referenced throughout this report for additional context in the assessment of results. For certain hydrocarbon parameters, however, the YCSR provides remediation standards in a different chemical form than the federal guidelines to the degree where different laboratory analyses of the soil are required. Therefore, reference is not made in this report to the YCSR standards for those hydrocarbon parameters because the analyses required to enable this comparison were not conducted. This provided for a more cost-effective analytical program.

1.5.2 Metals in Soil

Mine sites exist because of natural concentrations of metals in the environment. When these metal concentrations become high enough, a mineral deposit is defined and is the target of the mining activity. Therefore, it is expected that naturally elevated concentrations of metals in soil will be found in the vicinity of the mineral occurrence or deposit. However, mining activities often exacerbate the distribution and mobility of the metals in the surrounding environment. Given this context, generic soil quality objectives are not always applicable at the site.

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The assessment standard used for this investigation for metals in soil is the federal Canadian Environmental Quality Guidelines for Contaminated Sites (“CEQG”) developed and published by the Canadian Council of Ministers of the Environment (“CCME”). We understand that SQRO’s (CCME Tier 2 or Tier 3) may be derived in the future to determine the most appropriate standards for concentrations of metals in the environment at this site. However, for current purposes, metal concentrations in soil have been compared to the CCME Tier 1 Soil Quality Guidelines (2002).

The Yukon Contaminated Sites Regulation (YCSR) Soil Standards are also referenced for comparative purposes (Department of Environment 2002) throughout this report.

The soil quality guidelines and standards used in this assessment are summarized in Tables 1 through 18.

1.5.3 Hydrocarbons in Soil

For Hydrocarbons in soil, the federal 2001 Canada Wide Standards for Petroleum Hydrocarbons in Soil (“CWS”) have been used. The Industrial Land Use (IL) criteria were used. The Tier 1 CWS objectives are presented in Appendix B. The soil quality guidelines and Standards used in this assessment are summarized in Table 1 through 18.

The CWS provide criteria for various receptors and exposure pathways such that the user may select those that are applicable to the site under investigation. The exposure pathways that are provided are listed in Table A. Those receptors/pathways that are considered appropriate for application at the Anvil Range site, and that have been used in this report, are also identified on Table A.

Table A. PHC CWS Receptors/Pathways

Exposure Pathway	Applied at Anvil Range
Soil Ingestion	No
Dermal Soil Contact	No
Vapour Inhalation (indoor)	No
Protection of Potable groundwater	No
Protection of groundwater for Aquatic Life	No
Nutrient Cycling	Yes
Ecological Soil Contact	Yes
Produce	No

The CWS is a CCME remedial guideline for petroleum-hydrocarbons impacted soil and has been used to assess soil quality for hydrocarbons at the Anvil Range site. In this guideline, petroleum hydrocarbons are subdivided according to ranges of equivalent carbon number as specified in the CWS as follows:

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- PHC CWS fraction F1 encompasses the range of equivalent carbon number from C₆ to C₁₀. Constituents of fraction F1 include the volatile fraction of most hydrocarbons mixtures (including gasoline) such as benzene, ethylbenzene, toluene and xylene (BTEX);
- PHC CWS fraction F2 encompasses the range of equivalent carbon number from C₁₁ through C₁₆. Constituents of fraction F2 are semi-volatile petroleum hydrocarbons and include constituents of gasoline and diesel fuels;
- PHC CWS fraction F3 encompasses the range of equivalent carbon number from C₁₇ through C₃₄. Constituents of fraction F3 include typical lubricating oils and greases, heavy fuel oils, road oils and asphalts; and
- PHC CWS fraction F4 encompasses ranges of equivalent carbon number from C₃₅ through C₅₀₊. PHC within this fraction often make up a significant proportion of crude oils.

The CWS also includes consideration of fine grained versus coarse grained soils in the determination of guideline values.

1.6 Selection of Soil Samples for Analysis

The ESA process is iterative and typically involves multiple phases of excavation and analyses. For most remote sites such as the Anvil Range site, emphasis is placed on conducting an intense initial stage of sample collection because of the difficult logistics and costs of implementing a series of small sampling programs. Therefore, not all of the soil samples that are collected as part of the ESA field investigations are analysed. This common approach provides for the initial collection of a large number of samples of which a subset is initially analysed and the remainder are placed into storage for possible future analyses.

The guiding objective for the selection of samples for laboratory analysis for the Anvil Range 2004 ESA were to:

- Provide as detailed a delineation as possible of the quantity of hydrocarbon contaminated soils and of the types of hydrocarbons present; and
- Provide reconnaissance level information of metal concentrations in soil over as broad an area as practical.

The methods employed for the screening of samples for analysis included:

- The observations and judgement of the field investigator including: understanding of the basic mine development and operational history, observed surface staining; observed ground disturbances, material or particle size anomalies and olfactory (odour) indications of hydrocarbons; and
- The indications from field testing instruments of hydrocarbon vapours (i.e., portable photoionization detector (PID)).

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In the case of the Anvil Range 2004 ESA investigation, some soil samples remain in storage. These samples may continue to be used in the future to augment the existing data.

In general, chemical analysis of soil samples for hydrocarbon content must be conducted within specific, short timeframes that typically preclude any opportunity to conduct repeat or additional analyses after the initial sample submission. This is due to the chemically volatile nature of the compounds. Chemical analysis of soil samples for metal concentrations can commonly be conducted for substantial timeframes after sample collection.

2. Results

2.1 Overview of Test Pit Excavation and Sample Collection

Test pits were excavated with the mine-owned Case backhoe/excavator at locations illustrated on Figure 1 (Faro mine site) and Figure 2 (Vangorda Plateau mine site). The depth of excavation varied based on the materials encountered (i.e., boulders), the physical depth or power limitations of the excavator and the field judgement of the ESA investigator. Soil samples were collected at various depths and, in total, 91 test pits were excavated.

A select subset of the samples collected were selected for analysis based on the approach described in Section 1.4. The results of these analyses are summarized with the selected remediation guidelines in Tables 1 through 18 and are provided in their entirety as received from the laboratory in Appendix C. The analyses were conducted at ALS Environmental in Vancouver, who are qualified to conduct these analyses and certified under the Canadian Association of Environmental Analytical Laboratories (“CAEAL”). In total, 47 samples were analysed for metal concentrations and 114 samples were analysed for hydrocarbon parameters.

The following sections of the report provide a preliminary description and interpretation of the results.

The locations and numbers of samples collected according to the APECs described in Section 1.3 and the general expectations going into the field investigations are listed in Table B. The comparison to expectations is consistent with the approach taken that the initial expectations were established as a ceiling for the 2004 investigations.

Table B. Locations and Numbers of Test Pits

Area	Anticipated # Test Pits	Actual # Test Pits
<u>Faro Site</u>		
Lube Shack	10	8
“Old” Tank Farm	10	6
“Old” Shovel Yard	5	2
EMD Yard	10	0 ¹
Mill Diesel Tank	5	1 ¹
(Ex)Waste Oil Storage Areas	10	8
Coal Loading Area	5	3
Concentrate Loadout	5	4

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Area	Anticipated # Test Pits	Actual # Test Pits
Maintenance Bays	15	11
Scrap Yards	10	7
Freshwater Pumphouse	3	3
Coarse Ore Area	2	2
Reagent Storage Area	3	2
Secondary Crusher Area	2	0
General office/warehouse yards	10	5
<u>Vangorda Plateau Site</u>		
Lube Shack	10	8
Large Tank Farm	10	6
(Ex) Maintenance Shop Area	5	3
Gasoline Tank Area	5	4
Hot Line	5	3
(Ex) Ore haul Contractor Yard	10	5
General (ex) office yard	5	0
Totals	155	91

Notes: 1. Investigation limited by electrical cables encountered or known.

The sample analyses undertaken to date based on the approach to selecting samples for analysis described in Section 1.4 as compared to the general expectations going into the field investigations are listed in Table C. The comparison to expectations is consistent with the approach taken that the initial expectations were established as a ceiling for the 2004 investigations.

Table C. Soil Analyses Undertaken

Parameters	Anticipated # Analyses	Actual # Analyses
Metals	85	47
F1 + BTEX hydrocarbons	50	29
F2-F4 hydrocarbons	80	78
F2-F4 + PAH hydrocarbons	20	22
F4-SG	-	4
Grain size	50	-
VOC/VPH	25	29 + 8 ¹
Glycol	25	14
Totals	335	231

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Notes: 1. 29 analyses for non-halogenated volatiles plus eight analyses for halogenated volatiles/trihalomethanes.

2.2 Soil Analytical Results – Faro Mine Site

The complete results of the soil analytical program for the Faro mine are presented in Tables 1 through 12. The analytical results are divided into Areas of Environmental Concern (“AECs”). For each AEC the results are divided into metals, polycyclic aromatic hydrocarbons, CCME Hydrocarbon Fractions, non-halogenated hydrocarbons, and halogenated volatiles. The original analytical reports are provided in Appendix C.

Where possible, a preliminary estimate for the quantity of hydrocarbon contaminated soil is provided in the descriptive sections below. In some areas, the extent of hydrocarbon contamination was not fully delineated such that a volume estimate can not be provided at this time. A bulk contingency factor of 50% is typically used for planning purposes to allow for the practicalities of field conditions and soil excavation methods. This is based on general industry experience and is also shown in the results along with the “best preliminary estimate” of soil volumes.

2.2.1 Lube Shack

The Lube Shack is located to the east of the Faro ore processing plant/office area. The building was torn down during the time of this investigation. Three of the eight samples submitted contained F2 concentrations greater than the CWS guideline and four samples contained F3 concentrations greater than the CWS guideline. One of the samples also contained concentrations of Toluene greater than the CCME guideline, and VPH concentrations greater than the YCSR standard. One sample analysed for glycol was less than the YCSR standard. One sample was submitted for analysis of total metals concentrations. This sample contained concentrations of arsenic, copper, lead and zinc greater than the CCME guidelines and YCSR standards. Elevated concentrations were measured in the upper 1.8 meters of soil. The analytical results are presented in Table 1.

Based on the test pit locations and respective soil concentrations, the area of hydrocarbon contaminated soil is estimated to be approximately 1700 m², to a depth of approximately 1.8 m, resulting in a volume of approximately 3060 m³ of Industrial Waste soil. These volumes are summarized in Table D.

Table D. Estimated Soil Volumes for Faro Lube Shack

Location	Contaminant	Estimated Area (m²)	Estimated Depth (m)	Estimated Volume (m³)	Total with 50% Contingency (m³)
Lube Shack (>IL)	HC – F2, F3	1700	1.8	3060	4590

2.2.2 Tank Farm and Old Shovel Ranch

The Tank Farm is located above the Lube Shack to the northwest. There are two above ground cylindrical diesel tanks that we understand are not currently used. Six test pits were completed in this area; one within the bermed area, and five outside of the berm. At the location within the berm (TP8) a sample collected from 2.3 m depth contained a concentration of F2 hydrocarbons greater than the CWS guideline. At the location (TP9) adjacent to the pump, a sample collected from 0.6 m depth contained concentrations of xylenes, F1, F2 and F3 greater than the CCME/CWS guidelines. A sample collected from this test pit at the maximum depth of investigation (2.6 m depth) contained a concentration of F2 greater than the CWS guideline. The concentration of VPH was also greater than the YCSR standard. The volume of contaminated soil cannot be estimated due to the unknown vertical extent. It is possible that this contamination could extend to the water table and then continue laterally at this depth. A drilling program would be required to determine the lateral and vertical extent. The analytical results are presented in Table 2.

Two test pits were completed within the area of the Old Shovel Ranch located adjacent to the Tank Farm to the northwest. The samples analyzed from these locations contained hydrocarbon concentrations less than the CWS guidelines. The analytical results are presented in Table 2.

2.2.3 Mill Diesel Tank

The Mill Diesel tank is located on the southwest side of the main Faro plant area. Only one test pit could be completed in this area due to the presence of numerous underground lines and piping. This was also the reason no test pits could be completed adjacent to the EMD Emergency Generator Area, which is located adjacent to the Mill Diesel Tank. The site electrician and site manager were consulted and requested that no test pits be excavated. At TP16, one sample was analyzed for hydrocarbons and PAHs and concentrations were less than the CWS and YCSR guidelines and standards; and two samples were analyzed for metals. These two samples collected from 0.7 m and 2.3 m depth both contained arsenic, copper, lead and zinc greater than the YCSR and CCME standards and guidelines. The deeper sample (2.3 m) also contained a concentration of nickel greater than the CCME guideline. The analytical results are presented in Table 3. The extent of metals contamination in soil could not be determined from this one testing location.

2.2.4 Waste Oil Tanks

Waste Oil tanks are located on the west and south sides of the mill. Six test pits were completed adjacent to the west side tank and two test pits were completed adjacent to the two tanks on the south side. Two of the six test pits adjacent to the west side tank contained concentrations of toluene, F2 and F3 in soil greater than the CWS guidelines. One of the samples also contained a F1 hydrocarbon concentration greater than the CWS guideline. The two samples also both contained VPH concentrations greater than

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the YCSR standard. The test pits were located within the berm, to the north of the tank and outside of the berm on the southwest side. The step-out samples contained concentrations of hydrocarbons less than the applicable standards and guidelines. One sample analysed for glycol was less than the YCSR standard. One sample was submitted for metals analysis. Concentrations of arsenic, cadmium, copper, lead and zinc were greater than the CCME and YCSR guidelines and standards. Concentrations of hydrocarbons in samples collected adjacent to the tanks on the south side of the mill were less than the CCME guidelines. The analytical results are presented in Table 4.

The hydrocarbon contamination adjacent to the tank to the west of the mill is estimated to cover an area of 800 m² and extend to a depth of approximately 2.2 m, resulting in a volume estimate of 1760 m³. This volume is summarized in Table E.

Table E. Estimated Soil Volumes for the Faro Waste Oil Tank Area

Location	Contaminant	Estimated Area (m²)	Estimated Depth (m)	Estimated Volume (m³)	Total with 50% Contingency (m³)
Waste Oil Tank (>IL)	HC – Toluene, F2, F3, VPH	800	2.2	1760	2640

2.2.5 Coal Loading Area

The Coal Loading Area is located to the south of the Mill. Three test pits were completed with one sample being analyzed from each. Two samples were analyzed from 0.6 m depth and one sample was analyzed from 1.6 m depth. All three samples analyzed contained arsenic concentrations greater than the CCME guideline and/or the YCSR standard. The two samples collected from 0.6m both contained zinc concentrations greater than the CCME and YCSR guideline and standard, and sample TP25-S1 contained a concentration of copper greater than the CCME guideline. Concentrations of CCME hydrocarbon fractions were less than CWS guidelines. The analytical results are presented in Table 5.

2.2.6 Concentrate Loadout Area

The concentrate loadout area is located on the south side of the mill site. Four test pits were completed in this area. Samples collected from the three test pits analyzed for metals contained concentrations greater than the CCME and/or YCSR guidelines and standards. The metals included antimony, arsenic, cadmium, copper, lead, selenium, silver, and zinc. At one location the concentration of zinc was 64,200 mg/kg and at another it was 96,000 mg/kg. Two samples analysed for glycol were less than the YCSR standard. Concentrations of hydrocarbons were less than CWS guidelines and YCSR standards. The analytical results are presented in Table 6.

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2.2.7 Maintenance Bays

Eleven test pits were completed around the maintenance bays located on the north side of the mill site. At four locations samples contained concentrations of F2 hydrocarbons greater than the CWS. All four locations are surrounding the western-most building. The vertical extent could not be determined. The lateral extent could be approximately 9600 m². At six locations, samples were analyzed for metals concentrations. All six samples exceeded the CCME guideline and/or the YCSR standard for arsenic. Other metals that exceeded these guidelines and standards included antimony, cadmium, copper, lead, nickel, and zinc. The analytical results are presented in Table 7.

2.2.8 Scrap Yards

Test pits were completed in three scrap yard areas located to the north of the mine site, and two on the east side of the mine site. Seven samples were analyzed for metals concentrations, eight for hydrocarbons and one for PAHs. Of the seven analyzed for metals, six exceeded the CCME arsenic guideline. Other metals that exceeded the CCME guidelines and/or the YCSR standards were antimony, cadmium, copper, lead, and zinc. Concentrations of hydrocarbons and PAHs were less than the applicable guidelines and standards. The analytical results are presented in Table 8.

2.2.9 Pump House

The pump house is located below the mine site adjacent to Rose Creek. Three test pits were completed on the three sides of the building. The fourth side is not accessible due to the creek. The test pit completed on the east side (TP48) was excavated into the embankment adjacent to the water pipe line. The shallow soil sample (0.3 m depth) contained low concentrations of hydrocarbons (F3 and F4) but were less than the CWS guidelines. A deeper sample (1.2 m) was analyzed for metals. Concentrations of arsenic and zinc were greater than the CCME guidelines and/or the YCSR standards. A sample was submitted from each of the other two test pits for analysis of hydrocarbons. The concentrations were less than the laboratory method detection limit. The analytical results are presented in Table 9.

2.2.10 Coarse Ore Area

The coarse ore area is located at the northeast corner of the Faro mine site. Two test pits were completed on the south side of the building. Two samples were submitted to the laboratory for analysis of metals concentrations. Both samples contained concentrations of arsenic, lead and zinc greater than the CCME guidelines and/or the YCSR standards. Sample TP90-S2 also contained a concentration of copper greater than the CCME guideline and sample TP91-S1 also contained a concentration of cadmium greater than the CCME guideline. Sample TP91-S1 contained an elevated concentration of zinc of 18,000 mg/kg. The analytical results are presented in Table 10.

2.2.11 Reagent Storage Area

The reagent storage area is at northwest corner of the mine site between the Coarse Ore area and the mill. Two test pits were completed on the north side of the building and two samples were analyzed for metals concentrations. Both samples exceeded the CCME guidelines and/or the YCSR standards for arsenic, copper, and zinc. Sample TP54-S1 also exceed the CCME guideline for lead, and TP55-S1 exceeded the YCSR standard for cadmium. The analytical results are presented in Table 11.

2.2.12 General Yard Area

Four test pits were completed in areas between the buildings. Four samples were submitted for hydrocarbon analysis and three were submitted for metals analysis. The hydrocarbon concentrations were less than the CCME guidelines. All samples submitted for metals contained concentrations of arsenic, lead and zinc greater than the CCME guidelines and the YCSR standards, while copper concentrations were greater than just the CCME guideline. The analytical results are presented in Table 12.

2.3 Soil Analytical Results - Vangorda Plateau Site

The complete results of the soil analytical program for the Vangorda Plateau mine are presented in Tables 13 through 18. The analytical results are divided into Areas of Environmental Concern (“AECs”). For each AEC the results are divided into metals, polycyclic aromatic hydrocarbons, CCME Hydrocarbon Fractions, non-halogenated hydrocarbons, and halogenated volatiles. The original analytical reports are provided in Appendix C.

Where possible, a preliminary estimate for the quantity of hydrocarbon contaminated soil is provided in the descriptive sections below. In some areas, the extent of hydrocarbon contamination was not fully delineated such that a volume estimate can not be provided at this time. A bulk contingency factor of 50% is typically used for planning purposes to allow for the practicalities of field conditions and soil excavation methods. This is based on general industry experience and is also shown in the results along with the “best preliminary estimate” of soil volumes.

2.3.1 Lube Shack

The Lube Shack is located across from the Grum pit and adjacent to the Vangorda Haul Road. The facilities had previously been removed. All that remained was a concrete pad of the former building. Eight test pits were completed around the concrete pad and in the surrounding yard. One sample (TP56-S1) collected to the north of the former building contained concentrations of F1, F2 and F3 hydrocarbons greater than the CWS guidelines, and a concentration of VPH greater than the YCSR standard. The elevated concentrations extended vertically to less than 2.5 m depth. A sample from test pit 59 on the southeast side contained a concentration of F2 hydrocarbons greater than the CWS guideline. The

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remaining eight samples submitted for hydrocarbons contained concentrations less than the applicable guidelines and standards. Two samples were submitted for metals analysis. Both samples contained concentrations of arsenic greater than both the CCME guideline and the YCSR standard. Four samples were submitted for analysis of halogenated volatiles and trihalomethanes. The concentrations were less than the laboratory method detection limits in all samples. The analytical results are presented in Table 13.

The hydrocarbon contamination in the area of the lube shack is estimated to cover an area of approximately 1200 m² and extend to a depth of approximately 2.5 m, resulting in a volume estimate of 1500 m³. This volume is summarized in Table F.

Table F. Estimated Soil Volumes for the Vangorda Plateau Lube Shack

Location	Contaminant	Estimated Area (m²)	Estimated Depth (m)	Estimated Volume (m³)	Total with 50% Contingency (m³)
Lube Shack (>IL)	HC – F2, F3, VPH	600	2.5	3000	4500

2.3.2 Tank Farm

The tank farm is located to the south of the Lube Shack. There are presently two above ground cylindrical diesel tanks, and two glycol tanks. Two test pits (TP64 and TP65) were completed adjacent to the fuel tanks within the bermed area, and four test pits were completed on the outside of the berm; one on each side. Test pit TP64 was completed on the east side of the northern most tank. The shallow sample (0.6 m depth) and deep sample (3.1 m depth) both contained concentrations of toluene, F1 and F2 hydrocarbons were greater than the CCME and CWS guidelines and VPH greater than the YCSR standard. The deeper sample also contained a concentration of xylenes greater than the CCME guideline. The contamination extended beyond the reach of the backhoe. The second test pit was completed on the northwest side of the tank. A sample from 3.0 m depth contained concentrations of F1 and F2 hydrocarbons greater than the CWS guideline and VPH greater than the YCSR standard. The samples submitted from the test pits located on the outside of the berm contained concentrations of hydrocarbons less than the applicable standards. Five samples were submitted for analysis of glycols and all were less than the method detection limit. Three samples were submitted for analysis of PAHs. The concentrations were less than the applicable guidelines and standards. The analytical results are presented in Table 14. Volume estimates of the diesel contamination at the tank farm cannot be estimated without knowing the vertical extent. Contamination may reach the water table and extent laterally at this depth.

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2.3.3 Maintenance Shop

The Maintenance Shop is located west of the Grum Pit and northwest of the Tank Farm. Three test pits were completed around the building. Three samples were submitted for hydrocarbon analysis and one sample was submitted for metals analysis. All hydrocarbon concentrations were less than the method detection limits, and the metals concentrations were less than the applicable guidelines and standards. The analytical results are presented in Table 15.

2.3.4 Gasoline Tank Area

An above ground, cylindrical, gasoline tank in a bermed area is present to the south of the Maintenance Shop building. Three test pits were completed on the outside of the bermed area, and one test pit was completed on the north side of the pump. Five samples were submitted for hydrocarbon analysis. All concentrations were less than the applicable guidelines and standards. Two samples were submitted for metals analysis. Concentrations of arsenic were greater than the CCME guideline and/or the YCSR standard in both samples. The analytical results are presented in Table 16.

2.3.5 Hot Line

The hot line area is located at the junction between the Vangorda Haul Road and the road leading to the office and maintenance shop. Old equipment was being stored in this area. Three test pits were completed in this area. Three samples were submitted for hydrocarbon analysis and two samples were submitted for metals analysis. The hydrocarbon concentrations were less than the applicable CWS guidelines. In both samples submitted for metals analysis, concentrations of arsenic were greater than both the CCME guideline and YCSR standard; and concentrations of nickel were greater than the CCME guideline. The analytical results are presented in Table 17.

2.3.6 Contractor Yard

The contractor yard was located adjacent to the Vangorda Haul Road to the north of the office and maintenance shop, in the area of the former Ore Haul shop. The facilities had been removed prior to the investigation. Five test pits were completed in the area. Five samples were submitted for CWS hydrocarbon fractions and all samples were less than the IL guidelines. Three samples were submitted for BTEX/VPH analysis and all concentrations were less than the YCSR standards. One sample was submitted for PAH analysis and all concentrations were less than the CCME guidelines and YCSR standards. Three samples were submitted for metals analysis. All three samples exceeded the CCME guideline and YCSR standard for arsenic. One sample exceeded the CCME guideline for nickel and another sample exceeded the CCME guideline for zinc. The analytical results are presented in Table 18.

3. Conclusions

3.1 Metal Concentrations in Soil

The observed ranges in metal concentrations in the 2004 investigation are listed in Table G. At this stage of investigation, these concentrations simply confirm that there is a wide range of concentrations in surficial and near surface soils. Recommendations for further assessment of metal contamination in soil are provided in Section 4.

Table G. Summary of Observed Metal Concentrations

Metal	CCME Tier 1 Guideline	YCSR Standard	Minimum Observed	Maximum Observed
Antimony T-Sb	-	40	<10	240
Arsenic T-As	12	25	8.9	895
Barium T-Ba	2000	2000	<4.0	264
Beryllium T-Be	-	8	<0.50	2.34
Cadmium T-Cd	22	2 ^c	<0.50	131
Chromium T-Cr	87	60	<8.0	62.3
Cobalt T-Co	-	300	9.5	173
Copper T-Cu	91	90 ^c	28.7	2090
Lead T-Pb	600	150 ^c	<50	31900
Mercury T-Hg	50	150	<0.050	37.1
Molybdenum T-Mo	-	40	<4.0	10.2
Nickel T-Ni	50	500	<20	63.0
Selenium T-Se	3.9	10	<2.0	4.6
Silver T-Ag	-	40	<2.0	82.8
Tin T-Sn	-	300	<5.0	<20
Vanadium T-V	130		<8.0	56.2
Zinc T-Zn	360	150 ^c	60.3	96000

Note: Concentrations mg/kg.

3.2 Hydrocarbon Concentrations in Soil

The observed ranges in the CCME carbon-ranges of hydrocarbons in soil in the 2004 investigation are listed in Table H. These concentrations provide an overview indication of the types of hydrocarbons present (i.e., gasoline, diesel, heavy oil, etc.) and an overview indication of the concentrations of each. This information will be of interest to the study of remediation options for hydrocarbon contaminated

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soil. Recommendations for further assessment of hydrocarbon contamination in soil are provided in Section 4.

Table H. Summary of Observed F1-F4 Hydrocarbon Concentrations

Metal	CWS Tier 1 Guideline	Minimum Observed	Maximum Observed
F1 (C6-C10)	660	<10	714
F2 (C10-C16)	1500	<30	15600
F3 (C16-C34)	2500	<50	7450
F4 (C34-C50)	6600	<50	2920

Note: Concentrations mg/kg.

3.3 Summary of Areas of Concern

Table I lists the areas of concern that were investigated, a summary of where exceedances of the guidelines and standards were observed and a summary of the preliminary estimated volumes of contaminated soil, where an estimate was possible. Recommendations for further investigations to resolve the outstanding information needs are provided in Section 4.

Table I. Summary of Observations

Area	Exceedances for Hydrocarbons	Estimated Volume¹	Exceedances for Metals
<u>Faro Site</u>			
Lube Shack	Yes	4590	Yes
"Old" Tank Farm	Yes	- ²	- ³
"Old" Shovel Yard	No	- ⁴	No
EMD Yard	- ⁵	- ^{2,5}	- ⁵
Mill Diesel Tank	No ⁵	- ^{2,5}	Yes ⁵
(Ex)Waste Oil Storage Areas	Yes	2640	Yes
Coal Loading Area	No	- ⁴	Yes
Concentrate Loadout	No	- ⁴	Yes
Maintenance Bays	Yes	- ²	Yes
Scrap Yards	No	- ⁴	Yes
Freshwater Pumphouse	No	- ⁴	Yes
Coarse Ore Area	- ³	- ⁴	Yes

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Area	Exceedances for Hydrocarbons	Estimated Volume ¹	Exceedances for Metals
Reagent Storage Area	- ³	- ⁴	Yes
General office/warehouse yards	No	- ⁴	Yes
<u>Vangorda Plateau Site</u>			
Lube Shack	Yes	4500	Yes
Large Tank Farm	Yes	- ²	- ³
(Ex) Maintenance Shop Area	No	- ⁴	No
Gasoline Tank Area	No	- ⁴	Yes
Hot Line	No	- ⁴	Yes
(Ex) Ore haul Contractor Yard	No	- ⁴	Yes

- Notes:
1. Preliminary estimated volume as m³ including the suggested 50% contingency.
 2. Preliminary volume estimate can not be prepared at this time because contamination was not delineated. Further investigation is recommended.
 3. Not analysed.
 4. Preliminary volume estimate not prepared at this time because exceedances were not identified.
 5. Not sampled or sampling was limited due to electrical cables.

4. Recommendations

The 2004 Phase 2 ESA investigation was considered to be the initial stage of a larger ESA program and it was anticipated that further investigations would be recommended. Based on the information presented in this report, we recommend that the ESA program be continued in 2005 to achieve the following two specific objectives:

1. Most importantly, to delineate hydrocarbon contaminated soils, in areas where hydrocarbon contamination has been identified, to the degree where detailed remediation planning can proceed based on the federal Canada-Wide Standards; and
2. To provide a general characterization of the depth, physical properties and contaminant levels in soils at the Faro plantsite from surface to original ground or bedrock.

The recommended 2005 ESA program could be thought of as providing a “Phase 3” level of assessment for hydrocarbon contaminated soils in areas of known contamination and a continued “Phase 2” level of assessment for metal contamination in soil.

We believe that this approach is appropriate and complementary to the general closure planning process for the site. Most specifically, we understand that a risk assessment is to be undertaken as part of the closure planning process and we anticipate that this work will need to interact directly with a more detailed level of investigation of metals in soil. The recommended general characterization of soils around the Faro plantsite will provide basic information that will be needed even for preliminary soil remediation planning.

The 2005 ESA program should be undertaken primarily as a drill program, with some minor test pitting, as necessary. Various drilling techniques should be assessed in order to ensure that the most appropriate technique is used for the purpose. Sonic drilling is generally the most appropriate technique for this type of investigation and will likely be recommended. The general scope of the 2005 program should be similar to the 2004 program, given the expense of drilling and the need to remain in the field until a complete delineation of hydrocarbon-contaminated soils is achieved.

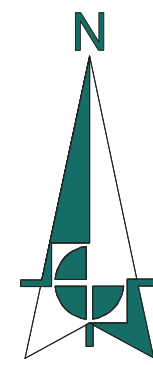
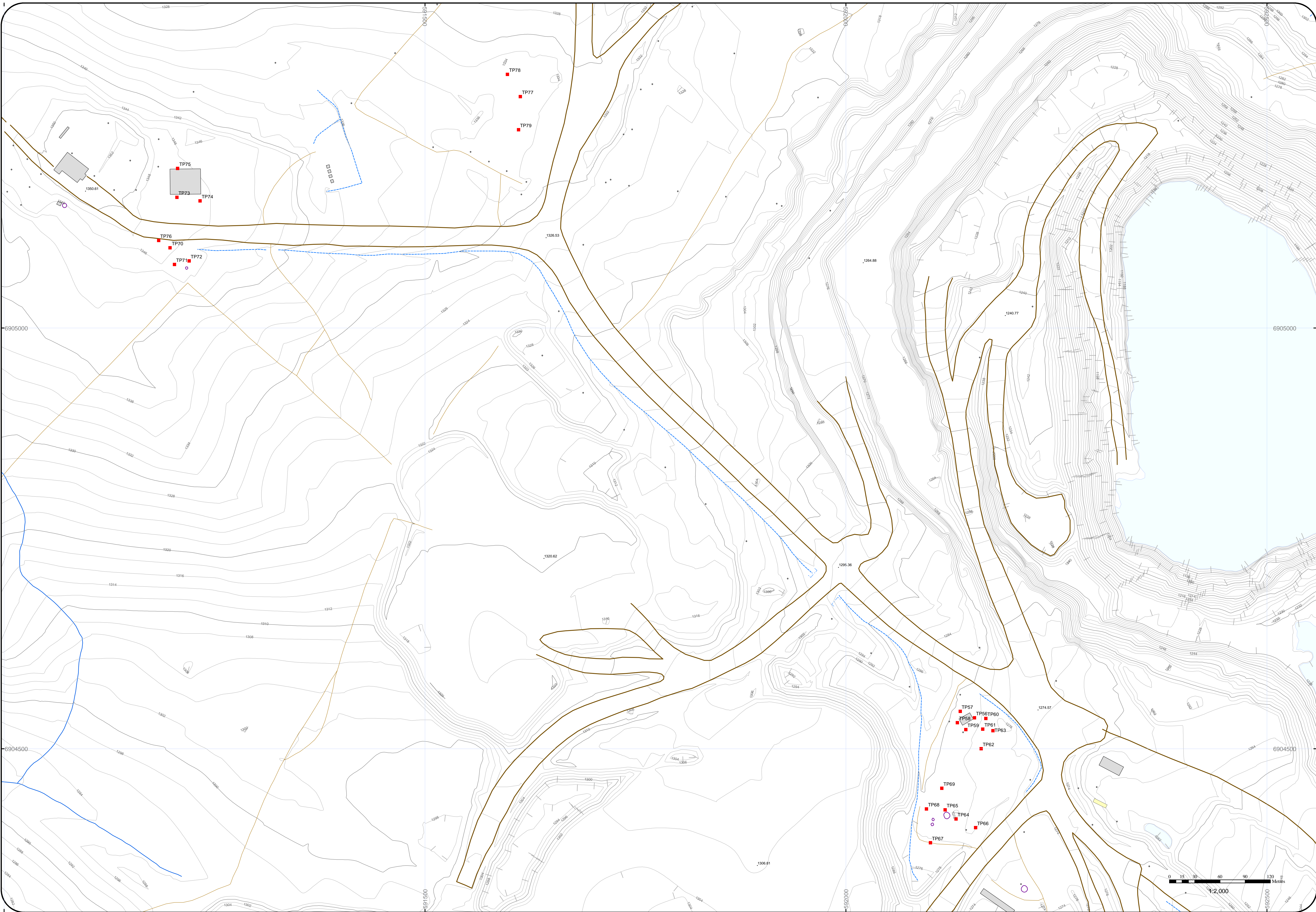
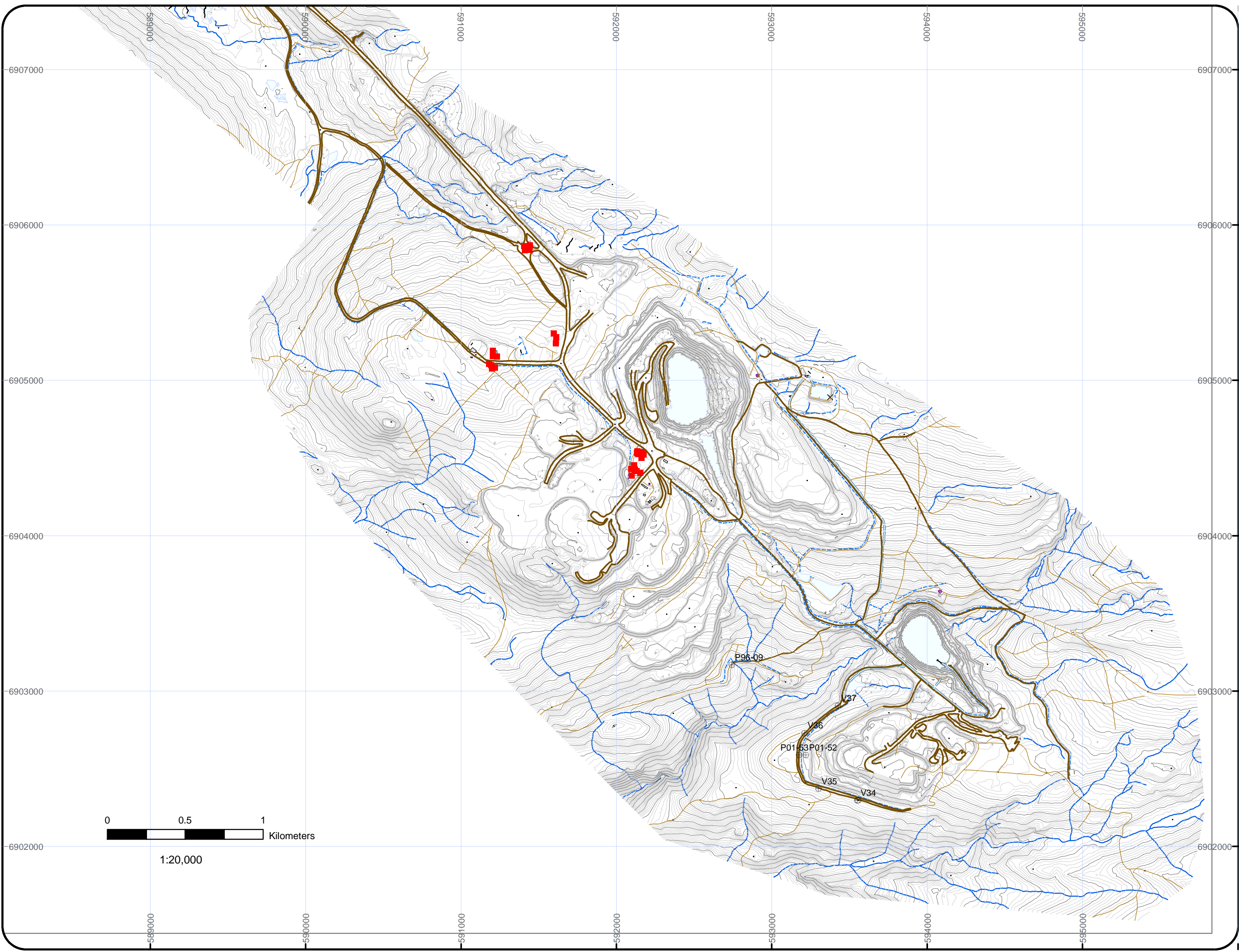
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5. Disclaimer

This report was prepared for the exclusive use of Deloitte & Touche Inc. The report, which specifically includes all tables and figures, is based on data and information collected during the investigations conducted by Gartner Lee Limited, and is based solely on the conditions of the site at the time of the investigation, supplemented by historical information and data obtained by Gartner Lee Limited, as described in this report.

The investigations and designs described in this report, were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

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Legend

- Test Pit - 2004 GLL
- new_wells_point
- wells_dig
- miscellaneous_point
- bridge_line
- gravel_road
- road_access
- trail
- poles
- dam
- dock_line
- retaining_wall
- tanks_line
- ebox_bench_line
- fences
- pipeline
- buildings
- concrete
- dugout
- unknown_features
- culvert_line
- ditch_sand_line
- rivers
- lakes
- pond
- Contours
 - Index - 10m
 - Intermed - 2m
 - depression_tick
 - spot_elevations

Data Sources
Faro Mine details adapted from drawings by Robertson Geoscientists Inc.
Orthophoto, ground contours and surface features generated by the Orthoshop from aerial photography flown in August, 2003. Data supplied by SRK

Projection: UTM NAD27 Zone 6
Contour Interval: 2 m (ASL)
Reviewed By: TRFP
Prepared By: PNV
Date Issued: October 22, 2004
Project No: 40-436
File Name:
P40436_B1_04Oct21_Vangorda_Pit_2K_Size.MXD
Revision: 0
Project: Faro Mine Environmental Site Assessment
Location: Anvil Range Mine, Faro, Yukon Territory
Client: Deloitte and Touche

Test Pit Locations

Vangorda Plateau Mine Site



Gartner Lee

Figure No. 2



Table 1: Lube Shack, Anvil Range Mine, Faro, YT

Soil Analysis Results (mg/kg)											
Location	Guideline/Standard		TP 1-S1	TP 1-S4	TP 2-S1	TP 3-S3	TP 4-S2	TP 5-S2	TP 6-S1	TP 7-S2	TP 85-S2
Date	CCME ^a	YCSR ^b	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/8/2004	9/16/2004
Depth (m)	Industrial	Industrial	0.35	1.9	0.4	1.9	1.5	1.6	0.6	2.4	1.50
Physical Tests											
Moisture %			6.32	8.35	2.68	9.80	7.82	12.2	5.12	6.23	12.7
pH			-	-	-	-	-	-	-	-	3.02
Total Metals											
Antimony T-Sb		40	-	-	-	-	-	-	-	-	13
Arsenic T-As	12	100	-	-	-	-	-	-	-	-	164
Barium T-Ba	2000	2000	-	-	-	-	-	-	-	-	39.9
Beryllium T-Be	-	8	-	-	-	-	-	-	-	-	0.74
Cadmium T-Cd	22	500	-	-	-	-	-	-	-	-	8.04
Chromium T-Cr	87	700	-	-	-	-	-	-	-	-	32.3
Cobalt T-Co	-	300	-	-	-	-	-	-	-	-	46.4
Copper T-Cu	91	250	-	-	-	-	-	-	-	-	708
Lead T-Pb	600	2000	-	-	-	-	-	-	-	-	5110
Mercury T-Hg	50	150	-	-	-	-	-	-	-	-	3.84
Molybdenum T-Mo	-	40	-	-	-	-	-	-	-	-	4.2
Nickel T-Ni	50	500	-	-	-	-	-	-	-	-	26.3
Selenium T-Se	3.9	10	-	-	-	-	-	-	-	-	<2.0
Silver T-Ag		40	-	-	-	-	-	-	-	-	6.2
Tin T-Sn		300	-	-	-	-	-	-	-	-	<5.0
Vanadium T-V	130		-	-	-	-	-	-	-	-	41.5
Zinc T-Zn	360	600	-	-	-	-	-	-	-	-	5320
Halogenated Volatiles											
Carbon Tetrachloride		50	-	-	<0.050	-	-	-	-	-	-
Chlorobenzene		10	-	-	<0.050	-	-	-	-	-	-
Chloroethane			-	-	<0.10	-	-	-	-	-	-
Chloromethane			-	-	<0.10	-	-	-	-	-	-
1,2-Dichlorobenzene		10	-	-	<0.050	-	-	-	-	-	-
1,3-Dichlorobenzene		10	-	-	<0.050	-	-	-	-	-	-
1,4-Dichlorobenzene		10	-	-	<0.050	-	-	-	-	-	-
1,1-Dichloroethane		50	-	-	<0.050	-	-	-	-	-	-
1,2-Dichloroethane		50	-	-	<0.050	-	-	-	-	-	-
cis-1,2-Dichloroethylene			-	-	<0.050	-	-	-	-	-	-
trans-1,2-Dichloroethylene			-	-	<0.050	-	-	-	-	-	-
1,1-Dichloroethylene			-	-	<0.050	-	-	-	-	-	-
Dichloromethane		50	-	-	<0.10	-	-	-	-	-	-
1,2-Dichloropropane		50	-	-	<0.050	-	-	-	-	-	-
cis-1,3-Dichloropropylene		50	-	-	<0.050	-	-	-	-	-	-
trans-1,3-Dichloropropylene		50	-	-	<0.050	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane			-	-	<0.050	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane			-	-	<0.20	-	-	-	-	-	-
Tetrachloroethylene	0.6	50	-	-	<0.050	-	-	-	-	-	-
1,1,1-Trichloroethane		50	-	-	<0.050	-	-	-	-	-	-
1,1,2-Trichloroethane		50	-	-	<0.80	-	-	-	-	-	-
Trichloroethylene	31	0.65	-	-	<0.050	-	-	-	-	-	-
Trichlorofluoromethane			-	-	<0.10	-	-	-	-	-	-
Vinyl Chloride			-	-	<0.10	-	-	-	-	-	-
Trihalomethanes											
Bromodichloromethane			-	-	<0.050	-	-	-	-	-	-
Bromoform			-	-	<0.050	-	-	-	-	-	-
Chloroform			-	-	<0.10	-	-	-	-	-	-
Dibromochloromethane			-	-	<0.050	-	-	-	-	-	-
Non-Halogenated Volatiles											
Benzene	5	150	<0.040	-	<0.040	<0.040	<0.040	-	-	-	<0.040
Ethylbenzene	20	20	0.596	-	1.39	<0.050	0.388	-	-	-	<0.050
Methyl t-butyl ether (MTBE)			-	-	<0.20	-	-	-	-	-	-
Styrene		50	<0.050	-	<0.050	<0.050	<0.050	-	-	-	<0.050
Toluene	0.8	25	0.622	-	0.974	<0.050	0.193	-	-	-	<0.050
meta- & para-Xylene			2.68	-	7.84	<0.050	3.11	-	-	-	0.055
ortho-Xylene			2.63	-	4.50	<0.050	2.18	-	-	-	<0.050
Total Xylenes	20	50	5.31	-	12.3	<0.10	5.29	-	-	-	<0.10
TVH5-10			350	-	470	<100	140	-	-	-	<100
VPH		200	340	-	460	<100	130	-	-	-	<100
CCME Hydrocarbon Fractions											
F1 (C6-C10)	310/340		144	-	177	13	115	-	-	-	<10
F1-BTEX			138	-	163	13	109	-	-	-	<10
F2 (C10-C16)	760/1800		4030	45	3640	109	3430	64	62	<30	1570
F2-PAH			4030	-	3640	109	-	-	-	-	1570
F3 (C16-C34)	1700/3500		3160	<50	2580	62	2710	<50	141	<50	7450
F3-PAH			3160	-	2580	62	-	-	-	-	7450
F4 (C34-C50)	3300/10000		<500	<50	88	<55	106	<50	<50	<50	1900
F4G-sg			-	-	-	-	-	-	-	-	-
F4G-SG Required (yes/no)			no	no	no	no	no	no	no	no	no
Glycols											
Diethylene Glycol			-	-	<10	-	-	-	-	-	-
Ethylene Glycol		20000	-	-	<10	-	-	-	-	-	-
1,2-Propylene Glycol			-	-	<10	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons											
Acenaphthene			<0.60	-	1.11	<0.040	-	-	-	-	<0.040
Acenaphthylene			<0.20	-	0.808	<0.050	-	-	-	-	<0.060
Anthracene			<0.20	-	<2.5	<0.050	-	-	-	-	<0.080
Benz(a)anthracene		10	<0.050	-	0.056	<0.050	-	-	-	-	<0.050
Benzo(a)pyrene	0.7	10	<0.050	-	<0.050	<0.050	-	-	-	-	<0.050
Benzo(b)fluoranthene		10	<0.050	-	<0.050	<0.050	-	-	-	-	<0.050
Benzo(g,h,i)perylene			<0.050	-	<0.050	<0.050	-	-	-	-	<0.050
Benzo(k)fluoranthene		10	<0.050	-	<0.050	<0.050	-	-	-	-	<0.050
Chrysene			<0.050	-	0.077	<0.050	-	-	-	-	<0.050
Dibenz(a,h)anthracene		10	<0.050	-	<0.050	<0.050	-	-	-	-	<0.050
Fluoranthene			<0.050	-	0.138	<0.050	-	-	-	-	<0.050
Fluorene			0.904	-	<2.5	<0.050	-	-	-	-	<0.060
Indeno(1,2,3-c,d)pyrene		10	<0.050	-	<0.050	<0.050	-	-	-	-	<0.050
2-Methylnaphthalene			12.8	-	23.3	<0.050	-	-	-	-	0.641
Naphthalene	22	50	2.83	-	8.7	<0.050	-	-	-	-	0.253
Phenanthrene		50	1.98	-	3.9	<0.050	-	-	-	-	0.176
Pyrene		100	0.255	-	<0.050	<0.050	-	-	-	-	0.135

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)
^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

Italic results exceeding YCSR Industrial Land Use standards
Bold results exceeding CCME Industrial land use guidelines
"- " = not analyzed
"<" = less than detection limit



Table 2: Tank Farm, Anvil Range Mine, Faro, YT

Soil Analysis Results (mg/kg)											
Location	Guideline/Standard		TP 8-S3	TP 9-S1	TP 9-S3	TP 10-S1	TP 11-S2	TP 12-S2	TP 13-S3	TP 14-S1	TP 15-S2
Date	CCME ^a	YCSR ^b	9/9/2004	9/9/2004	9/9/2004	9/9/2004	9/9/2004	9/9/2004	9/9/2004	9/9/2004	9/9/2004
Depth (m)	Industrial	Industrial	2.3	0.6	2.6	0.9	1.6	1.9	2.8	0.8	1.8
Physical Tests											
Moisture %			9.80	8.85	5.14	5.48	6.73	6.80	4.76	7.77	7.94
pH			-	-	-	-	-	-	-	-	-
Non-Halogenated Volatiles											
Benzene	5	150	-	<0.040	-	-	-	-	-	-	-
Ethylbenzene	20	20	-	0.325	-	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)			-	-	-	-	-	-	-	-	-
Styrene		50	-	<0.050	-	-	-	-	-	-	-
Toluene	0.8	25	-	0.471	-	-	-	-	-	-	-
meta- & para-Xylene			-	13.5	-	-	-	-	-	-	-
ortho-Xylene			-	17.0	-	-	-	-	-	-	-
Total Xylenes	20	50	-	30.5	-	-	-	-	-	-	-
TVH5-10			-	1850	-	-	-	-	-	-	-
VPH		200	-	1820	-	-	-	-	-	-	-
CCME Hydrocarbon Fractions											
F1 (C6-C10)	310/340		-	509	-	-	-	-	-	-	-
F1-BTEX			-	478	-	-	-	-	-	-	-
F2 (C10-C16)	760/1800		3420	15600	7190	<30	61	<30	<30	<30	<30
F2-PAH			-	15600	-	-	-	-	-	-	-
F3 (C16-C34)	1700/3500		310	5100	1570	<50	474	<50	<50	646	<50
F3-PAH			-	5100	-	-	-	-	-	-	-
F4 (C34-C50)	3300/10000		<100	<100	<100	<50	86	<50	<50	111	<50
F4G-sg			-	-	-	-	-	-	-	-	-
F4G-SG Required (yes/no)			no	no	no	no	no	no	no	no	no
Polycyclic Aromatic Hydrocarbons											
Acenaphthene			-	<0.80	-	-	-	-	-	-	-
Acenaphthylene			-	<0.40	-	-	-	-	-	-	-
Anthracene			-	<0.30	-	-	-	-	-	-	-
Benz(a)anthracene		10	-	<0.050	-	-	-	-	-	-	-
Benzo(a)pyrene	0.7	10	-	<0.050	-	-	-	-	-	-	-
Benzo(b)fluoranthene		10	-	<0.050	-	-	-	-	-	-	-
Benzo(g,h,i)perylene			-	<0.050	-	-	-	-	-	-	-
Benzo(k)fluoranthene		10	-	<0.050	-	-	-	-	-	-	-
Chrysene			-	<0.050	-	-	-	-	-	-	-
Dibenz(a,h)anthracene		10	-	<0.050	-	-	-	-	-	-	-
Fluoranthene			-	<0.050	-	-	-	-	-	-	-
Fluorene			-	2.50	-	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene		10	-	<0.050	-	-	-	-	-	-	-
2-Methylnaphthalene			-	46.3	-	-	-	-	-	-	-
Naphthalene	22	50	-	7.29	-	-	-	-	-	-	-
Phenanthrene		50	-	4.33	-	-	-	-	-	-	-
Pyrene		100	-	0.341	-	-	-	-	-	-	-

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)
^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

Results are expressed as milligrams per dry kilogram except where noted.
 < = Less than the detection limit indicated.

Italic	results exceeding YCSR Industrial Land Use standards
Bold	results exceeding CCME Industrial land use guidelines
"-"	not analyzed
"<"	less than detection limit



Table 3: Mill Diesel Tank, Anvil Range Mine, Faro, YT

Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 16-S1	TP 16-S2	TP 16-S3
Date	CCME ^a	YCSR	9/9/2004	9/9/2004	9/9/2004
Depth (m)	Industrial	Industrial	0.7	1.8	2.3
Physical Tests					
Moisture %			-	10.9	-
pH			5.61	-	5.61
Total Metals					
Antimony T-Sb		40	24	-	<10
Arsenic T-As	12	100	152	-	97.4
Barium T-Ba	2000	2000	34.4	-	153
Beryllium T-Be	-	8	0.67	-	1.13
Cadmium T-Cd	22	500	15.8	-	7.22
Chromium T-Cr	87	700	36.8	-	37.0
Cobalt T-Co	-	300	31.0	-	13.7
Copper T-Cu	91	250	445	-	206
Lead T-Pb	600	2000	7200	-	792
Mercury T-Hg	50	150	7.93	-	0.187
Molybdenum T-Mo	-	40	4.5	-	<4.0
Nickel T-Ni	50	500	34.5	-	55.3
Selenium T-Se	3.9	10	<2.0	-	<2.0
Silver T-Ag		40	11.6	-	<2.0
Tin T-Sn		300	<5.0	-	<5.0
Vanadium T-V	130		41.2	-	44.5
Zinc T-Zn	360	600	13200	-	2840
CCME Hydrocarbon Fractions					
F1 (C6-C10)	310/340		-	-	-
F1-BTEX			-	-	-
F2 (C10-C16)	760/1800		-	1090	-
F2-PAH			-	1090	-
F3 (C16-C34)	1700/3500		-	679	-
F3-PAH			-	678	-
F4 (C34-C50)	3300/10000		-	66	-
F4G-sg			-	-	-
F4G-SG Required (yes/no)			-	no	-
Polycyclic Aromatic Hydrocarbons					
Acenaphthene			-	<0.20	-
Acenaphthylene			-	<0.10	-
Anthracene			-	<0.060	-
Benz(a)anthracene		10	-	<0.050	-
Benzo(a)pyrene	0.7	10	-	<0.050	-
Benzo(b)fluoranthene		10	-	<0.050	-
Benzo(g,h,i)perylene			-	<0.050	-
Benzo(k)fluoranthene		10	-	<0.050	-
Chrysene			-	<0.050	-
Dibenz(a,h)anthracene		10	-	<0.050	-
Fluoranthene			-	<0.050	-
Fluorene			-	0.401	-
Indeno(1,2,3-c,d)pyrene		10	-	<0.050	-
2-Methylnaphthalene			-	4.46	-
Naphthalene	22	50	-	<2.0	-
Phenanthrene		50	-	0.826	-
Pyrene		100	-	0.084	-

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

Italic results exceeding YCSR Industrial Land Use standards
Bold results exceeding CCME Industrial land use guidelines
 "-" = not analyzed
 "<" = less than detection limit



Table 4: Waste Oil Tanks, Anvil Range Mine, Faro, YT

Soil Analysis Results (mg/kg)													
Location		Guideline/Standard		TP 17-S1	TP 18-S2	TP 19-S2	TP 19-S2A ^c	TP 19-S3	TP 20-S3	TP 21-S1	TP 22-S2	TP 23-S1	TP 30-S3
Date		CCME ^a	YCSR ^b	9/10/2004	9/10/2004	9/10/2004	9/10/2004	9/10/2004	9/10/2004	9/10/2004	9/10/2004	9/10/2004	9/11/2004
Depth (m)		Industrial	Industrial	0.8	1.5	1.2	1.2	2.2	2.7	1	1.7	0.8	3.2
Physical Tests													
Moisture %				10.5	9.15	12.3	12.3	10.0	8.98	6.86	4.60	2.61	11.1
pH				-	-	7.53	6.69	-	-	-	-	-	-
Total Metals													
Antimony T-Sb			40	-	-	16	38	-	-	-	-	-	-
Arsenic T-As		12	100	-	-	73.2	144	-	-	-	-	-	-
Barium T-Ba		2000	2000	-	-	42.3	33.9	-	-	-	-	-	-
Beryllium T-Be		-	8	-	-	0.72	<1.0	-	-	-	-	-	-
Cadmium T-Cd		22	500	-	-	17.1	28.5	-	-	-	-	-	-
Chromium T-Cr		87	700	-	-	35.4	32.1	-	-	-	-	-	-
Cobalt T-Co		-	300	-	-	25.2	42.9	-	-	-	-	-	-
Copper T-Cu		91	250	-	-	439	704	-	-	-	-	-	-
Lead T-Pb		600	2000	-	-	7940	9380	-	-	-	-	-	-
Mercury T-Hg		50	150	-	-	7.14	10.6	-	-	-	-	-	-
Molybdenum T-Mo		-	40	-	-	4.4	9.5	-	-	-	-	-	-
Nickel T-Ni		50	500	-	-	33.0	36	-	-	-	-	-	-
Selenium T-Se		3.9	10	-	-	<2.0	<4.0	-	-	-	-	-	-
Silver T-Ag			40	-	-	11.0	17.4	-	-	-	-	-	-
Tin T-Sn			300	-	-	<5.0	<10	-	-	-	-	-	-
Vanadium T-V		130		-	-	48.7	43.7	-	-	-	-	-	-
Zinc T-Zn		360	600	-	-	13300	25400	-	-	-	-	-	-
Halogenated Volatiles													
Carbon Tetrachloride			50	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
Chlorobenzene			10	<0.050	-	<0.060	<0.060	-	-	-	-	-	-
Chloroethane				<0.10	-	<0.10	<0.10	-	-	-	-	-	-
Chloromethane				<0.10	-	<0.10	<0.10	-	-	-	-	-	-
1,2-Dichlorobenzene			10	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
1,3-Dichlorobenzene			10	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
1,4-Dichlorobenzene			10	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
1,1-Dichloroethane			50	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
1,2-Dichloroethane			50	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
cis-1,2-Dichloroethylene				<0.050	-	<0.050	<0.050	-	-	-	-	-	-
trans-1,2-Dichloroethylene				<0.050	-	<0.050	<0.050	-	-	-	-	-	-
1,1-Dichloroethylene				<0.050	-	<0.050	<0.050	-	-	-	-	-	-
Dichloromethane			50	<0.15	-	<0.15	<0.15	-	-	-	-	-	-
1,2-Dichloropropane			50	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
cis-1,3-Dichloropropylene			50	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
trans-1,3-Dichloropropylene			50	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane				<0.050	-	<0.050	<0.050	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane				<1.5	-	<1.5	<1.5	-	-	-	-	-	-
Tetrachloroethylene		0.6	50	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
1,1,1-Trichloroethane			50	0.168	-	<0.050	<0.050	-	-	-	-	-	-
1,1,2-Trichloroethane			50	<0.85	-	<1.5	<1.5	-	-	-	-	-	-
Trichloroethylene		31	0.65	0.160	-	<0.050	<0.050	-	-	-	-	-	-
Trichlorofluoromethane				<0.10	-	<0.10	<0.10	-	-	-	-	-	-
Vinyl Chloride				<0.10	-	<0.10	<0.10	-	-	-	-	-	-
Trihalomethanes													
Bromodichloromethane				<0.050	-	<0.050	<0.050	-	-	-	-	-	-
Bromoform				<0.050	-	<0.050	<0.050	-	-	-	-	-	-
Chloroform				<0.10	-	<0.10	<0.10	-	-	-	-	-	-
Dibromochloromethane				<0.050	-	<0.050	<0.050	-	-	-	-	-	-
Non-Halogenated Volatiles													
Benzene		5	150	0.095	0.044	0.110	0.178	-	-	-	-	-	-
Ethylbenzene		20	20	2.26	0.058	1.91	2.13	-	-	-	-	-	-
Methyl t-butyl ether (MTBE)				<0.20	-	<0.20	<0.20	-	-	-	-	-	-
Styrene			50	<0.050	<0.050	<0.050	<0.050	-	-	-	-	-	-
Toluene		0.8	25	2.00	0.167	0.897	1.33	-	-	-	-	-	-
meta- & para-Xylene				11.3	0.210	5.79	7.36	-	-	-	-	-	-
ortho-Xylene				7.98	0.099	1.51	2.76	-	-	-	-	-	-
Total Xylenes		20	50	19.3	0.31	7.30	10.1	-	-	-	-	-	-
TVH5-10				900	<100	510	750	-	-	-	-	-	-
VPH			200	880	<100	500	740	-	-	-	-	-	-
CCME Hydrocarbon Fractions													
F1 (C6-C10)		310/340		361	26	278	301	-	-	-	-	-	-
F1-BTEX				338	26	267	287	-	-	-	-	-	-
F2 (C10-C16)		760/1800		4460	505	5230	7340	1430	<30	151	<30	<60	<30
F2-PAH				4450	-	5230	7330	-	-	-	-	-	-
F3 (C16-C34)		1700/3500		6000	430	3530	5080	1810	<50	482	<50	<100	<50
F3-PAH				6000	-	3520	5070	-	-	-	-	-	-
F4 (C34-C50)		3300/10000		2920	102	<100	<200	<200	<50	933	<50	<100	<50
F4G-sg				-	-	-	-	-	-	2070	-	-	-
F4G-SG Required (yes/no)				no	no	no	no	no	no	yes	no	no	no
Glycols													
Diethylene Glycol				-	<10	-	-	-	-	-	-	-	-
Ethylene Glycol			20000	-	<10	-	-	-	-	-	-	-	-
1,2-Propylene Glycol				-	<10	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons													
Acenaphthene				<0.30	-	<2.0	2.69	-	-	-	-	-	-
Acenaphthylene				<0.20	-	<0.50	0.745	-	-	-	-	-	-
Anthracene				<0.070	-	<0.40	0.467	-	-	-	-	-	-
Benz(a)anthracene			10	<0.050	-	0.071	0.083	-	-	-	-	-	-
Benzo(a)pyrene		0.7	10	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
Benzo(b)fluoranthene			10	0.053	-	0.070	0.094	-	-	-	-	-	-
Benzo(g,h,i)perylene				<0.050	-	<0.050	<0.050	-	-	-	-	-	-
Benzo(k)fluoranthene			10	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
Chrysene				<0.050	-	<0.10	0.073	-	-	-	-	-	-
Dibenz(a,h)anthracene			10	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
Fluoranthene				0.061	-	<0.20	0.158	-	-	-	-	-	-
Fluorene				0.318	-	2.04	2.55	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene			10	<0.050	-	<0.050	<0.050	-	-	-	-	-	-
2-Methylnaphthalene				7.27	-	34.8	26.7	-	-	-	-	-	-
Naphthalene		22	50	2.69	-	5.27	7.78	-	-	-	-	-	-
Phenanthrene			50	0.485	-	4.91	5.34	-	-	-	-	-	-
Pyrene			100	0.100	-	0.209	0.284	-	-	-	-	-	-

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)
^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171
^c field duplicate sample

Italic results exceeding YCSR Industrial Land Use standards
Bold results exceeding CCME Industrial land use guidelines
"- "= not analyzed
"<" = less than detection limit

Table 5: Coal Loading Area, Anvil Range Mine, Faro, YT

Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 24-S1	TP 25-S1	TP 26-S2
Date	CCME ^a	YCSR	9/10/2004	9/10/2004	9/10/2004
Depth (m)	Industrial	Industrial	0.6	0.6	1.6
Physical Tests					
Moisture %			5.27	5.03	4.31
pH			7.86	7.51	8.08
Total Metals					
Antimony T-Sb		40	<10	<10	<10
Arsenic T-As	12	100	19.3	36.8	12.4
Barium T-Ba	2000	2000	198	131	121
Beryllium T-Be	-	8	0.59	0.84	0.53
Cadmium T-Cd	22	500	0.83	1.57	0.55
Chromium T-Cr	87	700	33.4	31.7	27.8
Cobalt T-Co	-	300	13.1	19.3	12.0
Copper T-Cu	91	250	49.5	173	39.2
Lead T-Pb	600	2000	404	320	92
Mercury T-Hg	50	150	0.224	0.303	0.111
Molybdenum T-Mo	-	40	<4.0	<4.0	<4.0
Nickel T-Ni	50	500	37.4	35.8	35.3
Selenium T-Se	3.9	10	<2.0	<2.0	<2.0
Silver T-Ag		40	<2.0	<2.0	<2.0
Tin T-Sn		300	<5.0	<5.0	<5.0
Vanadium T-V	130		39.2	41.2	37.2
Zinc T-Zn	360	600	500	762	197
CCME Hydrocarbon Fractions					
F1 (C6-C10)	310/340		-	-	-
F1-BTEX			-	-	-
F2 (C10-C16)	760/1800		31	49	150
F3 (C16-C34)	1700/3500		86	<50	216
F4 (C34-C50)	3300/10000		<50	<50	<50
F4G-sg			-	-	-
F4G-SG Required (yes/no)			no	no	no

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

<i>Italic</i>	results exceeding YCSR Industrial Land Use standards
Bold	results exceeding CCME Industrial land use guidelines

"-" = not analyzed

"<" = less than detection limit



Gartner
Lee

Table 6: Concentrate Loadout Area, Anvil Range Mine, Faro, YT

Location		Guideline/Standard		TP 27-S2	TP 28-S1	TP 29-S1	TP 29-S2	TP 31-S1
Date	CCME ^a	YCSR ^b	9/10/2004	9/10/2004	9/10/2004	9/10/2004	9/10/2004	9/11/2004
Depth (m)	Industrial	Industrial	1.8	0.4	0.7		1.9	0.9
Physical Tests								
Moisture	%		8.21	8.19	9.31		3.29	7.66
pH			7.01	6.07	6.76		-	-
Total Metals								
Antimony	T-Sb	40	<20	240	110		-	-
Arsenic	T-As	12	100	49	276	87	-	-
Barium	T-Ba	2000	2000	194	29.1	32.4	-	-
Beryllium	T-Be	-	8	<1.0	<1.0	<1.0	-	-
Cadmium	T-Cd	22	500	7.3	77.1	131	-	-
Chromium	T-Cr	87	700	62.3	36.2	31.8	-	-
Cobalt	T-Co	-	300	17.5	23.1	21.1	-	-
Copper	T-Cu	91	250	194	1540	2090	-	-
Lead	T-Pb	600	2000	6320	28800	31900	-	-
Mercury	T-Hg	50	150	3.30	37.1	36.2	-	-
Molybdenum	T-Mo	-	40	<8.0	10.2	8.3	-	-
Nickel	T-Ni	50	500	41	29	29	-	-
Selenium	T-Se	3.9	10	<4.0	<10	4.6	-	-
Silver	T-Ag		40	8.8	82.8	74.8	-	-
Tin	T-Sn		300	<10	<10	<10	-	-
Vanadium	T-V	130		49.7	35.4	33.1	-	-
Zinc	T-Zn	360	600	4960	64200	96000	-	-
Non-Halogenated Volatiles								
Benzene		5	150	-	-	-	<0.040	<0.040
Ethylbenzene		20	20	-	-	-	<0.050	0.079
Methyl t-butyl ether (MTBE)				-	-	-	-	-
Styrene			50	-	-	-	<0.050	<0.050
Toluene	0.8	25		-	-	-	<0.050	0.074
meta- & para-Xylene				-	-	-	<0.050	0.427
ortho-Xylene				-	-	-	<0.050	0.213
Total Xylenes	20	50		-	-	-	<0.10	0.64
TVH5-10				-	-	-	170	<100
VPH		200					170	<100
CCME Hydrocarbon Fractions								
F1 (C6-C10)	310/340		-	-	-	-	70	16
F1-BTEX			-	-	-	-	70	15
F2 (C10-C16)	760/1800		73	31	-	-	<30	137
F2-PAH			-	-	-	-	<30	-
F3 (C16-C34)	1700/3500		72	239	-	-	<50	396
F3-PAH			-	-	-	-	<50	-
F4 (C34-C50)	3300/10000		<50	75	-	-	<50	97
F4G-sg			-	-	-	-	-	-
F4G-SG Required (yes/no)			no	no	-	-	no	no
Glycols								
Diethylene Glycol			-	<10	<10		-	-
Ethylene Glycol		20000	-	<10	<10		-	-
1,2-Propylene Glycol			-	38	<10		-	-
Polycyclic Aromatic Hydrocarbons								
Acenaphthene			-	-	-		0.487	-
Acenaphthylene			-	-	-		0.117	-
Anthracene			-	-	-		<0.15	-
Benzo(a)anthracene		10	-	-	-		<0.050	-
Benzo(a)pyrene	0.7	10	-	-	-		<0.050	-
Benzo(b)fluoranthene		10	-	-	-		<0.050	-
Benzo(g,h,i)perylene			-	-	-		<0.050	-
Benzo(k)fluoranthene		10	-	-	-		<0.050	-
Chrysene			-	-	-		<0.050	-
Dibenz(a,h)anthracene		10	-	-	-		<0.050	-
Fluoranthene			-	-	-		<0.050	-
Fluorene			-	-	-		0.836	-
Indeno(1,2,3-c,d)pyrene		10	-	-	-		<0.050	-
2-Methylnaphthalene			-	-	-		<0.15	-
Naphthalene	22	50	-	-	-		0.927	-
Phenanthrene		50	-	-	-		1.79	-
Pyrene		100	-	-	-		<0.070	-

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

Italic results exceeding YCSR Industrial Land Use standards
Bold results exceeding CCME Industrial land use guidelines

"-" = not analyzed

"<" = less than detection limit



Table 7: Maintenance Bays, Anvil Range Mine, Faro, YT

Location		Guideline/Standard		TP 34-S1	TP 35-S2	TP 36-S2	TP 37-S1	TP 39-S2	TP 40-S1	TP 40-S3	TP 40-S3A'	TP 41-S2	TP 42-S1	TP 43-S1	TP 43-S2	TP 45-S1	TP 45-S3	TP 46-S2
Date	CCME ^a	YCSR ^b	9/11/2004	9/11/2004	9/11/2004	9/11/2004	9/11/2004	9/11/2004	9/11/2004	9/11/2004	9/11/2004	9/11/2004	9/12/2004	9/12/2004	9/12/2004	9/12/2004	9/12/2004	9/12/2004
Depth (m)	Industrial	Industrial	0.9	1.6	1.5	1	2.3	0.7	2.8	2.8	2	0.8	1.1	1.40	1.00	2.20	1.60	
Physical Tests																		
Moisture %			6.36	8.10	7.21	5.19	11.0	3.97	6.68	5.67	13.6	8.65	-	8.13	-	6.15	6.12	
pH			-	7.81	8.12	8.15	7.53	7.75	8.00	8.02	-	-	8.05	-	6.28	-	-	
Total Metals																		
Antimony T-Sb		40	-	<10	<10	<10	<10	<10	<10	<10	-	-	<10	-	41	-	-	
Arsenic T-As	12	100	-	27.7	24.9	12.4	9.3	31.7	12.7	12.2	-	-	13.7	-	523	-	-	
Barium T-Ba	2000	2000	-	194	168	129	149	151	115	103	-	-	167	-	17.0	-	-	
Beryllium T-Be		8	-	0.94	0.71	0.60	1.00	0.67	0.60	0.57	-	-	0.98	-	<2.0	-	-	
Cadmium T-Cd	22	500	-	0.87	0.83	<0.50	<0.50	2.89	<0.50	<0.50	-	-	<0.50	-	34.4	-	-	
Chromium T-Cr	87	700	-	49.5	34.6	38.2	52.9	32.5	29.6	27.9	-	-	53.1	-	57.7	-	-	
Cobalt T-Co	-	300	-	19.3	15.5	14.7	17.2	17.6	11.2	10.9	-	-	20.8	-	170	-	-	
Copper T-Cu	91	250	-	88.9	58.6	40.3	38.0	126	35.5	31.3	-	-	63.6	-	1810	-	-	
Lead T-Pb	600	2000	-	339	329	<50	<50	1520	56	<50	-	-	55	-	13300	-	-	
Mercury T-Hg	50	150	-	0.201	0.221	<0.050	<0.050	0.994	<0.050	<0.050	-	-	<0.050	-	4.91	-	-	
Molybdenum T-Mo	-	40	-	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	-	-	<4.0	-	<16	-	-	
Nickel T-Ni	50	500	-	47.3	37.4	39.0	45.6	38.0	33.0	32.7	-	-	56.3	-	58	-	-	
Selenium T-Se	3.9	10	-	<5.0	<2.0	<3.0	<2.0	<4.0	<2.0	<2.0	-	-	<2.0	-	<8.0	-	-	
Silver T-Ag		40	-	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	-	-	<2.0	-	17.9	-	-	
Tin T-Sn		300	-	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	-	-	<5.0	-	<20	-	-	
Vanadium T-V	130		-	55.7	41.9	42.7	56.2	39.9	35.5	33.9	-	-	52.9	-	50.9	-	-	
Zinc T-Zn	360	600	-	485	444	115	82.6	1810	118	95.2	-	-	193	-	23900	-	-	
CCME Hydrocarbon Fractions																		
F1 (C6-C10)	310/340		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F1-BTEX			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F2 (C10-C16)	760/1800		31	64	5040	41	<30	-	5440	7990	6370	<30	-	<30	-	2480	<30	-
F2-PAH			-	-	5030	-	-	-	5420	7970	-	-	-	-	-	-	-	-
F3 (C16-C34)	1700/3500		172	202	1510	<50	<50	-	1520	2130	1750	263	-	55	-	800	152	-
F3-PAH			-	-	1500	-	-	-	1520	2130	-	-	-	-	-	-	-	-
F4 (C34-C50)	3300/10000		69	54	<100	<50	<50	-	<50	54	<50	52	-	<50	-	<50	69	-
F4G-Sg			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
F4G-SG Required (yes/no)			no	no	no	no	no	-	no	no	no	no	no	-	no	-	no	no
Glycols																		
Diethylene Glycol			-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-
Ethylene Glycol	20000		-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-
1,2-Propylene Glycol			-	-	-	-	-	<10	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons																		
Acenaphthene			-	-	<0.50	-	-	-	-	<0.60	<0.65	-	-	-	-	-	-	-
Acenaphthylene			-	-	<0.20	-	-	-	-	<0.25	<0.25	-	-	-	-	-	-	-
Anthracene			-	-	<0.15	-	-	-	-	<0.075	<0.15	-	-	-	-	-	-	-
Benz(a)anthracene	10		-	-	<0.050	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-	-
Benzo(a)pyrene	0.7	10	-	-	<0.050	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-	-
Benzo(b)fluoranthene	10		-	-	<0.050	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-	-
Benzo(g,h,i)perylene			-	-	<0.050	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-	-
Benzo(k)fluoranthene	10		-	-	<0.050	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-	-
Chrysene			-	-	<0.050	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10		-	-	<0.050	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-	-
Fluoranthene			-	-	<0.050	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-	-
Fluorene			-	-	1.13	-	-	-	-	1.32	1.53	-	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	10		-	-	<0.050	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-	-
2-Methylnaphthalene			-	-	35.7	-	-	-	-	34.8	41.0	-	-	-	-	-	-	-
Naphthalene	22	50	-	-	13.9	-	-	-	-	16.6	19.8	-	-	-	-	-	-	-
Phenanthrene		50	-	-	2.04	-	-	-	-	2.30	2.66	-	-	-	-	-	-	-
Pyrene		100	-	-	0.058	-	-	-	-	<0.050	0.055	-	-	-	-	-	-	-

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)^b Yukon Territory Environment, Contaminated Sites Regulations, 2002/171^c field duplicate sample**Italic** results exceeding YCSR Industrial Land Use standards**Bold** results exceeding CCME Industrial land use guidelines

"-": not analyzed

"<" = less than detection limit

Gartner
Lea

Table 8: Scrap yards, Anvil Range Mine, Faro, YT

Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 51-S1	TP 52-S1	TP 52-S2	TP 53-S2	TP 86-S1	TP 87-S2	TP 88-S1	TP88-S2	TP 89-S1
Date	CCME ^a	YCSR ^b	9/12/2004	9/13/2004	9/13/2004	9/13/2004	9/16/2004	9/16/2004	9/16/2004	9/16/2004	9/16/2004
Depth (m)	Industrial	Industrial	0.60	0.60	1.30	1.50	0.50	1.50	0.40	1.00	0.60
Physical Tests											
Moisture %			10.6	8.07	-	10.3	9.53	8.27	6.53	1.24	6.17
pH			8.75	-	8.75	-	7.28	7.47	2.44	6.70	3.11
Total Metals											
Antimony T-Sb		40	<10	-	<10	-	<10	<10	53	68	102
Arsenic T-As	12	100	39.8	-	14.6	-	14.1	11.6	823	568	895
Barium T-Ba	2000	2000	143	-	218	-	222	148	<4.0	<4.0	<4.0
Beryllium T-Be	-	8	2.34	-	2.09	-	1.03	0.78	<2.0	<2.0	<2.0
Cadmium T-Cd	22	500	<0.50	-	0.86	-	0.83	1.73	33.3	61.7	53.9
Chromium T-Cr	87	700	43.7	-	41.1	-	49.6	42.7	<8.0	<8.0	13.3
Cobalt T-Co	-	300	22.0	-	18.8	-	19.5	21.8	172	173	95.7
Copper T-Cu	91	250	55.9	-	46.6	-	53.4	44.2	1570	1400	1160
Lead T-Pb	600	2000	195	-	270	-	179	<50	1750	1830	4760
Mercury T-Hg	50	150	<0.050	-	0.220	-	0.126	<0.050	21.8	17.6	21.1
Molybdenum T-Mo	-	40	<4.0	-	<4.0	-	<4.0	<4.0	<16	<16	<16
Nickel T-Ni	50	500	40.3	-	36.8	-	42.6	46.6	<20	<20	25
Selenium T-Se	3.9	10	<4.0	-	<2.0	-	<2.0	<2.0	<8.0	<8.0	<8.0
Silver T-Ag		40	<2.0	-	<2.0	-	<2.0	<2.0	28.0	31.3	41.6
Tin T-Sn		300	<5.0	-	<5.0	-	<5.0	<5.0	<20	<20	<20
Vanadium T-V	130		49.5	-	46.2	-	46.4	42.2	<8.0	<8.0	11.6
Zinc T-Zn	360	600	205	-	488	-	972	1590	22700	49200	40900
CCME Hydrocarbon Fractions											
F1 (C6-C10)	310/340		-	-	-	-	-	-	-	-	-
F1-BTEX			-	-	-	-	-	-	-	-	-
F2 (C10-C16)	760/1800		35	41	-	61	<30	<30	<30	<30	<30
F2-PAH			-	-	-	-	-	-	-	<30	-
F3 (C16-C34)	1700/3500		114	654	-	97	<50	<50	176	<50	63
F3-PAH			-	-	-	-	-	-	-	-	-
F4 (C34-C50)	3300/10000		<50	135	-	<50	<50	91	116	<50	<50
F4G-Sg			-	-	-	-	-	-	3160	<50	-
F4G-SG Required (yes/no)			no	no	-	no	no	no	yes	no	no
Polycyclic Aromatic Hydrocarbons											
Acenaphthene			-	-	-	-	-	-	-	<0.040	-
Acenaphthylene			-	-	-	-	-	-	-	<0.050	-
Anthracene			-	-	-	-	-	-	-	<0.050	-
Benz(a)anthracene	10		-	-	-	-	-	-	-	<0.050	-
Benzo(a)pyrene	0.7	10	-	-	-	-	-	-	-	<0.050	-
Benzo(b)fluoranthene	10		-	-	-	-	-	-	-	<0.050	-
Benzo(g,h,i)perylene			-	-	-	-	-	-	-	<0.050	-
Benzo(k)fluoranthene	10		-	-	-	-	-	-	-	<0.050	-
Chrysene			-	-	-	-	-	-	-	<0.050	-
Dibenz(a,h)anthracene	10		-	-	-	-	-	-	-	<0.050	-
Fluoranthene			-	-	-	-	-	-	-	<0.050	-
Fluorene			-	-	-	-	-	-	-	<0.050	-
Indeno(1,2,3-c,d)pyrene	10		-	-	-	-	-	-	-	<0.050	-
2-Methylnaphthalene			-	-	-	-	-	-	-	<0.050	-
Naphthalene	22	50	-	-	-	-	-	-	-	<0.050	-
Phenanthrene		50	-	-	-	-	-	-	-	<0.050	-
Pyrene		100	-	-	-	-	-	-	-	<0.050	-

Notes:

^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171**Italic**

results exceeding YCSR Industrial Land Use standards

Bold

results exceeding CCME Industrial land use guidelines

"- "=" not analyzed

"<" = less than detection limit



Table 9: Pumphouse, Anvil Range Mine, Faro, YT

Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 48-S2	TP 48-S3	TP 49-S2	TP 50-S1
Date	CCME ^a	YCSR ^b	9/12/2004	9/12/2004	9/12/2004	9/12/2004
Depth (m)	Industrial	Industrial	0.30	1.20	1.40	0.80
Physical Tests						
Moisture %			9.28	8.16	19.2	13.5
pH			-	7.74	-	-
Total Metals						
Antimony T-Sb		40	-	<10	-	-
Arsenic T-As	12	25	-	12.9	-	-
Barium T-Ba	2000	2000	-	87.8	-	-
Beryllium T-Be	-	8	-	0.57	-	-
Cadmium T-Cd	22	25 ^c	-	1.50	-	-
Chromium T-Cr	87	60	-	21.9	-	-
Cobalt T-Co	-	300	-	9.5	-	-
Copper T-Cu	91	250 ^c	-	30.1	-	-
Lead T-Pb	600	2000 ^c	-	<50	-	-
Mercury T-Hg	50	150	-	<0.050	-	-
Molybdenum T-Mo	-	40	-	<4.0	-	-
Nickel T-Ni	50	500	-	27.6	-	-
Selenium T-Se	3.9	10	-	<3.0	-	-
Silver T-Ag		40	-	<2.0	-	-
Tin T-Sn		300	-	<5.0	-	-
Vanadium T-V	130		-	29.0	-	-
Zinc T-Zn	360	600 ^c	-	735	-	-
CCME Hydrocarbon Fractions						
F1 (C6-C10)	310/340		-	-	-	-
F1-BTEX			-	-	-	-
F2 (C10-C16)	760/1800		<30	<30	<30	<30
F2-PAH			<30	-	-	-
F3 (C16-C34)	1700/3500		130	<50	<50	<50
F3-PAH			129	-	-	-
F4 (C34-C50)	3300/10000		86	<50	<50	<50
F4G-sg			<500	-	-	-
F4G-SG Required (yes/no)			yes	no	no	no
Polycyclic Aromatic Hydrocarbons						
Acenaphthene			<0.040	-	-	-
Acenaphthylene			<0.050	-	-	-
Anthracene			<0.050	-	-	-
Benz(a)anthracene		10	<0.050	-	-	-
Benzo(a)pyrene	0.7	10	<0.050	-	-	-
Benzo(b)fluoranthene		10	<0.050	-	-	-
Benzo(g,h,i)perylene			<0.050	-	-	-
Benzo(k)fluoranthene		10	<0.050	-	-	-
Chrysene			<0.050	-	-	-
Dibenz(a,h)anthracene		10	<0.050	-	-	-
Fluoranthene			<0.050	-	-	-
Fluorene			<0.050	-	-	-
Indeno(1,2,3-c,d)pyrene		10	<0.050	-	-	-
2-Methylnaphthalene			0.274	-	-	-
Naphthalene	22	50	0.246	-	-	-
Phenanthrene		50	0.106	-	-	-
Pyrene		100	0.087	-	-	-

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

^c pH dependant - protection of aquatic life applies

Italic results exceeding YCSR Industrial Land Use standards
Bold results exceeding CCME Industrial land use guidelines

"-" = not analyzed

"<" = less than detection limit

Table 10: Coarse Ore Area, Anvil Range Mine, Faro, YT

Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 90-S2	TP 91-S1
Date	CCME ^a	YCSR ^b	9/16/2004	9/16/2004
Depth (m)	Industrial	Industrial	1.50	0.60
Physical Tests				
Moisture %			-	-
pH			7.51	5.93
Total Metals				
Antimony T-Sb		40	<10	<10
Arsenic T-As	12	100	70.9	15.6
Barium T-Ba	2000	2000	119	124
Beryllium T-Be	-	8	0.93	0.80
Cadmium T-Cd	22	500	4.72	26.3
Chromium T-Cr	87	700	44.3	42.4
Cobalt T-Co	-	300	23.3	16.0
Copper T-Cu	91	250	153	51.8
Lead T-Pb	600	2000	2050	620
Mercury T-Hg	50	150	1.87	0.475
Molybdenum T-Mo	-	40	<4.0	<4.0
Nickel T-Ni	50	500	41.9	38.5
Selenium T-Se	3.9	10	<2.0	<2.0
Silver T-Ag		40	2.2	<2.0
Tin T-Sn		300	<5.0	<5.0
Vanadium T-V	130		42.5	45.3
Zinc T-Zn	360	600	3180	18000

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

<i>Italic</i>	results exceeding YCSR Industrial Land Use standards
Bold	results exceeding CCME Industrial land use guidelines
"- " = not analyzed	
"<" = less than detection limit	



Table 11: Reagent Storage Area, Anvil Range Mine, Faro, YT

Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 54-S1	TP 55-S1
Date	CCME ^a	YCSR ^b	9/13/2004	9/13/2004
Depth (m)	Industrial	Industrial	0.70	0.40
Physical Tests				
Moisture %			-	-
pH			7.78	4.21
Total Metals				
Antimony T-Sb		40	<10	<10
Arsenic T-As	12	100	46.1	42.4
Barium T-Ba	2000	2000	122	116
Beryllium T-Be	-	8	0.78	1.22
Cadmium T-Cd	22	500	3.35	2.18
Chromium T-Cr	87	700	37.3	38.7
Cobalt T-Co	-	300	20.9	12.2
Copper T-Cu	91	250	159	142
Lead T-Pb	600	2000	1210	165
Mercury T-Hg	50	150	1.23	0.183
Molybdenum T-Mo	-	40	<4.0	<4.0
Nickel T-Ni	50	500	29.4	40.5
Selenium T-Se	3.9	10	<3.0	<2.0
Silver T-Ag		40	<2.0	<2.0
Tin T-Sn		300	<5.0	<5.0
Vanadium T-V	130		40.8	40.7
Zinc T-Zn	360	600	2250	1770

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

<i>Italic</i>	results exceeding YCSR Industrial Land Use standards
Bold	results exceeding CCME Industrial land use guidelines

"-" = not analyzed

"<" = less than detection limit

Table 12: General Yard Area, Anvil Range Mine, Faro, YT

Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 32-S1	TP 33-S1	TP 38-S1	TP 44-S1	TP 44-S2
Date	CCME ^a	YCSR ^b	9/11/2004	9/11/2004	9/11/2004	9/12/2004	9/12/2004
Depth (m)	Industrial	Industrial	1.00	0.80	0.80	1.10	2.00
Physical Tests							
Moisture %			10.1	5.76	3.67	6.02	-
pH			7.47	7.71	-	-	7.70
Total Metals							
Antimony T-Sb		40	<10	<10	-	-	<10
Arsenic T-As	12	100	46.4	56.8	-	-	55.6
Barium T-Ba	2000	2000	114	264	-	-	110
Beryllium T-Be	-	8	0.89	1.00	-	-	0.77
Cadmium T-Cd	22	500	3.74	2.12	-	-	0.92
Chromium T-Cr	87	700	42.5	43.0	-	-	34.6
Cobalt T-Co	-	300	23.5	20.9	-	-	15.6
Copper T-Cu	91	250	145	152	-	-	93.0
Lead T-Pb	600	2000	1660	876	-	-	835
Mercury T-Hg	50	150	1.37	0.819	-	-	0.576
Molybdenum T-Mo	-	40	<4.0	<4.0	-	-	<4.0
Nickel T-Ni	50	500	41.3	43.8	-	-	31.9
Selenium T-Se	3.9	10	<2.0	<2.0	-	-	<2.0
Silver T-Ag		40	2.7	<2.0	-	-	<2.0
Tin T-Sn		300	<5.0	<5.0	-	-	<5.0
Vanadium T-V	130		49.6	52.2	-	-	36.9
Zinc T-Zn	360	600	2450	1440	-	-	659
CCME Hydrocarbon Fractions							
F1 (C6-C10)	310/340		-	-	-	-	-
F1-BTEX			-	-	-	-	-
F2 (C10-C16)	760/1800		83	74	56	69	-
F3 (C16-C34)	1700/3500		543	227	1150	<50	-
F4 (C34-C50)	3300/10000		147	66	252	<50	-
F4G-sg			-	-	-	-	-
F4G-SG Required (yes/no)			no	no	no	no	-

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

<i>Italic</i>	results exceeding YCSR Industrial Land Use standards
Bold	results exceeding CCME Industrial land use guidelines
"-"	not analyzed
"<"	less than detection limit



Table 13: Lube Shack, Anvil Range Mine - Vangorda Plateau, Faro, YT

Soil Analysis Results (mg/kg)													
Location	Guideline/Standard		TP 56-S1	TP 56-S2	TP 56-S3	TP 57-S1	TP 57-S2	TP 58-S2	TP 59-S1	TP 60-S1	TP 61-S2	TP 62-S3	TP 63-S2
Date	CCME ^a	YCSR ^b	9/14/2004	9/14/2004	9/14/2004	9/14/2004	9/14/2004	9/14/2004	9/14/2004	9/14/2004	9/14/2004	9/14/2004	9/14/2004
Depth (m)	Industrial	Industrial	0.90	1.60	2.80	0.90	1.80	1.70	0.50	0.70	1.80	2.80	2.00
Physical Tests													
Moisture %			6.09	-	11.6	-	6.06	10.5	6.01	4.69	5.07	8.25	10.6
pH			-	7.89	-	8.20	-	-	-	-	-	-	-
Total Metals													
Antimony T-Sb		40	-	<10	-	<10	-	-	-	-	-	-	-
Arsenic T-As	12	100	-	42.5	-	33.7	-	-	-	-	-	-	-
Barium T-Ba	2000	2000	-	152	-	226	-	-	-	-	-	-	-
Beryllium T-Be	-	8	-	<0.50	-	0.54	-	-	-	-	-	-	-
Cadmium T-Cd	22	500	-	1.20	-	0.54	-	-	-	-	-	-	-
Chromium T-Cr	87	700	-	21.6	-	41.7	-	-	-	-	-	-	-
Cobalt T-Co	-	300	-	11.1	-	11.9	-	-	-	-	-	-	-
Copper T-Cu	91	250	-	30.8	-	35.7	-	-	-	-	-	-	-
Lead T-Pb	600	2000	-	173	-	154	-	-	-	-	-	-	-
Mercury T-Hg	50	150	-	0.135	-	0.258	-	-	-	-	-	-	-
Molybdenum T-Mo	-	40	-	<4.0	-	<4.0	-	-	-	-	-	-	-
Nickel T-Ni	50	500	-	30.2	-	40.7	-	-	-	-	-	-	-
Selenium T-Se	3.9	10	-	<2.0	-	<2.0	-	-	-	-	-	-	-
Silver T-Ag		40	-	<2.0	-	<2.0	-	-	-	-	-	-	-
Tin T-Sn		300	-	<5.0	-	<5.0	-	-	-	-	-	-	-
Vanadium T-V	130		-	28.2	-	45.6	-	-	-	-	-	-	-
Zinc T-Zn	360	600	-	311	-	106	-	-	-	-	-	-	-
Halogenated Volatiles													
Carbon Tetrachloride		50	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
Chlorobenzene		10	<0.095	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
Chloroethane			<0.10	-	-	-	-	-	<0.10	-	<0.10	-	<0.10
Chloromethane			<0.10	-	-	-	-	-	<0.10	-	<0.10	-	<0.10
1,2-Dichlorobenzene		10	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
1,3-Dichlorobenzene		10	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
1,4-Dichlorobenzene		10	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
1,1-Dichloroethane		50	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
1,2-Dichloroethane		50	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
cis-1,2-Dichloroethylene			<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
trans-1,2-Dichloroethylene			<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
1,1-Dichloroethylene			<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
Dichloromethane		50	<0.10	-	-	-	-	-	<0.15	-	<0.10	-	<0.20
1,2-Dichloropropane		50	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
cis-1,3-Dichloropropylene		50	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
trans-1,3-Dichloropropylene		50	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
1,1,1,2-Tetrachloroethane			<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
1,1,2,2-Tetrachloroethane			<3.0	-	-	-	-	-	<0.20	-	<0.050	-	<0.050
Tetrachloroethylene	0.6	50	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
1,1,1-Trichloroethane		50	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
1,1,2-Trichloroethane		50	<3.0	-	-	-	-	-	<0.060	-	<0.050	-	<0.050
Trichloroethylene	31	0.65	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
Trichlorofluoromethane			<0.10	-	-	-	-	-	<0.10	-	<0.10	-	<0.10
Vinyl Chloride			<0.10	-	-	-	-	-	<0.10	-	<0.10	-	<0.10
Trihalomethanes													
Bromodichloromethane			<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
Bromoform			<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
Chloroform			<0.10	-	-	-	-	-	<0.10	-	<0.10	-	<0.10
Dibromochloromethane			<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
Non-Halogenated Volatiles													
Benzene	5	150	<0.040	-	-	-	-	-	<0.040	-	<0.040	-	<0.040
Ethylbenzene	20	20	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
Methyl t-butyl ether (MTBE)			<0.20	-	-	-	-	-	<0.20	-	<0.20	-	<0.20
Styrene		50	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
Toluene	0.8	25	<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
meta- & para-Xylene			0.052	-	-	-	-	-	0.070	-	<0.050	-	<0.050
ortho-Xylene			<0.050	-	-	-	-	-	<0.050	-	<0.050	-	<0.050
Total Xylenes	20	50	<0.10	-	-	-	-	-	<0.10	-	<0.10	-	<0.10
TVH5-10			750	-	-	-	-	-	<100	-	<100	-	<100
VPH		200	750	-	-	-	-	-	<100	-	<100	-	<100
CCME Hydrocarbon Fractions													
F1 (C6-C10)	310/340		371	-	-	-	-	-	31	-	<10	-	<10
F1-BTEX			371	-	-	-	-	-	31	-	<10	-	<10
F2 (C10-C16)	760/1800		4500	-	73	-	<30	<30	1120	207	113	<30	<30
F3 (C16-C34)	1700/3500		2680	-	<50	-	<50	<50	<500	273	<55	<50	<50
F4 (C34-C50)	3300/10000		69	-	<50	-	<50	<50	<50	<50	<55	<50	<50
F4G-sg			-	-	-	-	-	-	-	-	-	-	-
F4G-SG Required (yes/no)			no	-	no	-	no	no	no	no	no	no	no

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)
^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

Italic
Bold

results exceeding YCSR Industrial Land Use standards
results exceeding CCME Industrial land use guidelines

"-"= not analyzed
"<" = less than detection limit



Table 14: Tank Farm, Anvil Range Mine - Vangorda Plateau, Faro, YT

Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 64-S1	TP 64-S1A ^c	TP 64-S3	TP 65-S3	TP 66-S3	TP 67-S3	TP 68-S2	TP 69-S2
Date	CCME ^a	YCSR ^b	9/14/2004	9/14/2004	9/14/2004	9/14/2004	9/14/2004	9/15/2004	9/15/2004	9/15/2004
Depth (m)	Industrial	Industrial	0.60	0.60	3.10	3.00	2.70	2.50	1.70	2.30
Physical Tests										
Moisture %			10.2	10.4	10.7	10.9	8.03	9.97	11.1	10.2
pH			-	-	-	-	-	-	-	-
Non-Halogenated Volatiles										
Benzene	5	150	<0.040	<0.040	0.054	<0.040	<0.040	-	-	-
Ethylbenzene	20	20	0.868	2.25	4.98	2.16	<0.050	-	-	-
Methyl t-butyl ether (MTBE)			-	-	-	-	-	-	-	-
Styrene		50	<0.070	<0.20	<0.60	<0.20	<0.050	-	-	-
Toluene	0.8	25	0.249	0.992	1.95	0.103	<0.050	-	-	-
meta- & para-Xylene			4.58	10.6	26.8	5.27	<0.050	-	-	-
ortho-Xylene			2.59	6.41	17.3	5.24	<0.050	-	-	-
Total Xylenes	20	50	7.17	17.0	44.2	10.5	<0.10	-	-	-
TVH5-10			420	880	1970	780	<100	-	-	-
VPH		200	410	860	1920	770	<100	-	-	-
CCME Hydrocarbon Fractions										
F1 (C6-C10)	310/340		251	457	714	406	17	-	-	-
F1-BTEX			242	437	662	393	17	-	-	-
F2 (C10-C16)	760/1800		3480	3890	6200	1970	111	<30	30	40
F2-PAH			-	-	6200	1960	111	-	-	-
F3 (C16-C34)	1700/3500		809	660	835	<500	<50	<50	<50	<55
F3-PAH			-	-	834	<500	<50	-	-	-
F4 (C34-C50)	3300/10000		<50	<50	<50	<50	<50	<50	<50	<55
F4G-sg			-	-	-	-	-	-	-	-
F4G-SG Required (yes/no)			no	no	no	no	no	no	no	no
Glycols										
Diethylene Glycol			<10	<10	-	<10	<10	-	<10	<10
Ethylene Glycol		20000	<10	<10	-	<10	<10	-	<10	<10
1,2-Propylene Glycol			<10	<10	-	<10	<10	-	<10	<10
Polycyclic Aromatic Hydrocarbons										
Acenaphthene			-	-	<0.60	<0.25	<0.040	-	-	-
Acenaphthylene			-	-	<0.15	<0.15	<0.050	-	-	-
Anthracene			-	-	<0.060	<0.050	<0.050	-	-	-
Benz(a)anthracene		10	-	-	<0.050	<0.050	<0.050	-	-	-
Benzo(a)pyrene	0.7	10	-	-	<0.050	<0.050	<0.050	-	-	-
Benzo(b)fluoranthene		10	-	-	<0.050	<0.050	<0.050	-	-	-
Benzo(g,h,i)perylene			-	-	<0.050	<0.050	<0.050	-	-	-
Benzo(k)fluoranthene		10	-	-	<0.050	<0.050	<0.050	-	-	-
Chrysene			-	-	<0.050	<0.050	<0.050	-	-	-
Dibenz(a,h)anthracene		10	-	-	<0.050	<0.050	<0.050	-	-	-
Fluoranthene			-	-	<0.050	<0.050	<0.050	-	-	-
Fluorene			-	-	0.967	0.327	<0.050	-	-	-
Indeno(1,2,3-c,d)pyrene		10	-	-	<0.050	<0.050	<0.050	-	-	-
2-Methylnaphthalene			-	-	33.3	17.1	0.090	-	-	-
Naphthalene	22	50	-	-	16.5	8.31	0.082	-	-	-
Phenanthrene		50	-	-	1.19	0.059	<0.050	-	-	-
Pyrene		100	-	-	0.097	<0.050	<0.050	-	-	-

Notes: ^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

^c field duplicate sample

Italic results exceeding YCSR Industrial Land Use standards
Bold results exceeding CCME Industrial land use guidelines

"-" = not analyzed

"<" = less than detection limit



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Table 15: Maintenance Shop, Anvil Range Mine - Vangorda Plateau, Faro, YT

Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 73-S1	TP 74-S2	TP 75-S2
Date	CCME ^a	YCSR ^b	9/15/2004	9/15/2004	9/15/2004
Depth (m)	Industrial	Industrial	0.50	1.40	1.50
Physical Tests					
Moisture %			5.68	3.82	4.86
pH			-	8.35	-
Total Metals					
Antimony T-Sb		40	-	<10	-
Arsenic T-As	12	100	-	8.9	-
Barium T-Ba	2000	2000	-	65.5	-
Beryllium T-Be	-	8	-	0.58	-
Cadmium T-Cd	22	500	-	<0.50	-
Chromium T-Cr	87	700	-	30.2	-
Cobalt T-Co	-	300	-	20.6	-
Copper T-Cu	91	250	-	41.6	-
Lead T-Pb	600	2000	-	<50	-
Mercury T-Hg	50	150	-	<0.050	-
Molybdenum T-Mo	-	40	-	<4.0	-
Nickel T-Ni	50	500	-	38.9	-
Selenium T-Se	3.9	10	-	<4.0	-
Silver T-Ag		40	-	<2.0	-
Tin T-Sn		300	-	<5.0	-
Vanadium T-V	130		-	22.7	-
Zinc T-Zn	360	600	-	86.5	-
CCME Hydrocarbon Fractions					
F1 (C6-C10)	310/340		-	-	-
F1-BTEX			-	-	-
F2 (C10-C16)	760/1800		<30	<30	<30
F3 (C16-C34)	1700/3500		<50	<50	<50
F4 (C34-C50)	3300/10000		<50	<50	<50
F4G-sg			-	-	-
F4G-SG Required (yes/no)			no	no	no

Notes:

^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

<i>Italic</i>	results exceeding YCSR Industrial Land Use standards
Bold	results exceeding CCME Industrial land use guidelines
-	"-" = not analyzed
<	"<" = less than detection limit



Table 16: Gasoline Tank Area, Anvil Range Mine - Vangorda Plateau, Faro, YT
Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 70-S1	TP 71-S2	TP 72-S2	TP 76-S2	TP76-S3
Date	CCME ^a	YCSR ^b	9/15/2004	9/15/2004	9/15/2004	9/15/2004	9/16/2004
Depth (m)	Industrial	Industrial	0.80	1.10	1.50	0.80	1.80
Physical Tests							
Moisture %			9.57	9.82	10.3	8.97	2.73
pH			6.59	8.19	-	-	-
Total Metals							
Antimony T-Sb		40	<10	<10	-	-	-
Arsenic T-As	12	100	18.4	44.7	-	-	-
Barium T-Ba	2000	2000	178	101	-	-	-
Beryllium T-Be	-	8	<0.50	0.73	-	-	-
Cadmium T-Cd	22	500	<0.50	<0.50	-	-	-
Chromium T-Cr	87	700	30.4	20.1	-	-	-
Cobalt T-Co	-	300	10.9	38.7	-	-	-
Copper T-Cu	91	250	28.8	28.7	-	-	-
Lead T-Pb	600	2000	64	55	-	-	-
Mercury T-Hg	50	150	0.066	<0.050	-	-	-
Molybdenum T-Mo	-	40	<4.0	<4.0	-	-	-
Nickel T-Ni	50	500	32.9	48.4	-	-	-
Selenium T-Se	3.9	10	<3.0	<3.0	-	-	-
Silver T-Ag		40	<2.0	<2.0	-	-	-
Tin T-Sn		300	<5.0	<5.0	-	-	-
Vanadium T-V	130		28.6	20.9	-	-	-
Zinc T-Zn	360	600	64.4	60.3	-	-	-
Non-Halogenated Volatiles							
Benzene	5	150	-	<0.040	<0.040	<0.040	<0.040
Ethylbenzene	20	20	-	<0.050	<0.050	<0.050	<0.050
Methyl t-butyl ether (MTBE)			-	-	-	-	-
Styrene		50	-	<0.050	<0.050	<0.050	<0.050
Toluene	0.8	25	-	<0.050	<0.050	<0.050	<0.060
meta- & para-Xylene			-	<0.050	<0.050	<0.050	<0.050
ortho-Xylene			-	<0.050	<0.050	<0.050	<0.050
Total Xylenes	20	50	-	<0.10	<0.10	<0.10	<0.10
TVH5-10			-	<100	<100	<100	
VPH		200	-	<100	<100	<100	
CCME Hydrocarbon Fractions							
F1 (C6-C10)	310/340		-	<10	<10	<10	<10
F1-BTEX			-	<10	<10	<10	<10
F2 (C10-C16)	760/1800		<30	<30	34	36	46
F3 (C16-C34)	1700/3500		<50	<50	<50	<50	<50
F4 (C34-C50)	3300/10000		<50	<50	<50	<50	-
F4G-Sg			-	-	-	-	<50
F4G-SG Required (yes/no)			no	no	no	no	no

Notes:

^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

Italic results exceeding YCSR Industrial Land Use standards
Bold results exceeding CCME Industrial land use guidelines
 "-." = not analyzed
 "<" = less than detection limit



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Table 17: Hot Line, Anvil Range Mine - Vangorda Plateau, Faro, YT

Soil Analysis Results (mg/kg)

Location	Guideline/Standard		TP 77-S2	TP 78-S1	TP 79-S1	TP 79-S2
Date	CCME ^a	YCSR ^b	9/15/2004	9/15/2004	9/15/2004	9/15/2004
Depth (m)	Industrial	Industrial	1.50	0.80	0.80	1.70
Physical Tests						
Moisture %			11.5	5.07	-	10.1
pH			-	8.04	8.22	-
Total Metals						
Antimony T-Sb		40	-	<10	<10	-
Arsenic T-As	12	100	-	52.6	33.9	-
Barium T-Ba	2000	2000	-	99.5	133	-
Beryllium T-Be	-	8	-	<0.50	<0.50	-
Cadmium T-Cd	22	500	-	0.66	<0.50	-
Chromium T-Cr	87	700	-	26.8	27.4	-
Cobalt T-Co	-	300	-	24.1	21.9	-
Copper T-Cu	91	250	-	73.3	45.8	-
Lead T-Pb	600	2000	-	199	107	-
Mercury T-Hg	50	150	-	0.107	0.057	-
Molybdenum T-Mo	-	40	-	4.9	<4.0	-
Nickel T-Ni	50	500	-	57.6	54.6	-
Selenium T-Se	3.9	10	-	<2.0	<2.0	-
Silver T-Ag		40	-	<2.0	<2.0	-
Tin T-Sn		300	-	<5.0	<5.0	-
Vanadium T-V	130		-	27.1	25.3	-
Zinc T-Zn	360	600	-	359	304	-
CCME Hydrocarbon Fractions						
F1 (C6-C10)	310/340		-	-	-	-
F1-BTEX			-	-	-	-
F2 (C10-C16)	760/1800		58	<30	-	30
F3 (C16-C34)	1700/3500		<50	<50	-	<50
F4 (C34-C50)	3300/10000		<50	<50	-	<50
F4G-sg			-	-	-	-
F4G-SG Required (yes/no)			no	no	-	no

Notes:

^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

<i>Italic</i>	results exceeding YCSR Industrial Land Use standards
Bold	results exceeding CCME Industrial land use guidelines
-	"-" = not analyzed
<	"<" = less than detection limit



Table 18: Contractor Yard, Anvil Range Mine - Vangorda Plateau, Faro, YT

Soil Analysis Results (mg/kg)								
Location	Guideline/Standard		TP 80-S3	TP 80-S3A ^a	TP 81-S2	TP 82-S3	TP 83-S1	TP 84-S2
Date	CCME ^a	YCSR ^b	9/15/2004	9/15/2004	9/15/2004	9/15/2004	9/15/2004	9/15/2004
Depth (m)	Industrial	Industrial	2.60	2.60	1.50	2.50	0.70	1.70
Physical Tests								
Moisture %			8.57	7.33	19.0	12.4	5.23	6.77
pH			8.45	8.35	-	-	8.38	8.27
Total Metals								
Antimony T-Sb		40	<10	<10	-	-	<10	<10
Arsenic T-As	12	100	108	88.0	-	-	72.7	114
Barium T-Ba	2000	2000	119	129	-	-	82.0	180
Beryllium T-Be	-	8	<0.50	<0.50	-	-	<0.50	<0.50
Cadmium T-Cd	22	500	<0.50	0.50	-	-	<0.50	0.85
Chromium T-Cr	87	700	26.9	26.5	-	-	53.3	24.9
Cobalt T-Co	-	300	17.2	18.0	-	-	19.6	19.4
Copper T-Cu	91	250	38.7	40.3	-	-	46.0	37.5
Lead T-Pb	600	2000	73	110	-	-	74	186
Mercury T-Hg	50	150	0.052	0.083	-	-	0.090	0.253
Molybdenum T-Mo	-	40	4.0	4.3	-	-	<4.0	4.9
Nickel T-Ni	50	500	38.9	40.0	-	-	63.0	39.9
Selenium T-Se	3.9	10	<2.0	<3.0	-	-	<2.0	<2.0
Silver T-Ag		40	<2.0	<2.0	-	-	<2.0	<2.0
Tin T-Sn		300	<5.0	<5.0	-	-	<5.0	<5.0
Vanadium T-V	130		41.4	40.4	-	-	44.9	41.6
Zinc T-Zn	360	600	149	176	-	-	204	469
Non-Halogenated Volatiles								
Benzene	5	150	<0.040	<0.040	-	-	-	<0.040
Ethylbenzene	20	20	0.061	0.073	-	-	-	<0.050
Methyl t-butyl ether (MTBE)			-	-	-	-	-	-
Styrene		50	<0.050	<0.050	-	-	-	<0.050
Toluene	0.8	25	<0.050	<0.050	-	-	-	<0.050
meta- & para-Xylene			0.340	0.374	-	-	-	<0.050
ortho-Xylene			0.298	0.334	-	-	-	<0.050
Total Xylenes	20	50	0.64	0.71	-	-	-	<0.10
TVH5-10			<100	110	-	-	-	<100
VPH		200	<100	110	-	-	-	<100
CCME Hydrocarbon Fractions								
F1 (C6-C10)	310/340		56	80	-	-	-	<10
F1-BTEX			55	80	-	-	-	<10
F2 (C10-C16)	760/1800		1000	1000	<33	<33	<33	<30
F2-PAH			1000	999	-	-	-	-
F3 (C16-C34)	1700/3500		582	710	134	59	125	362
F3-PAH			581	709	-	-	-	-
F4 (C34-C50)	3300/10000		<55	<55	82	<55	<55	93
F4G-Sg			-	-	<500	-	-	-
F4G-SG Required (yes/no)			no	no	yes	no	no	no
Polycyclic Aromatic Hydrocarbons								
Acenaphthene			<0.20	<0.20	-	-	-	-
Acenaphthylene			<0.070	<0.050	-	-	-	-
Anthracene			<0.050	0.061	-	-	-	-
Benz(a)anthracene		10	<0.050	<0.050	-	-	-	-
Benzo(a)pyrene	0.7	10	<0.050	<0.050	-	-	-	-
Benzo(b)fluoranthene		10	<0.050	<0.050	-	-	-	-
Benzo(g,h,i)perylene			<0.050	<0.050	-	-	-	-
Benzo(k)fluoranthene		10	<0.050	<0.050	-	-	-	-
Chrysene			<0.050	<0.050	-	-	-	-
Dibenz(a,h)anthracene		10	<0.050	<0.050	-	-	-	-
Fluoranthene			<0.050	<0.050	-	-	-	-
Fluorene			0.334	0.328	-	-	-	-
Indeno(1,2,3-c,d)pyrene		10	<0.050	<0.050	-	-	-	-
2-Methylnaphthalene			4.23	3.90	-	-	-	-
Naphthalene	22	50	1.53	1.51	-	-	-	-
Phenanthrene		50	0.653	0.686	-	-	-	-
Pyrene		100	0.052	0.068	-	-	-	-

Notes:

^a CCME Canadian Council of Ministers of the Environment - Canadian Environmental Quality Guidelines, 1999 (updated 2001)

^b Yukon Territory Environment. Contaminated Sites Regulations, 2002/171

^c field duplicate sample

Italic results exceeding YCSR Industrial Land Use standards
Bold results exceeding CCME Industrial land use guidelines

"-"= not analyzed

"<" = less than detection limit